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013-763



GOVERNMENT OF KERALA

**THE ANNUAL REPORT
ON
SAMPLE REGISTRATION SYSTEM
IN KERALA (RURAL)
1990**

**DEPARTMENT OF ECONOMICS AND 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 1990. 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 and Statistics.

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Thiruvananthapuram,
11.10.1993.

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SAMPLE REGISTRATION OF BIRTHS AND DEATHS IN KERALA (RURAL) 1990

Chapter 1 - Introduction

The Sample Registration System which is a dual record system provides reliable vital rates at the national and State level separately for urban and rural areas. The deficiencies in Civil Registration System have made the Sample Registration System as a unique technique for obtaining reliable vital rates. The Department of Economics and Statistics and the Census Department are the implementing agencies of the study in the rural and urban sectors respectively of the state as per the directions from the Registrar General of India. This report is based on the findings of the operation of the Sample Registration System in the 150 samples selected in the rural sector for the year 1990.

The Sample Registration System was introduced in the State during 1964-'65 as a pilot project in 20 rural and 5 urban sample units. The full-fledged scheme was introduced on a regular basis by extending the survey in 150 rural samples in the State on 1st July 1965. The samples originally selected were retained upto the year 1982. Out of 150 rural samples, 75 samples were replaced during the year 1982 and the remaining 75 samples by the year 1983 for the survey. The rural samples were selected after stratifying the villages into 4 types according to population of 1981 census such as below 500, 500 - 999, 1000 - 1999 and 2000 and above in the two regions of the State namely northern region consisting of northern districts beyond Thrissur and Southern region consisting of the remaining districts from Thiruvananthapuram to Thrissur. The allocation of the samples in different strata was in proportion to the population of each stratum 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 36 appended to the report.

1.2 Staff engaged in the survey:-

The field work for netting all the births and deaths occurred in each sample was carried out by 150 part-time enumerators appointed for the purpose and the details were reported to this office in each month. The half-yearly surveys in these 150 selected samples were conducted by 16 Statistical Assistants/Computers deputed from the Census Department. The Additional District Officers of this Department in each district supervised the field work and conducted the reverification of the unmatched and partially matched events. At the State Headquarters one Regional Officer, One Research Assistant, One Computer from Census Department and two Compilers attended the Sample Registration work.

1.3. Field work:-

To start with, a base line survey was conducted in all the selected 150 sample units to identify and fix the resident population. The births and deaths occurring in these units for the resident population were registered by the part-time enumerators on a regular basis through informants and house visits and the details reported to the District Office and State headquarters for each month. The Computer Supervisor/Statistical Assistants conducted the half yearly survey for

updating the population and collected the details of births and deaths occurred in each sample. These two sets of data collected independantly by the Enumerator and by the Supervisor were matched at the district head-quarters for identifying the unmatched and partially matched events. The additional District Officer in the District Offices conducted re-verification of these unmatched and partially matched events and then finalised the survey results for furnishing to the State head-quarters. These results were subjected to further scrutiny and one copy of each of the birth and death and population statements containing the details were forwarded to the Registrar General of India for computation of vital rates.

1.4 Overlapping survey:-

The supervisors while conducting the half-yearly survey, collected the details of the births and deaths occurred during the previous half year also to find out the missed events if any which the enumerator as well as the supervisor had failed to record. Thus 77 births and 23 deaths were detected during the year as the events for extended reference period.

1.5 Intensive enquiry:-

An intensive enquiry in all the households of the sample was conducted in 20 units, including the 15 units selected by the Registrar General of India, identified as deficient units, by the Additional District Officers of this department for the year. Through this enquiry 4 extra events in respect of births for the year 1990 were detected.

Chapter 2

2.1 Populations and its growth:-

The rural population of Kerala was estimated as 2,31,37,992 on 1.7.1990 and as 2,32,30,965 on 1.1.1991 recording an increase of 0.40 percent during the second half of 1990 as against 0.49 percent recorded for the corresponding period of 1989. The increase in population during the period in northern region was 0.88 percent as against 0.64 percent and in the southern region 0.05 percent as against 0.38 percent of the corresponding period of the previous year respectively. An increase of 1.33 percent is recorded in the mid-year population 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, 1989 and 1990 are presented in Table - 5 appended to this report. The sex-ratio is seen decreased from 1056 in 1989 to 1055. The sex-ratio in northern region (1062) was higher than that of the southern region (1050) for the year under report. Children below the age of 14 form 30.8% of the total rural population which again shows a decreasing trend.

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

The percentage of estimated population of Hindus, Muslims and Christians for the year constitute 57.4, 20.9 and 21.7 respectively whereas the corresponding percentages for 1989 were 57.6, 20.7 and 21.7 respectively.

Chapter 3 - Measures of fertility

3.1 Crude birth rate:-

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

For the year 1990 the crude birth rate of Kerala (rural) was estimated as 19.55 showing a decrease of 0.64 compared to the previous year. The birth rate is lower in southern region than in northern region. The birth rate in southern and northern regions were estimated as 17.76 and 21.97 respectively whereas the corresponding figures for 1989 were 18.38 and 22.66. The birth rate among rural population of Kerala and India for the years 1983 to 1990 are given in the following table.

Table A1 - Crude birth rate for Kerala (Rural) and India (Rural) for the year 1983 to 1990

Year	Kerala Rural		India Rural	
	Northern Region	Southern Region	Total	
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	17.8	19.6	31.7

The birth rate for the year 1990 was lower by 0.6 than the previous year. Both northern and southern regions showed a decreasing trend in birth rate. The birth rate in both the regions is seen decreased by 0.7 and 0.6 respectively.

3.2. Birth rates of neighbouring states:-

The birth rates for rural along and rural urban together estimated for the year 1990 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 1990

State	Rural	Rural & Urban combined
1	2	3
Andhra Pradesh	26.6	26.3
Karnataka	29.0	28.0
Tamil Nadu	21.8	21.6
Kerala	19.6	19.6
All India	31.7	30.2

Comparing the birth rates in rural areas, Kerala as in the previous years recorded the lowest birth rate of 19.6. The Karnataka state recorded the highest birth rate of 29 followed by Andhra Pradesh (26.6) and Tamil Nadu (21.8).

3.3 Birth rates by religion:-

The birth rates among the three major religions of the State viz. Hindus, Muslims and Christians in rural areas of the State for the year 1990 estimated separately for northern and southern regions are given in table 18 appended.

The birth rate among all the three religions shows a decreasing trend during the year under report. The estimated birth rates were 17.5, 27.4 and 17.4 for Hindus, Muslims and Christians respectively whereas the corresponding rates for the previous year were 18.0, 29.1 and 17.4. The highest birth rate 27.4 was recorded for the Muslim community which form only 20.9 percent of the total population. The Hindus and Christians formed 57.4 percent and 21.7 percent of the total population. Higher birth rate was recorded among the Hindus (18.4) and Muslims (29.4) in the northern region where as the birth rate 17.5 was higher in the southern region for the Christian community. The lowest birth rate was recorded by Christians and the highest birth rate was recorded by Muslims of the northern region. For the southern region the Hindus recorded the lowest birth rate (16.9). The estimated number of religion-wise and region-wise births and deaths are given in Table 36 appended.

3.4 Distribution of sample villages under different birth rates:-

The distribution of sample villages by crude birth rate for the years 1988, 1989 and 1990 are presented in Table 16 appended. The birth rate for the State 19.6 during the year found place in the group 16 and less than 20. The previous year's birth rate 20.2 found place in the next group ie. 20 and less than 24. Out of the 61 samples of the northern regions 28 samples (45.9%) and out of 89 samples in the southern region 62 samples (69.7%) had the birth rate below 20. One sample in the northern region recorded the highest birth rate which falls in the group 36 and less than 40. Eight samples in the same region were having the birth rate above 28. Five samples in southern region recorded the lowest birth rate (less than 12) during the year under report. The birth rates in the rural samples in southern region

were comparatively low, the northern region ranged from 12 to 38 whereas the birth rate of samples in southern region from 7 to 26.

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 a specific age-group. Age specific fertility rates for the year 1990 are given separately for the two regions in Table 12 appended. Age-specific fertility rates for the year 1983 to 1990 are given in Table A3 for comparing the rates.

Table A3 - Age specific fertility rate in Kerala - rural
for the year 1983 - 1990

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

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 1990 is given in Table 12. The highest marital fertility rate 291.7 during the year is seen recorded in the age group (20-24) as against 300.7 for the previous year in the same age-group.

3.7 No.of surviving children and childrens ever born in different age group:-

The religion-wise number of surviving children to currently married women in different age-group from 15-19 to 45-49 is given in table 9 appended.

The number of children ever born to currently married women and age of last child in different age group are given in table 10 and 11 appended.

3.8 General Fertility Rate (G.F.R):-

The General Fertility Rate, is the number of live births in an year to 1000 women in the reproductive age-group 15-49. General Fertility Rates for the two regions separately for the year 1989 and 1990 are given below.

	1990	1989
Northern Region	80.9	83.6
Southern Region	62.1	64.2
State	69.8	72.2

G.F.R. for the years 1983 to 1990 are shown below:-

G.F.R.	1983	1984	1985	1986	1987	1988	1989	1990
	87.1	87.5	84.4	81.0	77.4	71.5	72.2	69.8

3.9 Total Fertility Rate (T.F.R):-

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 through her child bearing years conforming to the age-specific fertility rates of the year. The total fertility rates for the two regions for 1989 and 1990 are given below.

	1989	1990
Northern Region	2.37	2.26
Southern Region	1.74	1.68
State	2.00	1.92

For the period from 1983 to 1990 the T.F.R of Kerala showed a decreasing trend. The rates are noted below.

T.F.R	1983	1984	1985	1986	1987	1988	1989	1990
	2.6	2.6	2.4	2.3	2.2	2.0	2.0	1.9

3.10 Gross Reproduction Rate (G.R.R):-

Gross Reproduction Rate is defined as the average number of female children that would be born to a women 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 1990 are given below.

G.R.R	1983	1984	1985	1986	1987	1988	1989	1990
	1.2	1.3	1.2	1.1	1.1	1.0	0.95	0.92

3.11 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 (L_x/l_x) and then repeating the process as in gross production rate. Net reproduction rate for the years 1983 to 1990 are given below.

N.R.R.	1983	1984	1985	1986	1987	1988	1989	1990
	1.15	1.26	1.20	1.09	1.05	1.00	0.95	0.91

3.12 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 8.6 for the year as against 10.6 for the previous year. Still birth rates for northern and southern regions were estimate as 9.87 and 7.38 respectively. Even though the still birth rate for the state during the year was lower by 2.0 than that for the previous year, the still birth rate in the southern region was found higher by 0.5 than that in 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. Out of the total births 78.3 percent of births come under the 1st and 2nd orders of birth and 13.2 percent births under 3rd order birth. The corresponding percentages for the previous years were 76.4 and 13.7 respectively. The birth under seventh order and above during the year was 1.3 percent as against 1.8 percent of the previous year.

3.14 Birth by type of medical attention received:-

The percentage distribution of births by type of medical attention received during the year 1983 to 1990 are given in table number A4.

Table A4 - Percentage distribution of births by type of medical attention received during the period 1983 - 1990

Year	Institutional	Trained professional	Untrained professional	Non-professional	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
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

It was observed that the number of people utilising the institutional facilities provided for maternal and child health increased year by year. About 89.1 percent of the birth took place in Medical Institutions during 1990 where as the corresponding percentage for the previous year was 86.0. The distribution of number of births by

various medical attention received is given in Table 14 appended. The people of southern region utilised the institutional facilities more than those of the northern region, 79.5 percent people of the northern region and 98.1 percent people of the southern region availed of the institutional medical facilities during the year where as the corresponding percentages for the previous year were 74.4 and 96.9. The services of untrained professionals were utilised by 10.4 percent of people of the northern region and 1.1 percent people of the southern region during the year as against 12.6 and 1.4 percent respectively during the previous year.

3.15 Sex ratio at birth:-

The sex-ratio can be defined as the number of male children born to 100 female children. Sex-ratio at birth for the year 1983 to 1989 are given below.

Sex-Ratio	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
	108.7	100.8	100.2	110.7	104.2	99.3	111.3	109.3

Sex-ratio at birth in northern region and southern region were 112.6 and 106.4 respectively as against 107.4 and 115.0 respectively during the previous year.

3.16 Child - women ratio (C.W.R):-

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 of (0-4) : 2384817

Estimated number of women in the age group (15-49) : 6479091

Child-women ratio for the years 1983 to 1990 are given below.

C.W.R.	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
	400	390	377	378	383	376	368	368

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. On comparing the vital rates obtained under these two systems it is seen that a considerable number of births and deaths are left un-registered 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 1990 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 in Civil Registration System.

Table A5 - Vital rates under Civil Registration System and Sample Registration System in Kerala (Rural) for the years 1983 to 1990

Year	Birth rate		Still Birth Rate	
	Civil Regi- stration	Sample Regi- stration	Civil Regi- stration	Sample Re- gistration
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	*11.4	19.6	*2.5	8.6

* Provisionsal.

3.18 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 - 31 appended. The highest rate of first marriage in the case of female (63.8) was in the age group 20-24 and that for males (67.6) is in the age group 25-29. During the previous year the corresponding rates were 67.8 and 64.8 in the respective age groups. The rates of marriage of females in the age groups 15-19 and 20-24 during the year under report were lower by 2.1 and 4.0 than in the previous year whereas the rate of marriage among males in the age group 20-24 showed a decrease of 5.5 and an increase of 2.7 in the age group 25-29 than in the previous year. Of the total marriages the percentage of re-marriage was 3.1 as against 3.2 percent of the previous year. The mean age at marriage was changed from last years 27.2 to 27.5 during the year for males. In the case of females the mean age of marriage remain (22.4) the same as in the previous year.

Chapter 4 - Mortality Measures

4.1 Crude Death Rate:-

The number of deaths per 1000 of mid-year population is taken as the crude death rate. The deaths occurred to the usual residents of the area were considered for calculating the death rate as was done in the

calculation of birth rate. The crude death rate for the year in Kerala (rural) was 6.0 as against 6.1 during the previous year. The death rates in northern region and southern region were 5.7 and 6.2 respectively. The crude birth rate for Kerala (rural) and All India (rural) for the year 1983 to 1990 are given in Table B1 below.

Table B1 - Crude death rates in Kerala Rural and All India rural for the year 1983 to 1990

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

4.2 Death rates of neighbouring states:-

The death rates in rural area and rural and urban areas combined provisionally for the year 1990 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
Andhra Pradesh	9.7	9.1
Karnataka	8.8	8.1
Tamil Nadu	9.6	8.5
Kerala	6.0	6.0
All India	10.4	9.6

Comparing the death rates in rural areas of the neighbouring States, Andhra Pradesh recorded the highest death rate (9.7) while Kerala recorded the lowest rate 6.0 during the year.

4.3 Death rate among religions:-

The death rates among the three religions viz. Hindus, Muslims and Christians are given in Table 18 appended.

The highest death rate of 6.6 recorded among the Hindus of the southern region during 1990 whereas in 1989 the highest death rate of 6.5 was recorded among the Hindus of northern region. The lowest rate of death (3.5) was recorded among the Christians of northern region as in the previous year. The death rate for rural areas of the State among Hindus increased from 6.4 in 1989 to 6.5 during 1990, among Muslims it decreased from 5.5 to 4.9 and in the case of Christians the rate showed a slight change (ie. from 5.6 to 5.7) 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-groups according to region and sex are given in Table - 21 appended. As in the previous year the death rate was highest (86.4) in the age-group 70 & above and lowest (0.43) in the age-group (10-14). During 1989 these rates were 83.4 and 0.38 respectively. Between the the two regions the death rate in the age-groups (70 and above) was comparatively high in the northern region. Similarly the death rate among males was higher (91.4) than the females (82.3) in the same age-group. During 1989 the corresponding age-specific death rates for the northern and southern regions were 95.4 and 77.9 respectively and those among males and females 93.3 and 75.7 respectively. The difference in the age-specific death rates of males and females in the age group 70 and above showed a considerable decrease during the year. It was 9.1 during the year 1990 as against 17.6 in the previous year. The death rate among children below 1 year also come down in the previous year down from 24.2 to 16.4 during 1990. Below the age of one year the death rate among males was 28.0 and among females it was 10.5 whereas in the previous year the corresponding rates were 25.1 and 23.3.

4.5 Infant mortality rates:-

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 death and infant mortality rates in Kerala (rural) according to sex and region are given in Table - 25 appended. The infant mortality rates of Kerala for the year 1983 to 1990 are given below.

Infant Mortality Rate							
1983	1984	1985	1986	1987	1988	1989	1990
38.9	30.1	33.0	28.6	27.0	29.9	23.3	17.1

The infant mortality rate in northern region and southern region were 17.9 and 16.3 respectively as against 25.5 and 21.4 during the previous year showing a decrease of 7.6 and 5.1 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 1000 live births in an year. During 1990 the Neo-Natal mortality rate was 12.2 as against 15.8 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 10.6 against 12.4 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	T	M	F	T	M	F	T
1	2	3	4	5	6	7	8	9	10
Northern	11.3	11.2	11.2	11.3	11.2	11.2	19.5	16.2	17.9
Southern	16.7	3.1	10.1	21.7	3.8	13.0	25.3	6.9	16.3
State	14.1	6.9	10.6	16.6	7.3	12.2	22.5	11.2	17.1

4.8 Distribution of samples according to death rate of each sample:-

Table - 24 appended gives the distribution of samples according to death rates for the 1990 and for the previous two years. During the year under report 47 sample units of northern region (77.1%) and 55 units of southern region (61.8%) recorded death rate below 7 as against 67.2 percent and 69.7 percent during 1989. When all the samples in the State were taken into account 102 samples (68%) recorded death rate below 7. The highest death rate of 19.8 was recorded by one sample in the northern region where as the lowest death rate 1.5 was recorded by one sample in the southern region.

4.9 Medical attention recieved before death:-

The percentage distribution of deaths according to medical attention received before death during the year 1983 to 1990 are given in Table B4 below.

Table B4 - Percentage distribution of deaths according to type of medical attention received for the years 1983 to 1990

Year	Institu- tional	Qualified medical practitioner	Unqualified medical practitioner	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

It is seen that 90% of the persons were received some kind of attention before death.

Comparison of mortality rates under Civil Registration System and Sample Registrastion System for the years from 1983 to 1990

Year	Death rate		Infant mortality rate	
	Civil Regi- stration	Sample Regix registration	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	4.1	6.3	7.3	29.9
1989	4.2	6.1	8.2	23.3
1990	*4.1	6.0	*4.7	17.1

* Provisional.

As in the case of birth rate, the mortality rates 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 deaths of 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 number 32, 33 and 34 - appended to this reports. The

tables were prepared sex-wise and population-wise separately based on age specific death rates for the years 1988, 1989 and 1990. The expectation of life at birth for males, females and for both sex together were calculated as 67.9, 74.7 and 71.1 as against 67.6, 73.9 and 70.6 respectively during 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 7.2 where as the difference was 6.3 in the previous year. The expectation of life calculated for the last eight years are given in Table - B6 below.

Table B6 - Expectation of life based on age specific death rates for the years 1983 to 1990

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
1988, 1989, 1990	67.9	74.7	71.1

Method adopted for calculation of life tables

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

$q_0 = \frac{D_1}{B_1} + \frac{D_2}{B_2}$ Where D_1 is the number of deaths of children born during the previous year and died during the current year and D_2 is that of the children born and died during the current year. B_1 and B_2 denote the total number of births accrued during the previous year and current year respectively.

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

Let l_0 be 100000

$$l_x = l_0 - d_0$$

$$d_x = l_x \times q_x$$

Let d_{70} is equal to l_{70}

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

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

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

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 - 1990

Stratum	Estimated population, births and deaths						Vital rates			
	Population	Births	Deaths	Still births	Infant deaths	Births rate	Deaths rate	Still birth rate	Infant death rate	
1	2	3	4	5	6	7	8	9	10	
IA	35879	605	403	-	-	16.86	11.23	-	-	
IB	190077	4122	780	-	111	21.69	4.10	-	26.93	
IC	922505	19305	4269	194	97	20.93	4.63	9.95	5.02	
ID	8670886	191728	50016	1956	3658	22.11	5.77	10.10	19.08	
Northern Region	9819347	215760	55468	2150	3866	21.97	5.65	9.87	17.92	
IIA	107341	2190	609	-	122	20.41	5.67	-	55.68	
IIB	328290	5780	3570	170	340	17.61	10.87	28.57	58.82	
IIC	1472623	25445	7934	456	91	17.28	5.39	17.61	3.59	
IID	11410391	203110	70783	1133	3313	17.80	6.20	5.55	16.34	
Sothern Region	13318645	236525	82896	1759	3866	17.76	6.22	7.38	16.34	
S T A T E	23137992	452285	138364	3909	7732	19.55	5.98	8.57	17.10	

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.'90	1.1.'91	1.7.'90	1.1.'91
1	2	3	4	5
IA	712	691	35879	34821
IB	1706	1715	190077	191080
IC	9509	9539	922505	925416
ID	101937	102914	8670886	8753991
Northern Region	113864	114859	9819347	9905308
IIA	882	890	107341	108315
IIB	1931	1938	328290	329480
IIC	16147	15922	1472623	1452104
IID	130896	131187	11410391	11435758
Sothorn Region	149856	149937	13318645	13325657
S T A T E	263720	264796	23137992	23230965

Table 3 - Stratum-wise population according to sex

Stratum	Observed population			Estimated population		
	Male 2	Female 3	Total 4	Male 5	Female 6	Total 7
IA	347	265	712	17486	18393	35879
IB	839	867	1706	93479	96598	190077
IC	4538	4971	9509	440249	482256	922505
ID	49508	52429	101937	4211211	4459675	8670886
Northern Region	55232	58632	113864	4762425	5056922	9819347
IIA	442	440	882	53792	53549	107341
IIB	950	981	1931	161510	166780	328290
IIC	7855	8292	16147	716384	756239	1472623
IID	63853	67043	130896	5566157	5844234	11410391
Southern Region	73100	76756	149856	6497843	6820802	13318645
S T A T E	128332	135388	263720	11260268	11877724	23137992

Table 4 - Mid-year sample population and estimated population according to age and sex

Stratum	Observed population			Estimated population			Total
	Male 2	Female 3	Total 4	Male 5	Female 6	Total 7	
0-1	2755	2635	5390	240721	230314	471035	
1-4	11187	10693	21880	978590	935192	1913782	
5-9	13358	13201	26559	1169230	1155888	2325118	
10-14	14014	13617	27631	1227093	1192998	2420091	
15-19	14284	14248	28532	1251947	1247692	2499639	
20-24	13124	15844	28968	1151711	1390135	2541846	
25-29	11577	12573	24150	1016406	1103372	2119778	
30-34	9550	10227	19777	838642	897063	1735705	
35-39	7818	8210	16028	685991	720177	1406168	
40-44	6461	7025	13486	567769	616901	1184670	
45-49	5408	5730	11138	475486	503751	979237	
50-54	4971	5469	10440	437461	481403	918864	
55-59	4188	4652	8840	368970	409595	778565	
60-64	3460	3726	7186	304840	328420	633260	
65-69	2639	3080	5719	232495	271861	504356	
70+	3538	4458	7996	312916	392962	705878	
Total	128332	135388	263720	11260268	11877724	23137992	

Table 5 - Sex ratio and percentage distribution of population by age group (Years 1971, 1989, 1990)

Age Group	1971		1989		1990	
	Sex ratio	%age population	Sex ratio	%age population	Sex ratio	%age population
1	2	3	4	5	6	7
0-4	980	13.5	951	10.3	956	10.3
5-9	974	13.6	983	10.1	989	10.0
10-14	983	13.5	976	10.6	972	10.5
(0-14)	(976)	(40.6)	(970)	(31.0)	(972)	(30.8)
15-19	1078	10.9	1006	11.1	997	10.8
20-24	1046	9.2	1217	11.0	1207	11.0
25-29	1103	6.4	1073	9.1	1086	9.2
30-34	1030	5.6	1083	7.3	1070	7.5
35-39	1080	6.0	1038	5.9	1050	6.1
40-44	1005	4.6	1100	5.1	1087	5.1
45-49	941	4.5	1065	4.2	1059	4.2
50-54	969	3.2	1088	4.0	1100	4.0
55-59	982	2.7	1108	3.3	1110	3.4
60-64	1044	2.3	1093	2.8	1077	2.7
65-69	1086	1.6	1138	2.2	1169	2.2
70+	1116	2.4	1291	3.0	1256	3.0
All	1020	100.0	1056	100.0	1055	100.0

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

Stratum	Observed population				Estimated population			
	Hindu 2	Muslim 3	Christian 4	Total 5	Hindu 6	Muslim 7	Christian 8	Total 9
IA	382	137	193	712	19250	6904	9725	35879
IB	1245	452	9	1706	138714	50360	1003	190077
IC	4785	4263	461	9509	464212	413570	44723	922505
ID	58926	33949	9062	101937	5012318	2887744	770824	8670886
Northern Region	65338	38801	9725	113864	5634494	3358578	826275	9819347
IIA	109	8	765	882	13265	974	93102	107341
IIB	1060	-	871	1931	180211	-	148079	328290
IIC	8481	1308	6358	16147	773476	119291	579856	1472623
IID	76624	15498	38774	130896	6679423	1350983	3379985	11410391
Southern Region	86274	16814	46768	149856	7646375	1471248	4201022	13318645
S T A T E	151612	55615	56493	263720	13280869	4829826	5027297	23137992

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

Stratum	Observed in samples			Total	Estimated		Total
	Male 2	Female 3	Total 4		Male 5	Female 6	
IA	7	5	12	353	252	605	
IB	22	15	37	2451	1671	4122	
IC	9	100	199	9604	9701	9305	
ID	1198	1056	2254	101903	89825	191728	
Northern Region	1326	1176	2502	114311	101449	215760	
IIA	9	9	18	1095	1095	2190	
IIB	21	13	34	3570	2210	5780	
IIC	139	140	279	12677	12768	25445	
IID	1200	1130	2330	104606	98504	203110	
Southern Region	1369	1292	2661	121948	114577	236525	
S T A T E	2695	2468	5163	236259	216026	452285	

Table 8 - Estimated number of total women and livebirths in different age groups

Region	Age group of women								
	15-19 2	20-24 3	25-29 4	30-34 5	35-39 6	40-44 7	45-49 8	Total 9	
A. Estimated no. of Total women									
I. Northern Region	548670	557552	449679	358874	295769	254806	202157	2667507	
II. Southern Region	699022	832583	653693	538189	424408	362095	301594	3811584	
S T A T E	1247692	1390135	1103372	897063	720177	616901	503751	6479091	
B. Estimated no. of married women									
I. Northern Region	97121	356412	361256	305998	252314	206915	145549	1725565	
II. Southern Region	36792	367609	494320	459335	358652	298224	231021	2245953	
S T A T E	133913	724021	855576	765333	610966	505139	376570	3971518	
C. Estimated no. of live births									
I. Northern Region	24837	100403	59889	20192	6793	3306	340	215760	
II. Southern Region	8062	110807	88672	24749	3799	262	174	236525	
STATE (ALL BIRTHS)	32899	211211	148560	44941	10592	3568	514	452285	
STATE (FEMALE BIRTHS)	13814	104029	69644	21359	5383	1538	259	216026	

Table 9 - Distribution of currently married women observed according to age, religion and number of surviving children 1990

Age group	Religion	No. of surviving children						
		1	2	3	4	5	6	7 and above
1	2	3	4	5	6	7	8	9
15-19	H	155	10	1	-	-	-	-
	C	18	1	-	-	-	-	-
	M	172	17	1	1	-	-	-
20-24	H	738	345	77	28	10	2	4
	C	320	126	11	3	2	2	-
	M	340	246	77	24	6	4	5
25-29	H	313	408	142	26	6	6	5
	C	171	160	40	6	4	2	-
	M	86	121	87	73	24	3	6
30-34	H	58	97	59	14	8	3	3
	C	23	40	35	7	-	1	-
	M	6	27	29	37	30	12	17
35-39	H	9	14	8	7	3	4	2
	C	3	6	4	4	-	1	-
	M	4	5	10	2	10	10	15
40-44	H	1	-	1	3	1	2	2
	C	1	1	1	3	-	1	-
	M	-	2	1	1	3	3	14
45-49	H	-	-	-	-	-	-	2
	C	-	-	-	1	1	-	-
	M	-	-	-	-	1	-	1

Table 10 - Distribution of currently married women observed in samples according to age and children ever born - 1990

Age group	No. of children ever born							
	1	2	3	4	5	6	7	7 & above
1	2	3	4	5	6	7	8	
15-19	343	30	2	1	-	-	-	-
20-24	1388	716	171	58	20	7	10	10
25-29	563	686	273	103	41	12	11	11
30-34	87	160	122	63	35	18	21	21
35-39	14	27	21	14	12	15	18	18
40-44	2	2	2	8	3	4	20	20
45-49	-	-	-	1	1	-	4	4

Table 11 - Distribution of currently married women observed in sample according to age of mother and age of the last child - 1990

Age of mother	Age of the last child (in months)											Total
	0-14	15-29	30-44	45-59	60-74	75-89	90-104	105-119	120-134	10	11	
1	2	3	4	5	6	7	8	9	10	11		
15-19	357	13	4	1	1	-	-	-	-	-	376	
20-24	1367	530	320	102	47	2	1	1	-	-	2370	
25-29	500	411	353	225	131	31	20	7	11	1689		
30-34	89	108	115	69	61	27	15	9	13	506		
35-39	15	26	19	21	12	8	6	5	9	121		
40-44	3	9	8	5	6	2	1	0	7	41		
45-49	-	1	-	1	-	1	-	-	3	6		
Total	2331	1098	819	424	258	71	43	22	43	5109		

Table 12 - Age specific fertility rate, age specific marital fertility rate -
G.F.R., T.F.R. & G.R.R

	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								
II. Northern Region	45.27	180.08	133.18	56.26	22.97	12.97	1.68	
II. Southern Region	11.53	133.09	135.65	45.99	8.95	0.72	0.58	
State (all births)	26.37	151.93	134.64	50.10	14.71	5.78	1.02	
State (Female births)	11.07	74.83	63.12	23.81	7.47	2.49	0.51	
B. Age specific marital fertility rate								
I. Northern Region	255.73	281.70	165.78	65.99	26.92	15.98	2.34	
II. Southern Region	219.12	301.43	178.49	53.88	10.59	0.88	0.75	
State (All births)	245.67	291.72	173.12	58.72	17.34	7.06	1.36	
				II. SOUTHERN REGION				STATE
G.F.R.	80.88			62.05			69.81	
T.F.R	2.26			1.68			1.92	
G.R.R	-			-			0.92	

Table 13 - Live births observed in samples classified by month of occurrence

Stratum	No. of live births reported from samples													
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total	
I	2	3	4	5	6	7	8	9	10	11	12	13	14	
IA	-	3	1	-	-	4	1	1	-	-	2	-	12	
IB	4	4	3	3	1	3	2	3	3	4	3	4	37	
IC	14	21	14	19	20	13	22	18	18	14	13	13	199	
ID	192	166	220	223	209	193	201	196	155	143	165	191	2254	
Northern Region	210	194	238	245	230	213	226	218	176	161	183	208	2502	
IIA	3	1	2	1	-	2	1	1	3	-	3	1	18	
IIB	3	-	4	3	2	3	-	3	1	7	5	3	34	
IIC	27	26	27	14	23	22	21	28	25	28	18	20	279	
IID	207	184	197	204	210	185	204	203	174	174	213	175	2330	
Southern Region	240	211	230	222	235	212	226	235	203	209	239	199	2661	
KERALA	450	405	468	467	465	425	452	453	379	370	422	407	5163	

Table 14 - Live births observed in samples by type of medical attention at delivery

Stratum	Institutional	Type of medical attention					Total
		Trained professional	Untrained professional	Non-professional	Not stated		
1	2	3	4	5	6	7	
IA	12	-	-	-	-	12	
IB	30 ^a	3	-	4	-	37	
IC	153	24	11	11	-	199	
ID	1795	140	248	58	13	2254	
Northern Region	1990	167	259	73	13	2502	
IIA	17	-	1	-	-	18	
IIB	27	7	-	-	-	34	
IIC	278	1	-	-	-	279	
IID	2289	10	27	1	3	2330	
Southern Region	2611	18	28	1	3	2661	
STATE	4601	185	287	74	16	5163	

Table 15 - Percentage distribution of births by age of mother and order of birth of child

Age Group	Order of births												
	1	2	3	4	5	6	7	8	9	10	11	Total	
15-19	93.7	6.3	-	-	-	-	-	-	-	-	-	-	100.0
20-24	53.5	36.7	8.2	1.3	0.3	-	-	-	-	-	-	-	100.0
25-29	28.9	43.0	19.9	6.3	1.3	0.4	0.1	0.1	-	-	-	-	100.0
30-34	14.2	31.0	24.6	13.8	7.5	4.8	2.7	0.6	0.8	-	-	-	100.0
35-39	11.9	23.0	15.1	11.9	10.3	11.9	6.3	3.2	0.8	5.6	-	-	100.0
40-44	2.3	9.1	6.8	18.2	11.4	9.1	4.5	15.9	11.4	11.3	-	-	100.0
45-49	-	-	-	22.2	11.1	-	44.5	11.1	-	-	-	-	100.0
All ages	42.9	35.4	13.2	4.5	1.7	1.0	0.6	0.3	0.2	0.2	-	-	100.0

Table 16 - Distribution of samples according to birth rate of each sample

Birth rate	Northern region		Southern region		1990		1989		1988	
	No.	%	No.	%	No.	%	No.	%	No.	%
	2	3	4	5	6	7	8	9	10	11
Less than 12	-	-	5	5.6	5	3.3	6	4.0	7	4.7
12 and less than 16	6	9.8	24	27.0	30	20.0	24	16.0	32	21.3
16 and less than 20	22	36.1	33	37.1	55	36.7	53	35.3	46	30.7
20 and less than 24	16	26.2	22	24.7	38	25.3	34	22.7	35	23.3
24 and less than 28	9	14.8	5	5.6	14	9.3	17	11.3	15	10.0
28 and less than 32	4	6.6	-	-	4	2.7	9	6.0	11	7.3
32 and less than 36	3	4.9	-	-	3	2.0	4	2.7	3	2.0
36 and less than 40	1	1.6	-	-	1	0.7	3	2.0	1	0.7
40 and 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

Stratum	Still births observed			Still births estimated			Total estimated number of live births and still births	Still birth rate
	Male	Female	Total	Male	Female	Total		
1	2	3	4	5	6	7	8	9
IA	-	-	-	-	-	-	605	-
IB	-	-	-	-	-	-	4122	-
IC	-	2	2	-	194	194	19499	9.95
ID	15	8	23	1276	680	1956	193684	10.10
Northern Region	15	10	25	1276	874	2150	217910	9.87
IIA	-	-	-	-	-	-	2190	-
IIB	-	1	1	-	170	170	5950	28.57
IIC	3	2	5	274	182	456	25901	17.61
IID	6	7	13	523	610	1133	204243	5.55
Southern Region	9	10	19	797	962	1759	238284	7.38
STATE	24	20	44	2073	1836	3909	456194	8.57

Table 18 - Religion-wise birth and death rates

Stratum	Birth rate			Death rate		
	North-ern region	South-ern region	State	North-ern region	South-ern region	State
1	2	3	4	5	6	7
Hindu	18.40	16.91	17.54	6.40	6.63	6.53
Muslim	29.40	22.90	27.42	4.92	4.22	4.70
Christian	16.16	17.49	17.27	3.47	6.17	5.73
Total	21.97	17.76	19.55	5.65	6.22	5.98

Table 19 - 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
IA	6	2	8	302	101	403
IB	3	4	7	334	446	780
IC	20	24	44	1940	2329	4269
ID	325	263	588	27645	22371	50016
Northern Region	354	293	647	30221	25247	55468
IIA	2	3	5	244	365	609
IIB	16	5	21	2720	850	3570
IIC	49	38	87	4468	3466	7934
IID	473	339	812	41232	29551	70783
Southern Region	540	385	925	48664	34232	82896
STATE	894	678	1572	78885	59479	138364

Table 20(a) - Distribution of deaths observed in samples according to age and sex

Age group	Northern region				Southern region				State		
	Male		Female		Male		Female		Male	Female	
	2	3	4	Total	5	6	7	Total	8	9	10
Below 1	26	19	45		33	9	42		59	28	87
1-4	10	17	27		13	6	19		23	23	46
5-9	7	4	11		5	2	7		12	6	18
10-14	2	2	4		5	2	7		7	4	11
15-19	7	3	10		7	5	12		14	8	22
20-24	5	10	15		8	7	15		13	17	30
25-29	9	4	13		16	9	25		25	13	38
30-34	10	7	17		9	8	17		19	15	34
35-39	11	5	16		17	4	21		28	9	37
40-44	14	11	25		19	4	23		33	15	48
45-49	11	11	22		20	10	30		31	21	52
50-54	32	9	41		25	13	38		57	22	79
55-59	34	18	52		38	17	55		72	35	107
60-64	33	14	47		56	23	79		89	37	126
65-69	36	28	64		54	31	85		90	59	149
70 and above	107	131	238		215	235	450		322	366	688
All	354	293	647		540	385	925		894	678	1572

Table 20(b) - Distribution of estimated deaths according to age and sex

Age group	Northern region			Southern region			State		
	2	3	4	5	6	7	8	9	10
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1									
Less than 1	2224	1642	3866	3081	785	3866	5305	2427	7732
1-4	861	1459	2320	1141	523	1664	2002	1982	3984
5-9	573	340	913	519	174	693	1092	514	1606
10-14	170	170	340	519	174	693	689	344	1033
15-19	561	255	816	697	440	1137	1258	695	1953
20-24	425	851	1276	701	614	1315	1126	1465	2591
25-29	765	340	1105	1399	789	2188	2164	1129	3293
30-34	851	596	1447	950	697	1647	1801	1293	3094
35-39	901	437	1338	1516	353	1869	2417	790	3207
40-44	1191	962	2153	1660	349	2009	2851	1311	4162
45-49	936	972	1908	1752	880	2632	2688	1852	4540
50-54	2787	755	3542	2179	1133	3312	4966	1888	6854
55-59	2869	1581	4450	3325	1482	4807	6194	3063	9257
60-64	2843	1253	4096	4910	2029	6939	7753	3282	11035
65-69	3074	2383	5457	4893	2710	7603	7967	5093	13060
70 and above	9190	11251	20441	19422	21100	40522	28612	32351	60963
All	30221	25247	55468	48664	34232	82896	78885	59479	138364

Table 21 - 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	17.58	15.39	16.41	22.04	10.54
1-4	2.40	1.75	2.08	2.05	2.12
5-9	0.79	0.59	0.69	0.93	0.44
10-14	0.29	0.55	0.43	0.56	0.29
15-19	0.75	0.80	0.78	1.00	0.56
20-24	1.23	0.87	1.02	0.98	1.05
25-29	1.29	1.73	1.55	2.13	1.02
30-34	2.14	1.56	1.78	2.15	1.44
35-39	2.40	2.20	2.28	3.52	1.10
40-44	4.51	2.84	3.51	5.02	2.13
45-49	4.91	4.46	4.64	5.65	3.68
50-54	10.11	5.83	7.46	11.35	3.92
55-59	15.49	9.78	11.89	16.79	7.48
60-64	18.51	16.84	17.43	25.43	9.99
65-69	31.36	23.02	25.89	34.27	18.73
70 and above	96.80	81.91	86.36	91.44	82.33
All ages	5.65	6.22	5.98	7.01	5.01

Table 22 - Deaths observed in samples classified by month of occurrence

Stratum	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
IA	-	-	-	1	1	1	1	2	-	-	2	-	8
IB	2	-	-	1	1	-	1	-	-	1	-	1	7
IC	3	4	5	2	5	4	4	7	3	1	5	1	44
ID	57	36	52	48	47	39	73	64	35	36	46	55	588
Northern Region	62	40	57	52	54	44	7	73	38	38	53	57	647
IIA	-	-	-	-	-	2	-	-	1	1	1	-	5
IIB	1	1	-	2	4	1	1	3	2	1	3	2	21
IIC	9	7	7	5	9	9	6	9	7	6	6	7	87
IID	70	61	73	5	78	64	85	66	61	63	69	63	812
Southern Region	80	69	80	66	91	76	92	78	71	71	79	72	925
STATE	142	109	137	118	145	120	171	151	109	109	132	129	1572

Table 23 - Deaths classified by type of medical attention

Stratum	Type of medical attention				Total
	Institu- tional	Qualified medical practitio- ner	Unquali- medical practiti- ner	No treatment	
1	2	3	4	5	6
IA	7	-	-	1	8
IB	4	2	1	-	7
IC	13	24	1	6	44
ID	198	282	35	73	588
Northern Region	222	308	37	80	647
IIA	4	-	1	-	5
IIB	7	10	-	4	21
IIC	45	38	-	4	87
IID	459	206	72	75	812
Southern Region	515	254	73	83	925
S T A T E	737	562	110	163	1572

Table 24 - Distribution of samples according to death rate of each sample

Death rate	Northern region		Southern region		1990		1989		1988		
	No.	%	No.	%	No.	%	No.	%	No.	%	
	2	3	4	5	6	7	8	9	10	11	
Less than 1	-	-	-	-	-	-	-	-	-	1	0.7
1 and less than 3	7	11.5	8	9.0	15	10.0	6	4.0	10	6.7	
3 and less than 5	18	29.5	19	21.3	37	24.7	21	14.0	34	22.7	
5 and less than 7	22	36.1	28	31.5	50	33.3	76	50.7	48	32.0	
7 and less than 9	6	9.8	26	29.2	32	21.3	30	20.0	41	27.3	
9 and less than 11	5	8.2	7	7.9	12	8.0	12	8.0	14	9.3	
11 and less than 13	2	3.3	-	-	2	1.3	4	2.7	2	1.3	
13 and less than 15	-	-	1	1.1	1	0.7	1	0.6	-	-	
15 and above	1	1.6	-	-	1	0.7	-	-	-	-	
Total	61	100.0	89	100.0	150	100.0	150	100.0	150	100.0	

Table 25 - 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	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total
	2	3	4	5	6	7	8	9	10	11	12	13
IA	-	-	-	-	-	-	353	252	605	-	-	-
IB	-	1	1	-	111	111	2451	1671	4122	-	66.43	26.93
IC	1	-	1	97	-	97	9604	9701	19305	10.10	-	5.02
ID	25	18	43	2127	1531	3658	101903	89825	191728	20.87	17.04	19.08
Northern Region	26	19	45	2224	1642	3866	114311	101449	215760	19.46	16.19	17.92
IIA	1	-	1	122	-	122	1095	1095	2190	111.42	-	55.71
IIB	2	-	2	340	-	340	3570	2210	5780	95.24	-	58.82
IIC	1	-	1	91	-	91	12677	12768	25445	7.18	-	3.59
IID	29	9	38	2528	785	3313	104606	98504	203110	24.17	7.97	16.31
Southern Region	33	9	42	3081	785	3866	121948	114577	236525	25.26	6.85	16.34
STATE	59	28	87	5305	2427	7732	236259	216026	452285	22.45	11.24	17.10

Table 26 - Number of infant deaths observed in samples of children born during the current year and previous year

Stratum	Born in 1989						Born in 1990											
	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						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
IA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IB	-	-	-	-	-	-	-	-	-	-	1	1	-	1	1	-	1	1
IC	-	-	-	-	-	-	-	-	-	1	-	1	1	-	1	-	1	1
ID	-	-	-	-	-	-	4	1	5	14	12	26	14	12	26	21	17	38
Northern Region	-	-	-	-	-	-	4	1	5	15	13	28	15	13	28	22	18	40
IIA	-	-	-	-	-	-	-	-	-	1	-	1	1	-	1	1	-	1
IIB	-	-	-	-	-	-	-	-	-	2	-	2	2	-	2	2	-	2
IIC	-	-	-	-	-	-	-	-	-	1	-	1	1	-	1	1	0	1
IID	-	-	-	-	-	-	-	3	3	17	4	21	24	5	29	29	6	35
Southern Region	-	-	-	-	-	-	-	3	3	21	4	25	28	5	33	33	6	39
STATE	-	-	-	-	-	-	4	4	8	36	17	53	43	18	61	55	24	79

Table 27 - Estimated number of infant deaths for the year 1990 of children born during the current year and previous year

Stratum	Born in 1989						Born in 1990											
	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						
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
IA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IB	-	-	-	-	-	-	-	-	-	111	111	-	114	111	-	111	111	
IC	-	-	-	-	-	-	-	-	-	97	-	97	97	-	97	-	97	
ID	-	-	-	-	-	-	340	85	425	1191	1021	2212	1191	1021	2212	1787	1446	3233
NORTHERN REGION	-	-	-	-	-	-	340	85	425	1288	1132	2420	1288	1132	2420	1884	1557	3441
IIA	-	-	-	-	-	-	-	-	-	122	-	122	122	-	122	122	-	122
IIB	-	-	-	-	-	-	-	-	-	340	-	340	340	-	340	340	-	340
IIC	-	-	-	-	-	-	-	-	-	91	-	91	91	-	91	91	-	91
IID	-	-	-	-	-	-	-	262	262	1482	349	1831	2092	436	2528	2528	523	3051
SOUTHERN REGION	-	-	-	-	-	-	-	262	262	2035	349	2384	2645	436	3081	3081	523	3604
STATE	-	-	-	-	-	-	340	347	687	3323	1481	4804	3933	1568	5501	4965	2080	7045

Table 28 - Estimated number of perinatal, neonatal and infant deaths according to sex

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	Total
I	2	3	4	5	6	7	8	9	10	
II	1288	1132	2420	1288	1132	2420	2224	1642	3866	
Total	3323	1481	4804	3933	1568	5501	5305	2427	7732	

Table 29 - Births and deaths detected through overlapping survey and intensive enquiry classified according to place and type of birth and deaths

Stratum	Birth						Death				
	Total	Place		Kind		Total	Place		Kind		Total
		In	Out	Live births	Still births		In	Out	Infant deaths	Other deaths	
I	2	3	4	5	6	7	8	9	10	11	
IA	-	-	-	-	-	-	-	-	-	-	-
IB	-	-	-	-	-	-	-	-	-	-	-
IC	4	-	4	4	-	3	2	1	-	3	
ID	29	4	25	29	-	10	6	4	-	10	
Northern Region	33	4	29	33	-	13	8	5	-	13	
IIA	-	-	-	-	-	-	-	-	-	-	-
IIB	1	-	1	1	-	-	-	-	-	-	-
IIC	5	-	5	5	-	-	-	-	-	-	-
IID	38	3	35	38	-	10	7	3	-	10	
Southern Region	44	3	41	44	-	10	7	3	-	10	
STATE	77	7	70	77	-	23	15	8	-	23	

Table 30 - Distribution of births and deaths recorded by enumerator and, supervisor, detected through overlapping survey and intensive enquiry

Items	Births			Deaths		
	Norther region 2	Southern region 3	State 4	Northern region 5	Southern region 6	State 7
Common to enumerator and supervisor	1882	1959	3841	524	753	1277
Registered by Enumerator (No.)	1970	2090	4060	558	821	1379
%	(80.02)	(80.38)	(80.21)	(88.80)	(90.42)	(89.43)
Listed by Supervisor (No.)	2374	2469	4843	600	840	1440
%	(96.43)	(94.86)	(95.67)	(94.64)	(92.51)	(93.39)
Total netted by enumerator and supervisor	2462	2601	5063	634	908	1542
Detected by others	7	12	19	0	7	7
Overlapping survey	33	44	77	13	10	23
Intensive enquiry	0	4	4	0	0	0
Total	2502	2661	5163	647	925	1572

Table 31 - Distribution of rate of marriage per thousand population and percentage distribution of marriage according to age and sex

Age Group	Rate of marriage per 1000 population						Percentage							
	First marriage			Re-marriage			First marriage			Re-marriage			All marriage	
	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
1	2	3	4	5	6	7	8	9	10	11	12	13	12	13
15-19	0.70	31.65	-	0.21	0.70	31.86	0.65	22.84	-	5.77	0.63	22.40		
20-24	24.08	63.81	0.38	1.01	24.46	64.82	20.48	51.19	8.77	30.77	20.06	50.67		
25-29	67.55	34.92	1.04	1.03	68.58	35.95	50.68	22.23	21.05	25.00	49.62	22.30		
30-34	39.69	6.16	0.73	0.78	40.42	6.94	24.56	3.19	12.28	15.38	24.13	3.50		
35-39	6.23	1.10	1.41	0.97	7.67	2.07	3.18	0.45	19.30	15.38	3.74	0.83		
40-44	1.09	0.14	1.25	0.43	2.34	0.57	0.45	0.05	14.04	5.77	0.94	0.20		
45-49	-	0.17	2.59	0.17	2.59	0.35	-	0.05	24.56	1.93	0.88	0.10		
15-49	22.63	26.74	0.84	0.70	23.47	27.44	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 32 - Life table of males based on age specific death rates for the years 1988, 1989 and 1990

Age x to x + n	Age specific death rate			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 survi- ving to age x out of 100000 born alive (l _x)	Year of life lived between x & x+n (l _x)	Year of life lived between x & x+n above x (T _x)	Expect- ation of life in years (Ex)	Begin- ning age (x)
	1988	1989	1990								
1	2	3	4	5	6	7	8	9	10	11	12
Less than 1	32.60	25.12	22.04	0.02659	0.02242	2242	100000	97902	6785733	67.86	0
1-4	1.68	1.43	2.05	0.00172	0.00686	671	97758	389690	6687831	68.41	1
5-9	0.70	0.52	0.93	0.00072	0.00359	349	97087	484563	6298141	64.87	5
10-14	0.77	0.35	0.56	0.00056	0.00280	271	96738	483013	5813578	60.10	10
15-19	0.92	0.90	1.00	0.00094	0.00469	452	96467	481205	5330565	55.26	15
20-24	1.08	2.00	0.98	0.00135	0.00673	646	96015	478460	4849360	50.51	20
25-29	2.06	1.37	2.13	0.00185	0.00921	878	95369	474650	4370900	45.83	25
30-34	2.46	1.97	2.15	0.00219	0.01089	1029	94491	469883	3896250	41.23	30
35-39	3.35	3.22	3.52	0.00336	0.01666	1557	93462	463418	3426367	36.66	35
40-44	5.05	3.00	5.02	0.00436	0.02156	1981	91905	454573	2962949	32.24	40
45-49	7.89	7.68	5.65	0.00707	0.03474	3124	89924	441810	2508376	27.89	45
50-54	8.65	12.84	11.35	0.01095	0.05329	4626	86800	422435	2066566	23.81	50
55-59	14.97	16.30	16.79	0.01602	0.07702	6329	82174	395048	1644131	20.01	55
60-64	22.25	27.56	25.43	0.02508	0.11800	8950	75845	356850	1249083	16.47	60
65-69	38.97	36.19	34.27	0.03648	0.16716	11182	66895	306520	892233	13.34	65
70 and above	100.66	93.25	91.44	0.09512	1.00000	55713	55713	585713	585713	10.51	70

Table 33 - Life table of females based on age specific death rates for the years 1988, 1989 and 1990

Age x to x + n	Age specific death rate			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 survi- ving to age x out of 100000 born alive (l _x)	Year of life lived between x & x+n (L _x)	Year of life lived betwe- en x & above x (T _x)	Expect- ation of life in years (Ex)	Begi- ning age (x)
	1988	1989	1990								
1	2	3	4	5	6	7	8	9	10	11	12
Less than 1	26.26	23.29	10.54	0.02003	0.01122	1122	100000	99038	7471523	74.72	0
1-4	2.12	2.78	2.12	0.00234	0.00932	922	98878	393668	7372485	74.56	1
5-9	0.38	0.52	0.44	0.00045	0.00225	220	97956	489230	6978817	71.24	5
10-14	0.59	0.41	0.29	0.00043	0.00215	210	97736	488155	6489587	66.40	10
15-19	0.27	1.02	0.56	0.00062	0.00310	302	97526	486875	6001432	61.54	15
20-24	0.77	1.47	1.05	0.00110	0.00548	533	97224	484788	5514557	56.72	20
25-29	0.59	1.05	1.02	0.00089	0.00444	429	96691	482383	5029769	52.02	25
30-34	1.24	0.89	1.44	0.00119	0.00593	571	96262	479883	4547386	47.24	30
35-39	1.66	1.14	1.10	0.00130	0.00648	620	95691	476905	4067503	42.51	35
40-44	3.22	2.20	2.13	0.00252	0.01252	1190	95071	472386	3590598	37.77	40
45-49	2.90	2.43	3.68	0.00300	0.01489	1398	93881	465910	3118218	33.21	45
50-54	3.79	2.26	3.92	0.00332	0.01646	1522	92483	458610	2652308	28.68	50
55-59	9.02	7.03	7.48	0.00784	0.03845	3497	90961	446063	2193698	24.12	55
60-64	10.15	10.59	9.99	0.01024	0.04992	4366	87464	426405	1747635	19.98	60
65-69	19.50	26.60	18.73	0.02161	0.10251	8518	83098	394195	1321230	15.90	65
70 and above	83.34	75.68	82.33	0.08045	1.00000	74580	74580	927035	927035	12.43	70

Table 34 - Life table of persons based on age specific death rates for the years 1988, 1989 and 1990

Age x to x + n	Age specific death rates											
	1988	1989	1990	Mean age-specific death rate (nmx)	6	7	8	9	10	11	12	
Less than 1	29.43	24.24	16.41	0.02336	0.01707	1707	100000	98445	7113621	71.14	0	
1-4	1.90	2.09	2.08	0.00202	0.00805	791	98293	391590	7015176	71.37	1	
5-9	0.54	0.52	0.69	0.00058	0.00290	283	97502	486803	6623586	67.93	5	
10-14	0.68	0.38	0.43	0.00050	0.00250	243	97219	485488	6136783	63.12	10	
15-19	0.59	0.96	0.78	0.00078	0.00389	377	96976	483938	5651295	58.28	15	
20-24	0.91	1.71	1.02	0.00121	0.00603	582	96599	481540	5167357	53.49	20	
25-29	1.29	1.21	1.55	0.00135	0.00673	646	96017	478470	4685817	48.80	25	
30-34	1.82	1.41	1.78	0.00167	0.00832	793	95371	474873	4207347	44.12	30	
35-39	2.49	2.16	2.28	0.00231	0.01148	1086	94578	470175	3732474	39.46	35	
40-44	4.09	2.58	3.51	0.00339	0.01681	1572	93492	463530	3262299	34.89	40	
45-49	5.32	4.97	4.64	0.00498	0.02459	2260	91920	453950	2798769	30.45	45	
50-54	6.12	7.33	7.46	0.00697	0.03425	3071	89660	440623	2344819	26.15	50	
55-59	11.88	11.43	11.89	0.01173	0.05898	5107	86589	420178	1904196	21.99	55	
60-64	15.93	18.70	17.43	0.01735	0.08314	6774	81482	390475	1484018	18.21	60	
65-69	28.79	31.09	25.89	0.02859	0.13341	9967	74708	348623	1093543	14.64	65	
70 and above	91.01	83.35	86.36	0.08691	1.00000	64741	64741	744920	744920	11.51	70	

Table 35 - 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 Cen- sus villages	Population (1981)P	No. of Units selected	Population (1981)P		
1	2	3	4	5	6	7
IA	73	33158	2	658	1.98	50.39210
IB	217	171582	2	1540	0.90	111.41688
IC	519	773395	6	7972	1.03	97.01392
ID	1265	7421252	51	87246	1.17	85.06123
Northern Region	2074	8399387	61	97416	1.16	-
IIA	260	87991	2	723	0.82	121.70263
IIB	415	325570	3	1915	0.59	170.01044
IIC	894	1353880	10	14845	1.09	91.20108
IID	2134	10515577	74	120631	1.15	87.17143
Southern Region	3703	12283018	89	138114	1.12	-
STATE	5777	20682405	150	235530	1.14	-

Table 36 - 1990 Religion-wise birth and deaths rates

1	Hindu 2	Muslim 3	Christian 4	Total 5
I. Estimated population				
N.R.	5634494	3358578	826275	9819347
S.R.	7646375	1471248	4201022	13318645
STATE	13280869	4829826	5027297	23137992
II. Estimated births				
N.R.	103671	98734	13355	215760
S.R.	129325	33686	73514	236525
STATE	232996	132420	86869	452285
III. Estimated deaths				
N.R.	36067	16532	2869	55468
S.R.	50749	6209	25938	82896
STATE	86816	22741	28807	138364
Birth rate				
N.R.	18.40	29.40	16.16	21.97
S.R.	16.91	22.90	17.49	17.76
STATE	17.54	27.42	17.27	19.55
Death rate				
N.R.	6.40	4.92	3.47	5.65
S.R.	6.63	4.22	6.17	6.22
STATE	6.53	4.70	5.73	5.98

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