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**GOVERNMENT OF KERALA**

**SAMPLE REGISTRATION OF  
BIRTHS & DEATHS IN KERALA (Rural)  
1992**

**DEPARTMENT OF ECONOMICS AND STATISTICS  
THIRUVANANTHAPURAM**



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Report



Sample Registration of  
**Births and Deaths**  
in  
Kerala ( Rural ) 1992



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Department of Economics and Statistics  
Kerala







## PREFACE

*The Sample Registration System was introduced in all the states of India under the directions of the Registrar General of India with a view to obtain quick and reliable estimates of vital rates in the country regularly.*

*This report presents the results of the study in rural areas of Kerala state for the year 1992. The estimates of vital rates viz crude birth rate, death rate, infant mortality rate etc. and the details of marriages, children ever born and surviving obtained through the study are included in this report.*

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

Thiruvananthapuram  
06..12..1996

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# SAMPLE REGISTRATION OF BIRTHS AND DEATHS IN KERALA (RURAL) - 1992

## CHAPTER I

### INTRODUCTION

The Sample Registration System, as a dual record system provides reliable vital rates at the national and State level separately for urban and rural areas. The insufficiencies in Civil Registration System have made the Sample Registration System as a unique technique for obtaining reliable vital rates. The Department of Economics & 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 1992.

The Sample Registration System was introduced in the State during the year 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 sample originally selected were retained up to the year 1982. Out of the 150 rural samples, 75 samples were replaced in the year 1982 and the remaining 75 sample units by the year 1983. The stratified simple random method was used for the selection of rural sample units, the stratum being the Census village which were classified into 4 types according to population of 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 regions consisting of the remaining districts from Thiruvananthapuram to Thrissur. The allocation of the samples in different state 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 38 appended to the report.

### 1.2. Staff engaged in the Survey

The registration of all births and deaths occurred in each sample was carried out by 150 part-time enumerators appointed for the purpose 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 their department in each district supervised the field work and conducted the reverification of the unmatched and partially matched events. At the state Head Quarters one Regional Officer, one research Assistant, one computer from census department and a compiler attended the Sample Registration work.



### 1.3 Field work

A base line survey was conducted at the outset in all the 150 sample units to identify and find the resident population. The births and deaths occurring in these units for the resident population were registered by the part-time enumerators on a regular basis through informants and house visits and the details reported to the district office and state Head Quarters 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 independently by the enumerator and the supervisor were matched at the district head quarters to identify 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 results and forwarded to the State Head Quarters. These results were subjected to further scrutiny in the State head Quarter and one copy of each of the birth, death and population statement containing the details were forwarded to the Registrar General of India for computation of vital rates.

### 1.4 Overlapping Survey

The supervisors while conducting the half yearly survey, collected the details of births and deaths occurred during the previous half year also to find out the missed events if any which the enumerators as well as the Supervisors had failed to record. Thus 128 births and 16 deaths were detected during the year as the events for the extended reference period.

### 1.5 Intensive Enquiry

An intensive enquiry in all the households of the samples was conducted in 28 units identified as deficient (19 units identified by the Registrar General of India and 9 units by the Directorate) by the Additional District Officers of this department for the year. Through this enquiry, one extra birth was detected for the year 1992.



## CHAPTER II

### 2.1 Population and its Growth

The rural population of Kerala was estimated as 2,33,55,934 on 1-7-1992 and as 2,33,31,390 on 1-1-1993 recording a decrease of 0.11% during the second half of 1992 as against 0.26% recorded for the corresponding period of 1991. When analysing region wise, the northern region recorded 4.9% increase and southern region recorded 0.5% decrease in the second half of 1992. The corresponding variation in the previous year was 0.4% decrease in northern region and 0.1% decrease in the southern region. The mid year population showed 0.03% decrease over that of the previous year. There was an increase of 1% in the population for 1990 and 1991.

### 2.2 Sex ratio and Percentage Distribution of Population by Age-Group

The sex ratio and percentage distribution of population for different age group for the years 1981, 1991 and 1992 are presented in Table 5. The sex ratio is seen increased from 1057 in 1991 to 1067 in 1992. In the southern region the sex ratio was 1060 which is lower than the northern region where the ratio was 1077. The children below the age of 14 comes 29.6% of the rural population during 1992 were as in the previous year the corresponding percentage was 30.

### 2.3 Religion wise Population (Mid year)

The population when classified according to 3 major religions showed that 57.2% was Hindus, 21.6% was Muslims and 21.2% was Christians. The corresponding figures for the previous years were 57.4, 21.1, 21.5. The estimated religion wise population is given in Table 6.



## CHAPTER III

## 3.1 Measures of Fertility

The number of 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 17.56 which was less by 0.81 percent than the previous year. When comparing the birth rates of northern and southern regions, the birth rate of northern region was higher than that of south by 3.39 percent. The birth rate of north was estimated as 19.51 and that of south as 16.12. In 1991 these rates were 20.62 and 16.69 respectively for north and south regions. The birth rate among rural population of Kerala and India for the years 1983 to 1992 are given below in table A1. The birth rate showed decreasing trend continuously. The birth rate for the year 1992 was lower by 0.8 % than the previous year. The region wise figure showed 1.1 % and 0.6 % decrease over the previous year for north and south.

Table A1  
Crude birth rate for Kerala (rural) and India (rural) for the year 1983 to 1992

Year	Kerala(rural)			India(rural)
	Northern region	Southern region	Total	
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	31.3
1986	27.0	19.4	22.6	31.2
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
1992	19.5	16.1	17.6	30.9

## 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 1992

Sl.No	State	Rural	Rural and Urban Combined
1	Andhra Pradesh	25.1	24.5
2	Karnadaka	27.4	26.3
3	Tamil Nadu	21.1	20.7
4	Kerala	17.6	17.7
	All India	30.9	29.2

Source - Registrar General of India



Comparing the birth rates in rural areas, Kerala recorded the lowest birth rate (17.6) where as the highest birth rate is recorded in Karnadaka (27.4). The birth rate in all these states showed a decreasing trend. But when taken the whole of India (rural), the birth rate remains the same as in the previous year (30.9).

### 3.3 Birth rates by religion

The birth rates among the three major religions in the state viz Hindu, Muslim and Christian in rural areas of the state for the year 1992 seperately estimated for northern and southern regions are given in table 19 appended.

When compared to the previous year the birth rate among Hindus and Christians showed a decreasing trend where as 0.1 % increase was noted in the birth rate among Muslims. The estimated birth rates were 15.5, 25.7 and 14.8 for Hindus, Muslims and Christians respectively. The corresponding rates for 1991 were 16.4, 25.6 and 16.6. As before the birth rate was highest in the Muslim community (25.7) which forms 21.6 % of total rural population. The Hindus consisted 57.2 % and the Christian consisted 21.2 % of the total population. When analysing region-wise the birth rate among Muslims was highest in both southern (24.7) and northern (26.2) regions. The lowest birth rate was recorded among Christians, 14.7 in the southern and 15.2 in the northern regions. The estimated number of religion-wise and region-wise births and deaths are given in table 20 appended.

### 3.4 Distribution of Sample Villages under different rates

The distribution of sample villages by crude birth rate for the years 1990, 1991 and 1992 is presented in Table 17 appended. The birth rate for the state (17.6) found place in the group for which the birth rate is between 16 and less than 20 as in the previous years while analysing sample wise birth rate 32 (52.5%) samples of northern region and 76 (85.4%) samples of southern region had birth rate below 20. The highest birth rate 32.8 % and the lowest birth rate 6.9 % were recorded in one sample each on the northern region. As before, the birth rates in the rural samples of northern region were comparatively higher than those of southern region. It was seen that 9 sample units in the southern region and 6 sample units in the northern region had birth rates below 12 %. The birth rate among northern samples ranged from 7 to 33 where as in the southern region it ranged from 8 to 29.

### 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 rates for the year 1992 are given seperately for two regions in table 9 appended. With a view of comparison the age-specific fertility rates for the last 10 years are furnished below in table A3.



## Sample Registration of Births and Deaths in Kerala (Rural) 1992

Table A3  
Age-Specific fertility rate in Kerala (rural) for the year 1984 to 1992

Age-Group	1984	1985	1986	1987	1988	1989	1990	1991	1992
15-19	34.5	33.7	36.7	31.3	28.1	26.8	26.4	25.2	22.4
20-24	179.2	177.0	166.1	171.6	153.1	156.3	151.9	141.6	145.9
25-29	168.0	155.4	147.1	140.0	128.2	134.9	134.2	125.2	114.5
30-34	74.6	73.0	67.5	55.1	57.2	54.1	50.1	47.5	43.3
35-39	35.8	29.6	27.4	24.4	24.1	19.9	14.7	15.1	12.2
40-44	14.1	14.2	11.2	7.2	6.3	6.6	5.8	4.7	2.7
45-49	4.0	1.8	2.9	2.1	3.0	1.9	1.0	0.5	0.6

### 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 9 appended gives the age specific marital fertility rate for the year 1992. The age group of 20-24 recorded the highest marital fertility rate (274.9). In the previous year also the same age group recorded the highest marital fertility rate (272.1).

### 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 10 and table 11 appended. Table 12 given the distribution of currently married women observed in sample according to age of mother and age of last child. It was observed that 7 % of the mothers came under the age group 15-19 and 93 % of these mothers had atleast one child surviving. In the previous year the corresponding percentages were 7 and 91 respectively. In the age group of 20-49 at least one percent of mothers have 7 children or more alive. When distributed religion wise 50.6 % mothers were Hindus 31.8 % mothers were Muslims and 17.6 % mothers were Christian in the age group 15-49.

### 3.8 General Fertility rate (G.F.R)

The number of live births in an year to 1000 women in the reproductive age group 15-49 is defined as the General Fertility Rate. The General Fertility Rate for the two regions separately for the year 1991 and 1992 are given below

Regions	1991	1992
Northern Region	74.8	70.0
Southern Region	57.8	55.6
State	64.8	61.6

G.F.R for the years 1983 to 1992 are shown below

Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
G.F.R	87.1	87.5	84.4	81.0	77.4	71.5	72.2	69.8	64.8	61.6



### 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 period; if she was to pass through the child bearing years conforming the age specific fertility rates of the year. The total fertility rate for the two regions for 1991 and 1992 are given below.

Region	Year 1991	Year 1992
Northern Region	2.09	1.96
Southern Region	1.58	1.52
State	1.79	1.71

The total fertility rate of Kerala showed a decreasing trend for the period from 1983 to 1992. The rates are given below

Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
T.F.R	2.6	2.6	2.4	2.3	2.2	2.0	2.0	1.9	1.8	1.7

### 3.10 Gross Re-production Rate (G.R.R)

Gross re-production 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 Re-production rate of Kerala for the years 1983 to 1992 are given below.

Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
G.R.R	1.2	1.3	1.2	1.1	1.1	1.0	0.95	0.92	0.92	0.82

### 3.11 Net Re-production rate (N.R.R)

Net re-production rate is the average number of female children that would be born to a women during her life time conforming to the age-group by corresponding proportion of survivors as per life table for female ( $L_x/l_x$ ) and then repeating the process as in the Gross production rate. Net re-production rate for the years 1983 to 1992 are given below.

Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
N.R.R	1.15	1.26	1.20	1.09	1.05	1.00	0.95	0.91	0.91	0.81

### 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 10.3 for the year as against 9.9 for the previous year. Still birth rates for Northern and Southern regions were estimated as 15.8 and 5.3 respectively. The still birth rate was 0.4% higher 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 16 appended. The first and second order births forms 81% of the total births and third order birth comes to 12.4%. The corresponding percentages for the previous years were 82.8 and 9.9 respectively. The percentage of birth under seventh order and above was the same as in the previous year i.e. 1%.

### 3.14 Birth by type of medical attention received

The percentage distribution of of births by type of medical attention received at the time of delivery for the years 1983 to 1992 are given below in table no. A4.

TABLE NO.A4  
(Percentage distribution of births by type of medical attention received for the period from 1983 to 1992)

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	0.2
1984	73.3	9.2	13.6	3.7	0.3
1985	76.5	8.2	12.8	2.2	0.1
1986	80.2	6.3	9.7	3.7	0.1
1987	82.5	7.7	9.2	0.6	0.2
1988	83.1	6.8	7.9	2.0	0.1
1989	86.0	5.6	6.8	1.5	0.3
1990	89.1	3.6	5.6	1.4	0.1
1991	91.1	2.7	4.9	1.2	0.1
1992	94.5	1.8	3.2	0.4	0.1

About 94.5 % of births took place in medical institutions in the year 1992 as against 91.1 % 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 15 appended. The facilities in the medical institutions were utilised by 97.2 % of the people of southern region where as in the northern region the percentage of the users were 91.7. The corresponding percentage in the previous year were 99.1 and 82.7. The services of the untrained personal were availed by 3.2 percent of the people which is higher than those who availed the services of trained personal (1.9). The corresponding figures for the previous year were 4.9 and 2.7 respectively.

### 3.15 Sex-ratio at birth

The number of male children born to 1000 female children is defined as the sex-ratio at birth. The sex ratio at birth for the years 1983 to 1992 are given below.

Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Sex ratio at birth	108.7	100.8	100.2	110.7	104.2	99.3	111.3	109.3	96.5	108

Sex ratio at birth in northern regions and southern regions were 108.2 and 109.5 respectively as against 103.4 and 90.6 in the previous year.



## Sample Registration of Births and Deaths in Kerala (Rural) 1992

Sample Registration of Births and Deaths in Kerala (Rural) 1992

## 3.16 Child Women Ratio (C.W.R)

Child Women Ratio is defined as the estimated numbers 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 - 230331.1

Estimated number of women in the age group (15-49) - 666123.7

Children:Women Ratio for the years 1983 to 1992 are given below

Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
C.W.R	460	390	377	378	383	376	368	368	352	346

## 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 1992 are given in table A5. The vital rates calculated from the data on Civil Registration system showed that the rates were very high in urban area compared to rural area of the state. As in the past a good number of resident population in rural area 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 from 1983 to 1992

Year	Birth Rate		Still Birth Rate	
	Civil Registration	Sample Registration	Civil Registration	Sample Registration
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
1992	9.6	17.6	3.0	10.3



### 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 34 appended. The highest rate of first marriage (63.7) in the case of female was in the age group 20-24 and that for males (59.3) was in the age group 25-29. In the previous year the corresponding rates were 59.3 and 58.9 in the respective age groups. The rates of marriages among females in the age group 15-19 and 20-24 were 32.2 and 63.7 which were higher than the previous year by 0.6 and 4.4 respectively. Among males also the rates of marriages in the age groups 20-24 and 25-29 were increased by 2.1 and 0.4 respectively. Out of the total marriages 1.8% marriages were re-marriages as against 2.6% for the previous year. The mean age of marriage for men was 27.9 and for women was 22.6. The corresponding figures for the previous year were 27.8 and 22.3 respectively.



## CHAPTER 4

## MORTALITY MEASURES

## 4.1 Crude death rate

The number of deaths per 1000 mid year population is taken as the crude death rate. The death occurred to the usual resident population were considered for calculating the death rate as for the birth rate. The crude death rate for the year in Kerala (rural) was 6.3 as against 6.2 in the previous year. The death rate in Northern Region was 5.6 and that for southern Region was 6.7. The crude death rate for Kerala (rural) and all India (rural) for the year 1983 to 1992 are given in Table B1 below.

TABLE B1

Crude death rates in Kerala Rural and all India Rural for the year 1983 to 1992

Year	Northern Region	Southern Region	Combined	All India
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
1992	5.6	6.7	6.3	10.9

## 4.2 Death Rates of neighbouring states

The death rates in rural area and rural and urban combined provisionally for the year 1992 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 and Urban combined
Andhra Pradesh	10.1	9.2
Karnataka	9.4	8.5
Tamil Nadu	9.2	8.4
Kerala	6.3	6.3
All India	10.9	10.1

Comparing the death rates in rural areas of the neighbouring states Andhra Pradesh recorded the highest death rate (10.1) while Kerala recorded the lowest death rate (6.3) for the year.



### 4.3 Death rate among different religious groups

The death rates among the three major religions viz Hindu, Muslim and Christian are given in Table 19 appended. The lowest death rate (4.5) was recorded among the Christians of Northern region and the highest death rate (7.0) was recorded among the Christian of Southern region for the rural area of the State. The corresponding rates for the previous year were 3.9 and 7.1 respectively. When the State as a whole is concerned (rural) the highest death rate was recorded among Christians (6.6) and the lowest among Muslims (5.5). When compared with the rates of previous year the death rates among Hindus (6.4) and Christians (6.6) were not changed whereas the death rates among Muslims changed from 5.2 to 5.5 in the current 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 24 appended. The age-group 70 and above denotes the highest death rate (86.4) and the lowest rate (0.6) in the age group 10-14. In the previous year these rates were 89.4 and 0.3 respectively. Between the two regions the death rate in the age-group 70 and above was comparatively high in Northern region (99.2) than the Southern region (81.0) in the current year as in the previous year. The corresponding rates for 1991 were 99.1 and 89.4 respectively. Similarly the death rate among males in the same age group (99.5) was higher than that of females (75.9). In the previous year these rates were 100.5 and 80.3 respectively. When compared with the current year's death rates in the age group of 70 and above, the death rate of males was decreased from 100.5 to 99.5 and that of females the death rate decreased from 80.3 to 75.9. The death rate among children below one year was 16.3 as against 16.6 in the previous year. The death rates in the above age group among males and females were 21.1 and 11.5 in the current year and 20.7 and 12.1 in the previous year respectively.

### 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 Table 28 appended. The infant mortality rates of Kerala for the year 1983 to 1992 are given below.

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
38.9	30.1	33.0	28.6	27.0	29.9	23.3	17.1	16.6	17.0

The infant mortality rate in Northern and Southern regions were 18.3 and 15.8 respectively against 20.3 and 13.3 in the previous year showing a decrease of 2.0 in the North and an increase of 2.5 in the south.

### 4.6 Neo natal mortality rate

Neo natal mortality rates is defined as the estimated number of deaths of infants below 28 days of age per 1000 live births in an year. Neo natal mortality rate was calculated as 12.8 as against 10.0 in the last year.



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## 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 10.2 where as in the previous year the corresponding rate was 7.2. 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 -1992

Region	Mortality rate								
	Peri-natal			Neo-Natal			Infant Mortality Rate		
	M	F	Total	M	F	Total	M	F	Total
I	2	3	4	5	6	7	8	9	10
Northern	12.1	6.4	9.3	16.3	10.4	13.5	22.3	14.1	18.3
Southern	14.0	7.6	10.9	15.5	8.5	12.2	20.2	11.0	15.8
State	13.1	7.0	10.2	15.9	9.4	12.8	21.2	12.5	17.0

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

Table 27 appended gives the distribution of samples according to death rates for 1992 and for the previous two years. During the year under report 47 units of northern region (77.0%) and 51 units of southern region (57.3%) recorded death rate below 7 whereas in the previous year the corresponding rates were 70.5% and 59.5%. When both the regions are combined 65.3% sample units recorded death rate below 7. The highest birth rate (14.1) was recorded in one sample in the Northern region. The lowest death rate was reported one sample in the Southern region (2.1).

## 4.9 Medical attention received before death

The percentage distribution of deaths according to medical attention received before death during the years 1983 to 1992 is given in table B4 given below.

**Table B4**  
Percentage distribution of deaths according to type of medical attention received for the year 1983 to 1992

Year	Institutional	Qualified Medical Practitioner	Unqualified Medical Practitioner	None
I	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
1992	54	29	4	13



It can be seen that about 87% of the prsons were received some kind of attention before death in the current year. The corresponding percentage for the previous year was 85.

#### 4.10 Comparison of mortality rates under civil registration system and Sample registration system for the years from 1983 to 1991

Year	Death Rate		Death Rate Infant Mortality Rate	
	Civil Registration	Sample Registration	Civil Registration	Sample Registration
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	4.1	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
1992	4.5	6.3	5.2	17.0

As in the previous years the vital rates in the 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 births and deaths of the resident population in rural area are registered in urban area where they seek better medical attention.

#### 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. 36,37,38 appended to this report. The life tables are prepared sex-wise and population wise seperately based on age specific death rates for the years 1990,1991 and 1992. The expectation of life at birth for males, females and for both sex together were calculated as 67.9,74.8 and 71.2 as against 68.1,74.7 and 71.3 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 6.9 in the current year and 6.6 in the previous year. The expectation of life calculated for the last 10 years are given in Table B6 below.

Table B6

Expectation of life based on age specific death rates for the years 1983 to 1992

Age specific death rates for the years	Males	Females	Males and Females together
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
1990,1991,1992	67.9	74.8	71.2



Method adopted for calculation of life tables

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

$q_0 = \frac{D1 + D2}{B1 + B2}$  where D1 is the number of deaths of children born during 1991 and died in 1992. D2 is that of the children born and died in 1992. B1 and B2 denote the total number of births occurred during 1991 and 1992 respectively.

$$q_x = \frac{2 \times (C_x \times m_x)}{2 + (C_x \times m_x)} \quad \text{where } C \text{ is the class interval}$$

Let  $l_0$  be 1,00,000

$$l_x = l_0 - d_0$$

$$d_x = l_x \times q_x$$

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

$$L_0 = f \times l_0 + (1-f) l_1 \quad \text{where } f = \frac{D1}{D1+D2}$$

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

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

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  
- Midyear estimated population, births, deaths and vital rates 1992

Stratum	Estimated Population birth and death					Vital rates			
	Population	Births	Deaths	Still births	Infant death	Birth rate	Death rate	Still birth rate	Infant death rate
I	2	3	4	5	6	7	8	9	10
I A	34972	504	353	0	0	14.41	10.09	0.00	0.00
B	196428	4122	1560	111	222	20.98	7.94	26.22	53.86
C	942005	18239	5724	291	194	19.36	6.08	15.70	10.64
D	8790228	171483	48315	2722	3147	19.51	5.50	15.63	18.35
Northern region	9963633	194348	55952	3124	3563	19.51	5.62	15.82	18.33
II A	106733	1460	365	0	0	13.69	3.42	0.00	0.00
B	337131	4420	1360	0	0	13.11	4.03	0.00	0.00
C	1455843	23712	11127	364	274	16.29	7.64	15.12	11.56
D	11492594	186285	77234	785	3138	16.21	6.72	4.20	16.85
Southern region	13392301	215877	90086	1149	3412	16.12	6.73	5.29	15.81
State	23355934	410225	146038	4273	6975	17.56	6.25	10.31	17.00

Table 2 - Sample Population and Estimated Population for each Stratum 1992

Stratum	Observed population in samples in each stratum		Observed population for each stratum	
	As on 1-7-92	As on 1-1-93	As on 1-7-92	As on 1-1-93
I	2	3	4	5
I A	694	684	34972	34468
B	1763	1780	196428	198322
C	9710	9675	942005	938610
D	103340	103868	8790228	8835140
Northern region	115507	116007	9963633	10006540
II A	877	920	106733	111966
B	1983	1977	337131	336111
C	15963	15831	1455843	1443804
D	131839	131155	11492594	11432969
Southern region	150662	149883	13392301	13324850
State	266169	265890	23355934	23331390



**Table 3 - Stratum wise Population according to sex 1992**

Stratum	Observed Population			Estimated Population		
	Male	Female	Total	Male	Female	Total
	2	3	4	5	6	7
I						
I A	339	355	694	17083	17889	34972
B	853	910	1763	95039	101389	196428
C	4654	5056	9710	451503	490502	942005
D	49759	53581	103340	4232562	4557666	8790228
Northern region	55605	59902	115507	4796187	5167446	9963633
II A	438	439	877	53306	53427	106733
B	957	1026	1983	162700	174431	337131
C	7735	8228	15963	705440	750403	1455843
D	64006	67833	131839	5579495	5913099	11492594
Southern region	73136	77526	150662	6500941	6891360	13392301
State	128741	137428	266169	11297128	12058806	23355934

**Table 4 - Midyear Sample Population and estimated population according to age and sex 1992**

Stratum	Observed Population			Estimated Population		
	Male	Female	Total	Male	Female	Total
	2	3	4	5	6	7
I						
0-1	2453	2426	4879	214488	213471	427959
1-4	10925	10498	21423	955897	919458	1875355
5-9	13037	13034	26071	1142127	1140081	2282208
10-14	13423	13072	26495	1176738	1146227	2322965
15-19	13544	13738	27282	1185965	1203533	2389498
20-24	12858	15371	28229	1128349	1348089	2476438
25-29	11532	13373	24905	1013321	1171879	2185200
30-34	10349	10736	21085	907655	942789	1850444
35-39	8473	9032	17505	743063	791713	1534776
40-44	6937	7465	14402	610850	656396	1267246
45-49	5731	6229	11960	504334	546848	1051182
50-54	4946	5366	10312	434686	472438	907124
55-59	4394	4988	9382	386627	438958	825585
60-64	3486	4000	7486	307355	352155	659510
65-69	2785	3249	6034	244759	286022	530781
70 & above	3868	4851	8719	340914	428749	769663
Total	128741	137428	266169	11297128	12058806	23355934



**Table 5 - Sex ratio and Percentage distribution of Population by age group  
(Years 1981, 1991 and 1992)**

Age Group	1981		1991		1992	
	Sex Ratio	% populatio	Sex Ratio	% populatio	Sex Ratio	% populatio
1	2	3	4	5	6	7
0-4	978	10.8	967	10.0	968	9.9
5-9	975	11.5	991	9.7	998	9.8
10-14	984	12.8	963	10.2	974	9.9
0-14	979	35.4	974	30.0	980	29.6
15-19	1092	11.7	1002	10.4	1015	10.2
20-24	1094	10.1	1203	10.9	1195	10.6
25-29	1086	8.1	1105	9.3	1156	9.4
30-34	1008	6.0	1055	7.8	1039	7.9
35-39	1089	5.5	1050	6.4	1066	6.6
40-44	1022	4.4	1074	5.3	1075	5.4
45-49	1035	4.6	1051	4.3	1084	4.5
50-54	996	4.4	1102	3.9	1087	3.9
55-59	992	2.9	1142	3.5	1135	3.5
60-64	1039	2.7	1083	2.8	1146	2.8
65-69	1123	2.1	1202	2.2	1169	2.3
70 & above	1159	2.8	1214	3.2	1258	3.3
Total	1034	100.0	1057	100.0	1067	100.0

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

Stratum	Observed Population				Estimated Population			
	Hindu	Christian	Muslim	Total	Hindu	Christian	Muslim	Total
I	2	3	4	5	6	7	8	9
I A	390	182	122	694	19653	9171	6148	34972
B	1285	12	466	1763	143171	1337	51920	196428
C	4787	439	4484	9710	464406	42589	435010	942005
D	59627	8341	35372	103340	5071946	709496	3008786	8790228
Northern region	66089	8974	40444	115507	5699176	762593	3501864	9963633
II A	118	747	12	877	14361	90912	1460	106733
B	1131	852	0	1983	192282	141849	0	33713
C	8083	6695	1185	15963	737179	610591	108073	145584
D	77125	38426	16288	131839	6723097	3349649	1419848	1149259
Southern region	86457	46720	17485	150662	7666919	4196001	1529381	1339230
State	152546	55694	57959	266169	13366095	4958594	5031245	2335593



Table 7 - Stratum wise Live Births observed in samples and estimated according to sex 1992

Stratum	Observed in samples			Estimated		
	Male	Female	Total	Male	Female	Total
I	2	3	4	5	6	7
I A	4	6	10	202	302	504
B	15	22	37	1671	2451	4122
C	104	84	188	10090	8149	18239
D	1047	969	2016	89059	82424	171483
Northern region	1170	1081	2251	101022	93326	194348
II A	4	8	12	487	973	1460
B	13	13	26	2210	2210	4420
C	137	123	260	12494	11218	23712
D	1120	1017	2137	97632	88653	186285
Southern region	1274	1161	2435	112823	103054	215877
State	2444	2242	4686	213845	196380	410225

Table 8 - Estimated no. of total women, married women and live birth in different reproductive age groups 1992

Region	Age Group of women							
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total
I	2	3	4	5	6	7	8	9
A. Estimated No. of Total Women								
1. Northern Region	569710	564062	472037	375780	312903	258434	222161	2775087
2. Southern region	633823	784027	699842	567009	478810	397962	324687	3886160
3. State	1203533	1348089	1171879	942789	791713	656396	546848	6661247
B. Estimated No. of Married Women								
1. Northern Region	96396	357665	384868	320132	266303	210620	162759	1798743
2. Southern region	32438	358032	532124	490645	423562	342157	266626	2445584
3. State	128834	715697	916992	810777	689865	552777	429385	4244327
C. Estimated No. of Live Births								
1. Northern Region	19846	94911	52590	19520	5869	1362	220	194348
2. Southern region	7057	101686	81598	21253	3760	436	87	215877
3. State	26903	196627	134188	40773	9629	1798	307	410225
State (Female Births)	12113	94808	64843	19383	4297	766	170	196380



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

Region	Age Group of Women						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
1	2	3	4	5	6	7	8
A.Age Specific fertility rate							
1. Northern Region	34.84	168.32	111.41	51.95	18.76	5.27	0.99
2. Southern region	11.13	129.70	116.59	37.48	7.85	1.10	0.27
State (All Births)	22.35	145.86	114.51	43.25	12.16	2.74	0.56
State (Female Births)	10.06	70.33	55.33	20.56	5.43	1.17	0.31
B.Age specific marital fertility rate							
1. Northern Region	205.88	265.45	136.64	60.97	22.04	6.47	1.35
2. Southern region	217.55	284.01	153.34	43.32	8.88	1.27	0.33
State (All birth)	208.82	274.73	146.33	50.29	13.96	3.25	0.71

	Northern Region	Southern Region	State
G.F.R	70.03	55.55	61.58
T.F.R	1.96	1.52	1.71
G.R.R			0.82



Table 10 - Distribution of currently married women observed according to age, religion and number of surviving children 1992.

Age Group	Religion	No of surviving children								Total
		1	2	3	4	5	6	7 & above		
I	2	3	4	5	6	7	8	9	10	
15-19	H	128	3	2	0	0	0	0	0	133
	M	147	14	1	0	0	0	0	0	162
	C	11	2	0	0	0	0	0	0	13
20-24	H	762	375	50	5	0	0	1	0	1193
	M	323	282	101	14	2	0	0	0	722
	C	237	81	14	1	0	0	0	0	333
25-29	H	319	346	115	18	4	0	0	0	802
	M	60	116	113	56	17	5	4	0	371
	C	160	147	46	3	0	0	0	0	356
30-34	H	48	81	43	12	4	2	2	0	192
	M	17	23	33	34	24	14	7	0	152
	C	16	61	41	1	1	1	0	0	121
35-39	H	20	9	4	6	3	1	3	0	46
	M	8	2	6	6	6	5	15	0	48
	C	1	2	6	3	2	1	2	0	17
40-44	H	0	1	0	1	0	0	0	0	2
	M	0	3	1	1	1	0	9	0	15
	C	0	0	1	2	1	0	0	0	4
45-49	H	0	0	0	0	0	0	0	0	0
	M	0	0	0	0	0	0	2	0	2
	C	0	0	0	0	0	0	2	0	2
Total		2257	1548	577	163	65	29	47	0	4686



**Table 11- Distribution of currently married women observed according to age, religion and number of ever born children 1992.**

Age Group	Religion	No. of everborn children							Total
		1	2	3	4	5	6	7 & above	
		3	4	5	6	7	8	9	10
I	H								133
15-19	H	128	3	2	0	0	0	0	162
	M	147	14	1	0	0	0	0	13
	C	11	2	0	0	0	0	1	1193
20-24	H	771	366	50	5	0	0	0	722
	M	314	291	101	14	2	0	0	333
	C	237	81	14	1	0	0	0	802
25-29	H	318	345	117	18	4	0	0	371
	M	55	103	113	58	17	6	4	356
	C	157	162	49	3	0	0	0	192
30-34	H	48	81	43	12	4	2	2	152
	M	17	22	34	34	24	14	7	121
	C	16	63	39	1	1	1	0	46
35-39	H	20	9	4	6	3	1	3	48
	M	8	1	6	6	6	5	16	17
	C	1	2	6	3	2	1	2	2
40-44	H	0	1	0	1	0	0	0	15
	M	0	3	1	1	1	0	9	4
	C	0	0	1	2	1	0	0	2
45-49	H	0	0	0	0	0	0	2	2
	M	0	0	0	0	0	0	0	0
	C	0	0	0	0	0	0	0	0
Total		2248	1549	581	165	65	30	48	4680



**Table 12 - Distribution of currently married women observed in samples according to age of mother and children ever born 1992**

Age Group	No. of Children ever born							Total
	1	2	3	4	5	6	7 & above	
1	2	3	4	5	6	7	8	9
15-19	286	19	3	0	0	0	0	308
20-24	1327	738	165	20	2	0	1	2248
25-29	530	610	279	79	21	6	4	1529
30-34	81	166	116	47	29	17	9	465
35-39	29	12	16	15	11	7	21	111
40-44	0	4	2	4	2	0	9	21
45-49	0	0	0	0	0	0	4	4
Total	2243	2253	1549	581	165	65	30	4686

**Table 13 - Distribution of currently married women observed in sample according to age of mother and age of the last child 1992**

Age of mother	Age of last child (in months)									Total
	0-14	15-29	30-44	45-59	60-74	75-89	90-104	105-119	120-134	
1	2	3	4	5	6	7	8	9	10	11
15-19	291	15	2	0	0	0	0	0	0	308
20-24	1124	687	285	106	35	9	2	0	0	2248
25-29	475	411	295	181	99	33	16	10	9	1529
30-34	88	97	86	80	44	27	18	10	15	465
35-39	29	17	17	12	11	9	3	0	13	111
40-44	0	4	5	4	3	0	1	0	4	21
45-49	0	0	0	0	2	2	0	0	0	4
Total	2007	1231	690	383	194	80	40	20	41	4686



Table 14 - Live Births observed in samples classified by month of occurrence 1992

Stratum	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
I	2	3	4	5	6	7	8	9	10	11	12	13
IA	0	1	1	0	1	1	0	1	2	1	1	1
B	6	3	4	4	2	2	5	4	2	0	4	1
C	17	11	16	23	17	14	14	17	12	18	12	17
D	190	147	176	192	182	198	159	138	158	163	133	180
Northern region	213	162	197	219	202	215	178	160	174	182	150	199
II A	0	0	1	0	0	3	1	1	2	1	2	1
B	4	1	2	1	3	2	3	1	2	1	1	5
C	18	17	19	27	16	23	24	23	22	24	18	29
D	193	150	167	212	180	198	150	170	186	166	185	180
Southern region	215	168	189	240	199	226	178	195	212	192	206	215
State	428	330	386	459	401	441	356	355	386	374	356	414

Table 15 - Live Births observed in samples by type of medical attention by delivery 1992

Stratum	Type of Medical attention					Total
	Institutional	Trained professional	Untrained professional	Non professional	Not stated	
I	2	3	4	5	6	7
IA	10	0	0	0	0	
B	35	0	1	1	0	
C	185	0	3	0	0	
D	1834	48	118	16	0	2
Northern region	2064	48	122	17	0	2
II A	12	0	0	0	0	
B	26	0	0	0	0	
C	260	0	0	0	0	
D	2068	39	27	0	3	2
Southern region	2366	39	27	0	3	2
State	4430	87	149	17	3	4



**Table 16 - Percentage distribution of births by age of mother and order of birth of child 1992**

Age Group	Order of birth							
	1	2	3	4	5	6	7 & above	Total
1	2	3	4	5	6	7	8	9
15-19	92.86	6.17	0.97	0.00	0.00	0.00	0.00	100.00
20-24	59.03	32.61	7.34	0.89	0.09	0.00	0.01	100.00
25-29	34.66	39.90	18.25	5.17	1.37	0.39	0.26	100.00
30-34	17.41	35.70	24.95	10.11	6.24	3.66	1.93	100.00
35-39	26.13	10.81	14.41	13.51	9.91	6.31	18.92	100.00
40-44	0.00	19.05	9.52	19.05	9.52	0.00	42.86	100.00
45-49	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00
All ages	48.08	32.95	12.40	3.52	1.39	0.64	1.02	100.00

**Table 17 - Distribution of samples according to birth-rate 1992**

Birth rate	Northern region		Southern region		State					
					1992		1991		1990	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9	10	11
Less than 12	6	9.80	9	10.10	15	10.00	11	7.40	5	3.30
12 & less than 16	12	19.70	45	50.60	57	38.00	43	28.70	30	20.00
16 & less than 20	14	23.00	22	24.70	36	24.00	47	31.30	55	36.70
20 & less than 24	18	29.50	11	12.40	29	19.30	29	19.30	38	25.30
24 & less than 28	9	14.80	1	1.10	10	6.70	9	6.00	14	9.30
28 & less than 32	1	1.60	1	1.10	2	1.30	5	3.30	4	2.70
32 & less than 36	1	1.60	0	0.00	1	0.70	6	4.00	3	2.00
36 & less than 40	0	0.00	0	0.00	0	0.00	0	0.00	1	0.70
40 & less than 44	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
44 & above	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Total	61	100.0	89	100.0	150	100.0	150	100.0	150	100.0



Table 18 - Still Birth observed in samples and estimated according to sex and still birth rates 1992

Stratum	Still Birth observed			Still births estimated			Esti. no. of live births & still births	Still birth rate
	Male	Female	Total	Male	Female	Total		
	2	3	4	5	6	7	8	9
I	0	0	0	0	0	0	501	0.0
I A	0	0	0	0	0	0	4233	26.2
B	1	0	1	111	0	111	18530	15.7
C	2	1	3	194	97	291	174205	15.6
D	16	16	32	1361	1361	2722	197472	15.8
Northern region	19	17	36	1666	1458	3124	1461	0.0
II A	0	0	0	0	0	0	4420	0.0
B	0	0	0	0	0	0	24076	15.1
C	2	2	4	182	182	364	187070	4.2
D	5	4	9	436	349	785	217027	5.2
Southern region	7	6	13	618	531	1149	414499	10.3
State	26	23	49	2284	1989	4273		

Table 19 - Religion wise Birth rate and death rate 1992

Stratum	Birth rate			Death rate		
	Northern region	Southern region	State	Northern region	Southern region	State
I	2	3	4	5	6	7
Hindu	15.98	15.17	15.52	5.96	6.74	6.41
Muslim	26.19	24.68	25.73	5.31	5.97	5.51
Christian	15.15	14.74	14.80	4.45	6.98	6.59
Total	19.51	16.12	17.56	5.62	6.73	6.25



**Table 20 - Religion wise and Region wise estimated population, birth and death rates 1992**

Region	Hindu	Muslim	Christian	Total
1	2	3	4	5
<b>I. Estimated Population</b>				
N.R	5699176	3501864	762593	9963633
S.R	7666919	1529381	4196001	13392301
State	13366095	5031245	4958594	23355934
<b>II. Estimated Birth</b>				
N.R	91090	91701	11557	194348
S.R	116301	37739	61837	215877
State	207391	129440	73394	410225
<b>III. Estimated Deaths</b>				
N.R	33946	18610	3396	55952
S.R	51685	9125	29276	90086
State	85631	27735	32672	146038
<b>IV. Birth rate</b>				
N.R	15.98	26.19	15.15	19.51
S.R	15.17	24.68	14.74	16.12
State	15.52	25.73	14.80	17.56
<b>V. Death rate</b>				
N.R	5.96	5.31	4.45	5.62
S.R	6.74	5.97	6.98	6.73
State	6.41	5.51	6.59	6.25

**Table 21 - Stratum wise Death observed in samples and estimated according to sex 1992**

Stratum	Death observed in sample			Estimated no. of deaths		
	Male	Female	Total	Male	Female	Total
I	2	3	4	5	6	7
I A	3	4	7	151	202	353
B	11	3	14	1226	334	1560
C	33	26	59	3202	2522	5724
D	328	240	568	27900	20415	48315
Northern region	375	273	648	32479	23473	55952
II A	3	0	3	365	0	365
B	5	3	8	850	510	1360
C	72	50	122	6567	4560	11127
D	502	384	886	43760	33474	77234
Southern region	582	437	1019	51542	38544	90086
State	957	710	1667	84021	62017	146038



**Table 22 - Distribution of death observed in samples according to age and sex 1992**

Age Group	Northern Region			Southern Region			State		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10
Below 1	26	15	41	26	13	39	52	28	80
1-4	4	5	9	9	3	12	13	8	21
5-9	4	3	7	10	7	17	14	10	24
10-14	5	3	8	3	6	9	8	9	17
15-19	3	5	8	7	7	14	10	12	22
20-24	7	12	19	11	8	19	18	20	38
25-29	4	5	9	9	8	17	13	13	26
30-34	12	5	17	10	7	17	22	12	34
35-39	11	4	15	14	5	19	25	9	34
40-44	12	9	21	19	9	28	31	18	49
45-49	22	8	30	17	14	31	39	22	61
50-54	18	11	29	46	21	67	64	32	96
55-59	27	15	42	49	14	63	76	29	105
60-64	26	27	53	49	21	70	75	48	123
65-69	52	27	79	60	43	103	112	70	182
70 & above	142	119	261	243	251	494	385	370	755
All	375	273	648	582	437	1019	957	710	1667

**Table 23 - Distribution of estimated death according to age and sex 1992**

Age Group	Northern Region			Southern Region			State		
	Male	Female	Total	Male	Female*	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10
Below 1	2249	1314	3563	2279	1133	3412	4528	2447	6975
1-4	340	437	777	783	262	1050	1128	699	1827
5-9	340	255	595	872	610	1482	1212	865	2077
10-14	425	255	680	265	527	792	690	782	1472
15-19	255	425	680	610	610	1220	865	1035	1900
20-24	622	952	1574	963	701	1664	1585	1653	3238
25-29	340	391	731	785	697	1482	1125	1088	2213
30-34	1021	425	1446	879	614	1493	1900	1039	2939
35-39	990	352	1342	1224	444	1668	2214	796	3010
40-44	1033	766	1799	1660	785	2445	2693	1551	4244
45-49	1919	693	2612	1486	1220	2706	3405	1913	5318
50-54	1520	948	2468	4038	1834	5872	5558	2782	8340
55-59	2370	1288	3658	4454	1237	5691	6824	2525	9349
60-64	2227	2347	4574	4339	1843	6182	6566	4190	10756
65-69	4519	2332	6851	5281	3761	9042	9800	6093	15893



## Sample Registration of Births and Deaths in Kerala (Rural) 1992

70 & above	12309	10293	22602	21619	22266	43885	33928	32559	66487
All	32479	23473	55952	51542	38544	90086	84021	62017	146038

Table 24 - Age specific death rates based on estimated values 1992

Age Group	Northern region	Southern region	Total	State	
				Male	Female
1	2	3	4	5	6
Less than 1	17.82	14.97	16.30	21.11	11.46
1-4	1.10	1.12	1.11	1.18	0.76
5-9	0.52	1.07	0.80	1.06	0.76
10-14	0.62	0.65	0.63	0.59	0.68
15-19	0.60	0.97	0.80	0.73	0.86
20-24	1.49	1.16	1.30	1.40	1.23
25-29	0.83	1.13	1.01	1.11	0.93
30-34	2.17	1.32	1.65	2.09	1.10
35-39	2.26	1.77	1.96	2.98	1.01
40-44	3.65	3.16	3.35	4.41	2.36
45-49	6.26	4.27	5.06	6.75	3.50
50-54	7.05	10.54	9.19	12.79	5.89
55-59	11.86	11.00	11.32	17.65	5.75
60-64	19.23	14.66	16.31	21.36	11.90
65-69	37.26	26.07	29.94	40.01	21.30
70 & above	99.16	81.01	86.38	99.52	75.94
All	5.62	6.73	6.25	7.44	5.14

Table 25 - Death observed in samples classified by month of occurrence 1992

Stratum	Jan	Feb	Mar	Apr	Ma y	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
I	2	3	4	5	6	7	8	9	10	11	12	13	14
IA	0	2	1	1	1	0	1	0	0	0	1	0	7
B	2	3	0	0	0	1	2	2	0	0	1	3	14
C	4	6	5	3	6	5	4	6	4	3	6	7	59
D	48	48	34	30	43	45	43	79	45	55	34	64	568
Northern region	54	59	40	34	50	51	50	87	49	58	42	74	648
II A	1	1	0	0	0	1	0	0	0	0	0	0	3
B	1	0	2	0	0	0	0	2	1	0	2	0	8
C	18	5	6	10	10	7	7	11	9	14	11	12	120
D	79	69	61	52	47	73	85	100	84	71	95	69	888
Southern region	99	75	72	62	57	81	92	113	94	85	108	81	1019
State	153	134	112	96	107	132	142	200	143	143	150	155	1667



Table 26 - Death classified by type of medical attention 1992

Stratum	Type of medical attention				Total
	Institutional	Qualified medical practitioner	Unqualified medical practitioner	No treatment	
I	2	3	4	5	6
IA	6	0	0	1	7
B	10	3	0	1	14
C	31	15	11	2	59
D	217	173	44	134	568
Northern region	264	191	55	138	648
II A	0	1	0	2	3
B	5	3	0	0	8
C	86	20	0	14	120
D	539	266	12	71	888
Southern region	630	290	12	87	1019
State	894	481	67	225	1667

Table 27 - Distribution of samples according to death rate of each sample 1992

Death rate	Northern region		Southern region		1992		1991		1990	
	No.	%	No.	%	No.	%	No.	%	No.	%
I	2	3	4	5	6	7	8	9	10	11
Less than 1	0	0.00	0	0.00	0	0.00	2	1.30	0	0.00
and less than 3	3	4.92	5	5.60	8	5.30	10	6.70	15	10.00
and less than 5	21	34.40	17	19.10	38	25.30	36	24.00	37	24.70
and less than 7	23	37.70	29	32.60	52	34.70	48	32.00	50	33.30
and less than 9	11	18.00	24	27.00	35	23.30	36	24.00	32	21.30
and less than 11	2	3.30	11	12.30	13	8.70	16	10.60	12	8.00
and less than 13	0	0.00	3	3.40	3	2.00	1	0.70	2	1.30
and less than 15	1	1.70	0	0.00	1	0.70	1	0.70	1	0.70
and above	0	0.00	0	0.00	0	0.00	0	0.00	1	0.70
Total	61	100.00	89	100.00	150	100.00	150	100.00	150	100.00



Table 28 - Infant death observed and estimated according to sex and infant mortality rate 1992

Stratum	Infant death observed			Infant death estimated			Estimated live birth			Infant mortality rate		
	Male	Fema	Total	Male	Fema	Total	Male	Fema	Total	Male	Fema	Total
I	2	3	4	5	6	7	8	9	10	11	12	13
IA	0	0	0	0	0	0	202	302	504	0.00	0.00	0.00
B	1	1	2	111	111	222	1671	2451	4122	66.43	45.29	53.86
C	1	1	2	97	97	194	10090	8149	18239	9.61	11.90	10.64
D	24	13	37	2041	1106	3147	89059	82424	171483	22.92	13.42	18.35
Northern region	26	15	41	2249	1314	3563	101022	93326	194348	22.26	14.08	18.33
II A	0	0	0	0	0	0	487	973	1460	0.00	0.00	0.00
B	0	0	0	0	0	0	2210	2210	4420	0.00	0.00	0.00
C	3	0	3	274	0	274	12494	11218	23712	21.93		11.56
D	23	13	36	2005	1133	3138	97632	88653	186285	20.54	12.78	16.85
Southern region	26	13	39	2279	1133	3412	112823	103054	215877	20.20	10.99	15.81
State	52	28	80	4528	2447	6975	213845	196380	410225	21.17	12.46	17.00

Table 29 - Number of infant deaths observed in samples of children born during the current year and previous year 1992

Stratum	Born in 1991									Born in 1992								
	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
IA																		
B										1	0	1	1	1	2	1	1	2
C														1	1	1	1	2
D							1	4	5	13	7	20	18	9	27	23	9	32
Northern region							1	4	5	14	7	21	19	11	30	25	11	36
II A																		
B																		
C										2	0	2	2	0	2	3	0	3
D							1	1	2	16	9	25	18	10	28	22	12	34
Southern region							1	1	2	18	9	27	20	10	30	25	12	37
State							2	5	7	32	16	48	39	21	60	50	23	73



Table 30 - Estimated no. of infant deaths for the year 1992 of children born during the current year and previous year

Stratum	Born in 1991										Born in 1992																			
	Less than 7 days					Less than 28 days					Less than 1 year					Less than 28 days					Less than 1 year									
	M	F	T	M	F	M	F	T	M	F	M	F	T	M	F	M	F	T	M	F	M	F	T	M	F					
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19												
IA																														
B										111	0	111	111	111	222	111	111	222								111	111	222		
C																														
D											85	340	425	1106	395	1701	1531	766	2297	1956	766	2297	1956	766	2722	766	2722			
Northern region											85	340	425	1217	595	1812	1647	974	2616	2164	974	2616	2164	974	3158	974	3158			
IIA																														
B																														
C														182	0	182	182	0	182	274	0	182	274	0	274	0	274			
D											87	87	174	1395	785	2180	1569	872	2441	1918	872	2441	1918	872	2964	872	2964			
Southern region											87	87	174	1577	785	2362	1751	872	2625	2192	872	2625	2192	872	3258	872	3258			
State											172	427	599	2794	1380	4174	3393	1846	5259	4356	1846	5259	4356	1846	6376	1846	6376			



Table 31 - Estimated no. of perinatal, neonatal and infant death according to sex 1992

Stratum	Estimated number of infant death								
	Less than 7 days			Less than 28 days			Less than 1 year		
	M	F	T	M	F	T	M	F	T
I	2	3	4	5	6	7	8	9	10
I	1217	595	1812	1642	974	2616	2249	1314	3563
II	1577	785	2362	1751	872	2623	2279	1133	3412
Total	2794	1380	4174	3393	1846	5239	4528	2447	6975

Table 32 - Births and deaths detected through overlapping survey and intensive enquiry classified according to place and type of birth and deaths 1992

Stratum	Total	Birth					Death			
		Place		Kind		Total	Place		Kind	
		In	Out	Live Birth	Still Birth		In	Out	Infant deaths	Other deaths
I	2	3	4	5	6	7	8	9	10	11
IA										
B										
C	5					1				
D	66		5	5				1	0	1
thern region	71		66	66		8				
II A	1		71	71		9		8	1	7
B			1	1				9	1	8
C	6									
D	59		6	6		1				
thern region	66		59	59		13		1		1
State	137		66	66		14		13		13
			137	137		23		14		14
								23	1	22



**Table 33 - Distribution of births and deaths recorded by enumerators and supervisors detected through overlapping survey and intensive enquiry 1992**

Items	Births			Deaths		
	Northern region	Southern region	State	Northern region	Southern region	State
1	2	3	4	5	6	7
Common to enumerator & supervisor	1800	2001	3801	592	917	1509
Registered by enumerator	No. 1905	2132	4037	601	978	1579
	% 84.60	87.60	86.20	92.70	96.00	94.70
Listed by supervisor	No. 2152	2325	4477	632	992	1624
	% 95.60	95.50	95.50	97.50	97.40	97.40
Total metted by enumerator & supervisors	2172	2377	4549	634	1010	1644
Detected by others	5	4	9	1	6	7
Overlapping survey	74	54	128	13	3	16
Intensive enquiry	0	0	0	0	0	0
Total	2251	2435	4686	648	1019	1667

**Table 34 - Distribution of rate of marriage per thousand population and percentage distribution of marriage according to age and sex 1992**

Age Group	Rate of marriage per 1000 population						Percentage					
	1st marriage		Remarriage		All marriage		1st-marriage		Remarriage		All marriage	
	M	F	M	F	M	F	M	F	M	F	M	F
1	2	3	4	5	6	7	8	9	10	11	12	13
15-19	0.81	32.17	0.00	0.51	0.81	32.68	0.77	22.33	0.00	28.00	0.75	22.33
20-24	23.80	63.69	0.00	0.26	23.80	63.95	21.50	49.47	0.00	16.00	20.95	49.47
25-29	59.31	35.67	0.26	0.30	59.57	35.97	48.07	24.10	7.89	16.00	47.02	24.10
30-34	34.30	6.33	0.97	0.28	35.26	6.61	24.95	3.44	26.32	12.00	24.98	3.44
35-39	7.08	1.11	0.71	0.55	7.79	1.66	4.22	0.51	15.79	20.00	4.52	0.51
40-44	0.87	0.40	1.30	0.13	2.16	0.54	0.42	0.15	23.68	4.00	1.03	0.15
45-49	0.17	0.00	1.74	0.16	1.92	0.16	0.07	0.00	26.32	4.00	0.75	0.00
15-49	20.50	26.06	0.55	0.33	21.04	26.39	100.00	100.00	100.00	100.00	100.00	100.00



Table 35 - Life tables of males based on age specific death rates for the years 1990, 1991 and 1992

Age x to x+n	Age specific death rate			Mean age specific death rate (nmx)	Probab of a person aged x dying before x+n (qx)	No. of death dx	No. survivi 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)	Expectatio n of life years (Ex)	Beginin g age (x)
	1990	1991	1992								
1	2	3	4	5	6	7	8	9	10	11	12
Below 1	22.04	20.74	21.11	0.02130	0.02199	2199	100000	97885	6791999	67.92	0
1-4	2.05	2.15	1.18	0.00179	0.00713	697	97801	389810	6694114	68.45	1
5-9	0.93	0.75	1.06	0.00091	0.00454	441	97104	484418	6304304	64.92	5
10-14	0.56	0.23	0.59	0.00046	0.00230	222	96663	482760	5819886	60.21	10
15-19	1.00	1.16	0.73	0.00096	0.00479	462	96441	481050	5337126	55.34	15
20-24	0.98	1.35	1.40	0.00124	0.00618	593	95979	478413	4856076	50.60	20
25-29	2.13	1.66	1.11	0.00163	0.00812	775	95386	474993	4377663	45.89	25
30-34	2.15	1.87	2.09	0.00204	0.01015	960	94611	470655	3902670	41.25	30
35-39	3.52	1.61	2.98	0.00270	0.01341	1256	93651	465115	3432015	36.65	35
40-44	5.02	3.60	4.41	0.00434	0.02147	1984	92395	457015	2966900	32.11	40
45-49	5.65	6.30	6.75	0.00623	0.03067	2773	90411	445123	2509885	27.76	45
50-54	11.35	11.57	12.79	0.01190	0.05778	5064	87638	425530	2064762	23.56	50
55-59	16.79	19.48	17.65	0.01797	0.08599	7101	82574	395118	1639232	19.85	55
60-64	25.43	21.75	21.36	0.02285	0.10808	8157	75473	356973	1244114	16.48	60
65-69	34.27	33.76	40.04	0.03602	0.16522	11122	67316	308775	387141	13.18	65
70 & above	91.44	100.52	99.52	0.09716	1.00000	56194	56194	578366	578366	10.29	70



Table 36 - Life table of females based on age specific death rates for the years 1990, 1991 and 1992

Age x to x+n	Age specific death rate			Mean age specific death rate (nm <sub>x</sub> )	Probab of a person aged x dying before x+n (q <sub>x</sub> )	No. of death dx	No. survivi out of 100000 born alive (l <sub>x</sub> )	Year of life lived between x and x+n n(L <sub>x</sub> )	Year of life lived between x and above x (T <sub>x</sub> )	Expectatio n of life years (E <sub>x</sub> )	Beginin g age (x)
	1990	1991	1992								
1	2	3	4	5	6	7	8	9	10	11	12
Below 1	10.54	12.13	11.46	0.01138	0.01224	1224	100000	98990	7475889	74.76	0
1-4	2.12	1.03	0.76	0.00130	0.00519	513	98776	394078	7376899	74.68	1
5-9	0.44	0.31	0.76	0.00050	0.00250	246	98263	490700	6982821	71.06	5
10-14	0.29	0.45	0.68	0.00047	0.00235	230	98017	489510	6492121	66.23	1
15-19	0.56	0.78	0.86	0.00073	0.00364	356	97787	488045	6002611	61.38	15
20-24	1.05	0.88	1.23	0.00105	0.00524	511	97431	485878	5514566	56.60	20
25-29	1.02	1.08	0.93	0.00101	0.00504	488	96920	483380	5028688	51.88	25
30-34	1.44	1.76	1.10	0.00143	0.00712	687	96432	480443	4545308	47.13	30
35-39	1.10	2.25	1.01	0.00145	0.00722	691	95745	476998	4064865	42.46	35
40-44	2.13	1.88	2.36	0.00212	0.01054	1002	95054	472765	3587867	37.75	40
45-49	3.68	3.17	3.50	0.00345	0.01710	1608	94052	466240	3115102	33.12	45
50-54	3.92	5.08	5.89	0.00496	0.02450	2265	92444	456558	2648862	28.65	50
55-59	7.48	6.81	5.75	0.00668	0.03285	2962	90179	443490	2192304	24.31	55
60-64	9.99	12.54	11.90	0.01148	0.05380	4867	87217	423918	1748814	20.05	60
65-69	18.73	22.21	21.50	0.02075	0.09863	8122	82350	391445	1324896	16.09	65
70 & above	82.33	80.50	75.94	0.07952	1.00000	74228	74228	933451	933451	12.58	70



Table 37 - Life table of persons based on age specific death rates for the years 1990, 1991 and 1992

Age x to x+n	Age specific death rate			Mean age specific death rate (nm <sub>x</sub> )	Probab of a person aged x dying before x+n. (q <sub>x</sub> )	No. of death dx	No. survivi out of 100000 born alive (l <sub>x</sub> )	Year of life lived between x and x+n n(L <sub>x</sub> )	Year of life lived between x and above x (T <sub>x</sub> )	Expectatio n of life (E <sub>x</sub> )	Beginin g age (x)
	1990	1991	1992								
1	2	3	4	5	6	7	8	9	10	11	12
Below 1	16.41	16.55	16.30	0.01642	0.01694	1694	100000	98451	7123403	71.23	0
1-4	2.08	1.60	1.11	0.00160	0.00638	627	98306	391970	7024952	71.46	1
5-9	0.69	0.53	0.80	0.00067	0.00334	326	97679	487580	6632982	67.90	5
10-14	0.43	0.34	0.63	0.00047	0.00235	229	97353	486193	6145402	63.12	10
15-19	0.78	0.97	0.80	0.00085	0.00424	412	97124	484590	5659209	58.27	15
20-24	1.02	1.09	1.30	0.00114	0.00568	549	96712	482188	5174619	53.51	20
25-29	1.55	1.35	1.01	0.00130	0.00648	623	96163	479258	492431	48.80	25
30-34	1.78	1.81	1.65	0.00175	0.00871	832	95540	475620	4213173	44.10	30
35-39	2.28	1.94	1.96	0.00206	0.01025	971	94708	471113	3737555	39.46	35
40-44	3.51	2.71	3.35	0.00319	0.01582	1483	93737	464978	3266440	34.85	40
45-49	4.64	4.70	5.06	0.00480	0.02372	2188	92254	455800	2801462	30.37	45
50-54	7.46	8.16	9.19	0.00827	0.04051	3649	90066	441208	2345662	26.04	50
55-59	11.89	12.73	11.32	0.01498	0.05816	5026	86417	419520	1904454	22.04	55
60-64	17.43	16.96	16.31	0.01690	0.08107	6598	81391	390160	1484934	18.24	60
65-69	25.89	27.46	29.94	0.02776	0.12979	9707	74793	349698	1094474	14.63	65
70 & above	86.36	89.43	86.38	0.08730	1.00000	65086	65086	744776	744776	11.44	70



Table 38 - Number of units and population in the universe and in samples

Stratum	Universe		Samples		Percentage of sample population	Raising factor for stratum estimat (P/p)
	No. of census villages	Population (1981) P	No. of units selected	Population (p)		
I	2	3	4	5	6	7
I A	73	33158	2	658	1.98	50.39210
B	217	171582	2	1540	0.90	111.41688
C	519	773395	6	7972	1.03	97.01392
D	1265	7421252	51	87246	1.17	85.06123
Northern region	2074	8399387	61	97416	1.16	0.00000
II A	260	87991	2	723	0.82	121.70263
B	415	325570	3	1915	0.59	170.01044
C	894	1353880	10	14845	1.09	91.20108
D	2134	10515577	74	120631	1.15	87.17143
Southern region	3703	12283018	89	138114	1.12	0.00000
State	5777	20682405	150	235530	1.14	0.00000





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