CHAPTER 19

AGEING OF THE POPULATION OF NEPAL

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19.1 Review

19.1.1 Introduction

Ageing is the ultimate manifestation of Biological and Demographical activities in individual human being and population at large. Until recently very little attention was paid about the dynamics of ageing in human beings. However, continued increase in percentage of aged persons in the population is creating humanitarian, social and economic problems in many countries specially the developed ones. Thus, since last one decade, social scientists and demographers all over the world are trying to explore the dynamics of ageing. In Nepal's case, though attention on social aspect of ageing has been paid since ancient time, no attention has been paid yet on its demographic aspect.

Transition of Nepal's population from its primitive stationary state during 1911 to present third state in 2001 on the way to its final stationary state has been changing age structure of the population in favor of elderly person by increasing proportion of elderly persons aged 65 and above years from 2.43% during 1911 to present 4.21% . Though, the increase is not so much as compared to those observed for developed countries (as high as 13%), it indicates the starting of the ageing dynamics in Nepal, which will have adverse effects on Nepalese social structure and economy in the long run.

Present paper is an attempt to explore the demographic dimension of ageing in Nepal.

19.1.2 Concept of Ageing

For many, ageing is progressive attainment of ages of last stage of maximum life span of human being, 100 to 110 years as general [Taber's cyclopedia medical dictionary;1999]. For others, ageing is growing old or maturing, progressive changes related to the passage of time [Taber's cyclopedia medical dictionary; 1999]. Despite its universality, ageing is difficult to define

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.Shakespeare probably characterized it best in his elegant description of the seven stages of man. It begins at the moment of conception, involves the differentiations and maturation of the organism and its cells at some variable point in time, leads to the progressive loss of functional capacity characteristic of senescence, and ends in death [Robbins. 1998]. With age, there are physiological and structural alternations in almost all organ system. Ageing in individuals is affected to a great extent by genetic factors, social conditions and the occurrence of age related diseases. In addition, there is good evidence that ageing -induced alternation in cells is an important component of ageing of the organism.

Although, a number of theories have been proposed, it is now clear that cell ageing is multifactor. It involves an endogenous molecular program of cellular senescence as well as continuous exposure throughout life to adverse exogenous influences, leading to progressive encroachment on the cell's survivability [Gannon, 1999]. There is no precise method for determining the rate or degree of ageing. In a study of 1500 persons, aged 100 years or more, it was determined that longevity is not inheritable, sexual activity is both good and feasible for the aged. The older person's offspring need not love him/her and the person should work hard during life, however long [Gannon, 1999].

19.2 Measures of Ageing

19.2.1 Demographic Measures of Ageing

In demographic analysis, ageing under investigation is the Chronological ageing. As a rule, when the chronological ageing takes place, physiological ageing also takes place side by side. And it is the physiological ageing that deteriorates the Physical and Mental health of aged person and ultimately leads to death of a person. Of course there are instances, where some individuals though aged still look young, energetic and fresh. It is because in these individuals, though they are ageing chronologically, the process of physiological ageing are controlled through different practices- such as meditation, continuous work, and low calorie intakes by fasting etc.

In demographic studies, increase in the mean or median age of the population is called the ageing of the population. In this regard it is to be noted that contrary to the age of a human being that always grows, the population of the aggregate may grow older or may rejuvenate depending upon whether average age has increased or decreased.

However, the conventional method of measuring ageing is to estimate the index of ageing,

Defined as, $\text{Index of ageing} = \frac{\text{Persons of aged 65 years and over}}{\text{Children under 15 years}} \times 100$

In defining above index of ageing, it is assumed that old age begins at the age of 65 years. This assumption is consistent with the U.N convention. In World data sheets annually published by U.N, the major age groups of the population for all countries are given in terms of those less than 15 years and those aged 65 and above years. So for the purpose of comparing ageing patterns of different countries, U. N's criterion should be followed

But for the purpose of cross sectional studies, one may adopt any age above 55 year, as the appropriate age for the starting of ageing. For instance, in Nepal, different ages are used as starting of ageing. At governmental level, the retirement of civil servants is fixed at 58 years. Therefore for civil servants, the ageing is supposed to start after the completion of age 58 years. But in universities, the retiring age of teachers and administrator is 63 years. Therefore for them, ageing starts after the completion of 63 years of age. But for the purpose of legal activities and granting of pensions to general mass, the age fixed for a person to be old is 75 years. Also old age is classified into two broad groups: 60-74 years ages as young old and 75+ years as old old.

19.2.2 Index of Ageing -A link between Percents of Aged and Young Population

Since ageing is measured as a percentage of old people as compared to number of children under 15 years, changes in percentages of old people and the children under 15 years automatically affects the index of ageing .It has been observed that decline in fertility can cause a population to grow older and vice versa. However, the influence of fertility is overriding as it affects only the denominator and does not disturb the numerator for a long period of time. The decline of mortality at younger ages makes the age distribution younger, while mortality decline at older ages makes the age distribution older. But the decline of mortality at all ages produces only a marginal effect on the ageing of the population [Misra, 1980]

Also available data shows that there is an inverse relationship between the proportions of old and young children in the population and the relationship is greatly affected by the level of development of the country concerned. To substantiate above point, percents of population by

major age groups as well as by development level cited in World population data sheets for 1998 and 2002 are shown in Table 19.1.

The table clearly indicates that

- More developed a country, higher the percentage of elderly persons.
- Decrease in percentage of children increases the percentage of older people.
- Though proportion of population at <15 years has slightly decreased in less developed countries during the period 1998-2002, three is no change in proportion of old people in these countries during the period.
- But in case developed countries, it is observed that one percent increase in proportion of old people decreases one percent in proportion of young population.
- The effect of one percent decrease in proportion of young population on constant proportion of old people in less developed countries is an increment of 0.30 % in their index of ageing; Similarly the effect of two percent decrease in proportion of young population on constant proportion of old peoples increment of 1. 45% in their index of ageing.
- Also, it is found that one percent decrease in proportion of young population and one percent increase in proportion of old population in developed countries results into an increment of 9.35% in their index of ageing.

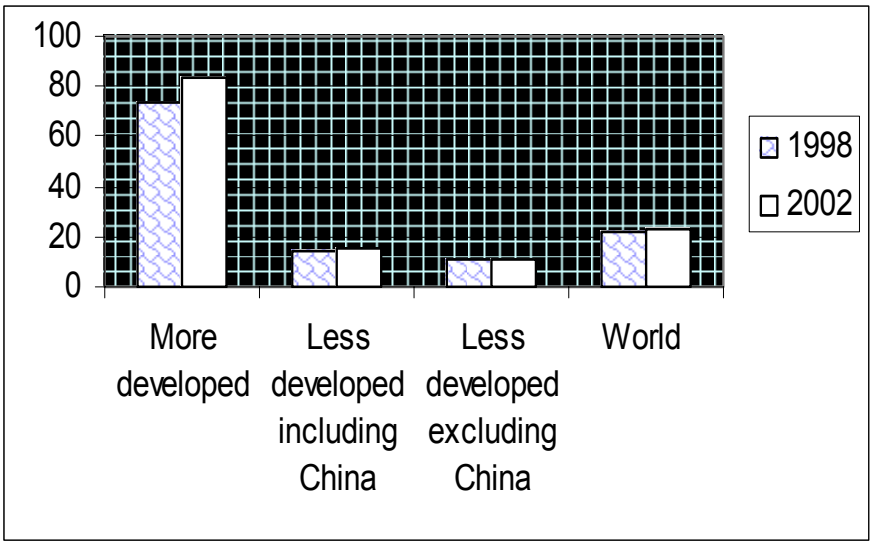
Table 19.1 : Index of ageing, developed and developing countries,1998-2002.

Development Level	1998			2002		
	% Aged <15 Years	% Aged 65+ Years	Index of Ageing	% Aged <15 Years	% Aged 65+ Years	Index of Ageing
More Developed	19	14	73.68	18	15	83.33
Less Developed Including China	35	5	14.29	32	5	15.63
Less Developed Excluding China	37	4	10.81	36	4	11.11
World	32	7	21.88	30	7	23.33

Source : World population data sheets, 1998 and 2002

The table shows that the problem of ageing is serious in developed countries, because the average index of ageing in these countries has already reached the level of 83.33% by 2002 and the rate of increase in index of ageing is also very high of about 10% in the span of 4 years (index of aging being 73.68% in 1998 and 83.33% in 2002).

Figure 19.1 Ageing indices for developed and developing countries 1998-2002



19.2.3 Scenario of Ageing – World's Prospects

Based on World population data sheet, 2002, the scenario of ageing population reported for different continents along with relevant population parameters is shown in Table 19.2

Table 19.2 : Index of ageing along with other relevant population parameters, major areas of continents, 2002.

Major Areas of Continents	% of 65+ Years Aged	% of <15 Years Aged	CBR	IMR	e_0^0	Index of Aging
W. Africa	3.00	45.00	42.00	87.00	51.00	6.67
S. Sahara	3.00	44.00	15.00	71.00	49.00	6.82
S.C. Asia	4.00	37.00	26.00	69.00	63.00	10.81
N. Africa	4.00	36.00	27.00	55.00	64.00	11.11
W. Asia	5.00	36.00	27.00	45.00	68.00	13.89
E .Asia	8.00	22.00	13.00	29.00	72.00	36.36
Oceanic	10.00	25.00	18.00	30.00	75.00	40.00
USA	13.00	21.00	15.00	6.60	77.00	61.90
E. Europe	13.00	18.00	9.00	13.00	74.00	72.22
N. Europe	15.00	19.00	11.00	5.00	75.00	78.95
Canada	13.00	15.00	11.00	5.30	79.00	86.67
W .Europe	16.00	17.00	11.00	5.00	76.00	94.12
S. Europe	17.00	16.00	10.00	6.00	75.00	106.25

Source : UN's World population data sheets, 2002

The table shows that high indices of ageing are observed in U.S.A, Canada and European countries with variations by 61.90% in U.S.A to 106% in South Europe. Next high indices are observed for East Asia and Oceanic countries with the figures of 36.36% for East Asia and 40% for Oceanic countries. Indices of 19% to 23% are observed for Latin America, South Africa, and Caribbean countries. Ageing indices in the range of 11% to 16% are observed for South Central Asia, North Africa and West Asia countries. However the least aging indices of about 7% are observed for West Africa and South Sahara

19.2.4 Scenario of Ageing – SAARC Countries

Among SAARC countries, Shree Lanka has the highest index of ageing amounting to 22.22% followed by Bhutan with the magnitude of 12.82%.

Table 19. 3 : Indices of ageing along with other relevant population parameters, SAARC, countries, 2002.

SAARC Countries	% of Population Aged		Fertility Level	Mortality Level	Life Expectancy	Index of Ageing
	65+ Years	<15 Years	CBR	IMR	e_0^0	
Bangladesh	3	40	30	66	59	7.5
Pakistan	4	42	30	86	63	9.52
Nepal	4	41	31	64	58	9.76*
India	4	36	26	68	63	11.11
Bhutan	5	39	34	61	66	12.82
Shree Lanka	6	27	18	17	72	22.22

Source: UN's World population data sheets, 2002

For India, the index is observed at the level of 11.11%. Least index of ageing is observed for Bangladesh with the figures of 7.5% followed by Pakistan, of 9. 52%. In case of Nepal, the index of ageing at age 65+ years is observed as 9.76%[♦]

♦ This figure is based on population World data sheet of 2002. However, based on age distribution reported in 2001 census, the figure comes around 10.69%

19. 3 Ageing in Nepal

19.3.1 Age Distribution

Age data in Nepal suffers highly from age shifting, high reporting at ages ending in even, 0 and 5 digits and very low reporting in other digits. Grouping of reported ages by five year intervals is supposed to smooth much of these irregular reporting.

Based on above assumption, the age distribution of Nepalese population (both sex) for various time periods classified as prior and post 1951 periods by major age groups are presented in the following table. Since prior to 1951 , the age groups in the census reports are given only by broad groups 0-15, 16 - 49 and 50+ years ages, the percents of population as required in the present classification of ages have to be estimated from other sources. For this purpose, life tables constructed by Singh, 1979 for the period 1911-1971 are used

Table 19.4 : Age distribution by major age groups, prior and post 1951.

Age Groups	Prior 1951		Post 1951	
	1911*	1941**	1971	2001
0 – 14	38.68	39.16	39.72	39.31
60+	4.28	5.33	5.88	7.46
65+	2.43	3.17	3.17	4.21
75+	0.45	0.65	0.87*	1.30

* Estimates of (*Singh,* 1979)

** Actual census was taken in 1942. The figures for 1941 is based on M.L. Singh, ibid

The table shows that, though the proportion of young children under 15 years has remained virtually constant around 40% for all the years, the proportions of aged person by all major age groups are found increasing steadily. The percent of 60+ years old has increased from 4.28% in 1911 to 7.46% by 2001. For the aged 65+ years, the increment is from 2.43% in 1911 to 4.21% by 2001. Similarly in case of 75+ years, the increment is from 0.45% to 1.30% for above period.

19.3.2 Indices of Ageing

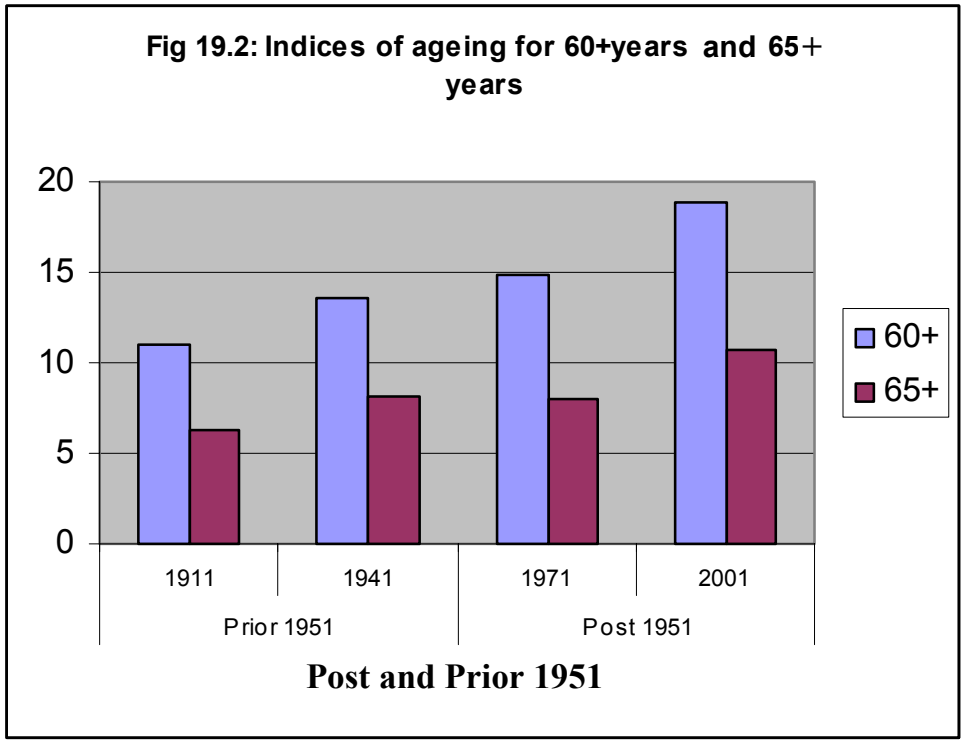
Based on above age distributions, indices of ageing in Nepal during these periods are computed and described herein. Also, aged 60 +years, 65+ years and 75+ are taken separately for investigations of ageing. However, much stress is given for the aged 65+ years in order to make the comparison possible with other countries.

Table 19.5 : Indices of ageing at different time periods , Nepal.

Aged	Prior 1951		Post 1951	
	1911	1941	1971	2001
60+	11.07	13.60	14.80	18.89
65+	6.28	8.10	7.98	10.69

Source : Based on table 19.4.

From the table it is seen that for the aged 60+ years, the index of ageing has increased from 11.07% in 1911 to 18.89 % by 2001. For the aged 65+ years, the increment is from 6.28% in 1911 to 10.69% by 2001.



19.3.3 Distribution of Old people by Young old and Old old

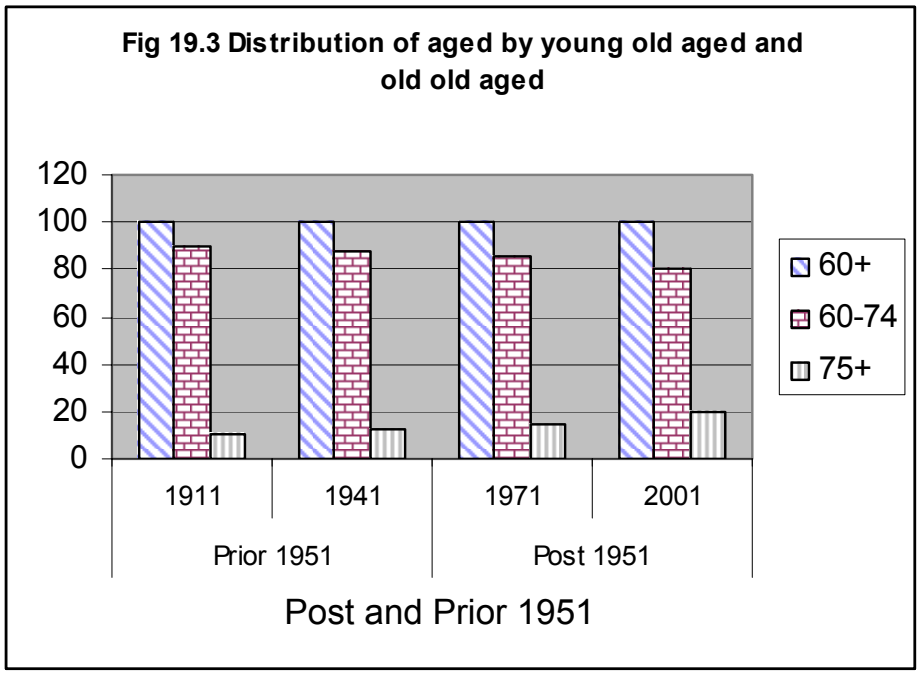
The distributions of aged persons by young old and old old are shown in the following table. The age group 60-74 years is considered young old and the aged 75+ years is considered old old.

Table 19.6 : Distributions of young aged and old aged at different time periods , Nepal.

Age Group	Prior 1951		Post 1951	
	1911	1941	1971	2001
60+	100.00	100.00	100.00	100.00
60-74	89.49	87.80	85.20	80.00
75+	10.51	12.20	14.80	20.00

Source : Based on table 19.4

It is seen from the table that %'s of old old among those aged 60+ years is increasing steadily up to 1971 and then rapidly from 1971 to 2001. The increment was from 10.51% in1911 to 12.2% in 1941, an increment of only 1.7 percentage point during the period of 30 years. But, the increment was from 12.20% in 1941 to 14.8% in1971, an increment of 2.6 percentage point for next 30 years. In case of the period 1971-2001, the increment was observed as high as 5.20 percentage points from 14.8% in 1971 to 20.0 % in 2001.



The findings clearly indicate that percent of old old (75+ years) in the population of Nepal is increasing rapidly since 1971.

19.3.4 Elderly Dependency Rates

The elderly dependency rate estimated as $\frac{\text{Population aged 60 + years}}{\text{Population aged 15 - 59 years}}$ in different years for Nepal is shown in the following table.

Table 19.7 : The elderly dependency rates at different time periods, Nepal.

Prior 1951		Post 1951	
1911	1941	1971	2001
7.50	9.60	10.81	12.01

Source : Based on table 19.4

The elderly dependency rate computed for different time periods shows that it is increasing steadily from 7.5 % in 1911 to 12.01% in 2001.Considering the time span of 90 years; the rate is very slow with the magnitude of only 0.05% increase per year.

19.4 Demographic Factors Affecting the Percent of Aged Persons

The percent of population aged is greatly affected by different demographic indicators. It is observed from the data on different spatial units of major continents of the World, SAARC countries and Nepal that the percent of population aged 65+ is related to CBR and IMR in negative direction, to e_0^0 in positive direction. Also the relevant indicators themselves are correlated to each other. Therefore, first of all, the bivariate correlations between these indicators, then their partial correlations for Nepal are investigated.

19.4.1 Correlations

An attempt is done to investigate the relationship between the percent of population aged 65+ years and other population variables in Nepalese context. The correlation coefficient between percent of population aged 65+ years and CBR is found as high -0.80 and the correlation coefficient between percent of aged 65+ years and e_0^0 is found 0.77 As regards to the correlation

coefficient between percent of aged 65+ years and IMR, negative correlation is found as high as -0.77

From the correlation coefficients observed, it appears that percent of population aged 65+ years is influenced by both fertility and mortality levels. The above coefficients implies that rapid drop in CBR , rapid rise in life expectancy at birth and rapid drops in IMR bound to raise rapidly the percent of population aged 65+ years in Nepal. Regarding the relationship between CBR and life expectancy at birth, the correlation coefficient as high as -0.96 is observed. In case of relationships between CBR and IMR, positive correlation coefficient as high 0.96 is observed. These coefficients indicate that rapid drop in CBR is bound to raise rapidly the life expectancy at birth and rapid drop in IMR. However, since the demographic indicators are interrelated, the observed high correlation coefficients may be due to effects of other variables. Therefore, the partial correlation coefficients are computed by controlling other variable and presented in table19.8.

Table 19.8 : Partial correlations of different demographic indicators for Nepal.

% of 65+ Years and CBR	-0.5071	Controlling e_0^0	P=0.135
% of 65+ Years and e_0^0	0.0716	Controlling CBR.	P=0.844

Source : Present study

The table shows that partial correlation between percent of population aged 65+ years and CBR is only -0.5071, when the effect of e_0^0 is controlled as against bivaraite correlation coefficient of -0.80 observed. Similarly the partial correlation between percent of aged 65+ years and e_0^0 is found only 0.07 after controlling CBR as against the high bivariate correlation coefficient of 0.77 observed.

The partial correlation coefficients observed show the significant reduction in the relation ships between percent of 65+ years and other variables when one of the other variables is controlled. In fact it is found that there is no correlation between percent of aged 65+ years and e_0^0, if the effect of CBR is controlled. The conclusion is that the percent of population aged 65+ years is influenced not only by a single factor but multiplicity of many factors and that the projection of aged 65+ years cannot be made on the basis of single other variable.

19.4.2 Regression of Percentage of Aged on other Demographic Indicators

Since, we are more concerned with the rising percentage of aged persons, the effect on it due to variations in other relevant variables is investigated by fitting the regression equations on data available Two regression equations are fitted: One is the regression of percentage of population aged 65+ years on CBR and e_0^0, other is the regression of percentage of population aged 65+ years on CBR and IMR. The results of the fittings for Nepal's data are shown in the following table.

Table 19. 9 : Regression of percent of population aged 65+years on other variables ,Nepal.

	CBR and e_0^0		CBR and IMR	
Constant		6.659733		6.2099545
Std Err of Y Est		0.422545		0.4222673
R Squared		0.646507		0.6469714
X Coefficient(s)	-0.08017	-0.00225	-0.0672242	-0.0010622
Std Err of Coef.	0.078949	0.038946	0.0792533	0.0094816

Source : Present study

The fitted regressions in both cases for Nepal are found similar with only slight variations in the magnitudes of the coefficients of e_0^0 and IMR. This is because the correlation between e_0^0 and IMR for Nepal is found as high as -0.992021. The reliability coefficients in both cases are nearly the same of 64%. The reliability coefficients observed are not so high, indicating only small effect of CBR and IMR on the percentage of population aged 65+ years (See annex 19.2 for the data used)

19.5 Ageing by Regions of Nepal

19.5.1 Ageing Indices by Eco-Development Regions

The indices of ageing for major old age groups by eco-regions and development regions of Nepal based on 2001 population census data are shown in the Table 19.10.

Table 19.10 : Ageing indices by sex for major old aged groups, eco-development regions, 2001.

Area	60+ Years			65+ Years			75+ Years		
	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex
E. Mountain	18.66	18.83	18.75	12.35	12.19	12.27	3.77	3.88	3.83
C. Mountain	19.02	21.71	20.29	12.36	14.01	13.14	3.62	4.47	4.02
W. Mountain*	33.48	34.68	34.08*	19.49	22.17	20.83	6.23	7.33	6.78
M.W. Mountain	12.13	11.17	11.65	7.60	6.11	6.87	1.86	1.71	1.78
F.W. Mountain	14.41	15.20	14.80	9.08	9.05	9.07	2.75	2.47	2.61
Mountain	**17.04**	**18.05**	**17.53**	**11.00**	**11.32**	**11.15**	**3.25**	**3.47**	**3.36**
E. Hill	18.05	17.78	17.91	11.97	11.84	11.91	3.72	3.86	3.79
C. Hill	18.16	19.47	18.81	12.19	13.23	12.70	3.93	4.53	4.22
W. Hill	20.58	21.61	21.09	13.98	14.35	14.16	4.50	4.90	4.70
M.W. Hill	11.89	11.28	11.59	7.03	6.39	6.71	1.72	1.65	1.69
F.W. Hill	14.00	16.75	15.37	8.69	10.29	9. 48	2.51	3.05	2.78
Hill	**17.59**	**18.38**	**17.98**	**11.63**	**12.08**	**11.85**	**3.62**	**3.98**	**3.80**
E.Terai	16.71	16.22	16.47	10.72	10.61	10.67	3.21	3.46	3.34
C.Terai	29.11	29.31	29.21	9.47	9.89	9.67	2.69	2.87	2.78
W.Terai	16.57	15.78	16.18	10.95	10.32	10.64	3.14	3.17	3.16
M.W. Terai	12.81	11.87	12.35	7.99	7.26	7.63	2.24	2.11	2.17
F.W.Terai	11.72	11.56	11.65	7.17	7.00	7.09	2.07	2.25	2.16
Terai	**20.29**	**19.83**	**20.07**	**9.65**	**9.58**	**9.61**	**2.79**	**2.93**	**2.86**
Nepal	**18.89**	**19.07**	**18.98**	**10.61**	**10.80**	**10.70**	**3.18**	**3.43**	**3.31**

Source : Present study based on Census, 2001, CBS.

Note * High percentage of aged persons observed in Western Mountain is observed, because, this region includes only two districts namely, Mustang and Manang both having percents of population under 15 years accounting only 25%. Such low percents in this age group are also observed for all three districts of Kathmandu valley belonging to Central Hill; Bhaktapur reporting, 31.07%, Lalitpur reporting, 28.89 % and Kathmandu reporting, 27.17%., but because of high percents of population in this age group in remaining districts of the region, the over all percent of population under 15 years age in Central hill region did not differ too much from the figures observed for other regions. (See annex 19.5 for district figures)

The table shows that indices of ageing for 65 + years in both Mountain and Hill regions are found little higher than that observed for whole of Nepal (10.60%). But in case of Terai region, the index is less by 1.1% point. Same trend is found for 70+ and 75+ years' indices%. On the other hand in case of 60+ years, the index of ageing of about 20.07%, higher by 1% point than that of national figure of 18.98% is observed in Terai region.

Also the table shows a lot of variations within the eco-regions. In mountains, West Mountain has the highest ageing indices for all higher ages followed by Central Mountain and East Mountain. Least indices of ageing are observed for Mid Western Mountain followed by Far West Mountain.

Development region wise, the western development region has the highest ageing index of 12.83% for 65+ years and Mid West region, the least index of 7.13 % but for aged, 75+ years, highest index of 4.11% is observed in Western region. However in case of 60+ years, the highest index of 24.34% is observed for Central region and the least of 11.93% in Mid Western region.

Ageing indices by sex for major old age groups show that, on the average, ageing indices for females are higher than those for males.

Exceptions are observed for Mid Western Mountain, Eastern Hill, Mid Western Hill, East Terai, West Terai, Mid Western Terai and Far Western Terai for aged 60+ years. In case of aged 65+ years, the exceptions observed are at Eastern Mountain, Mid Western Mountain, Far Western Mountain, Eastern Hill, Mid Western Hill, and all Terai regions except Central Terai.

However in case of aged 75+ years, except for Mid Western Mountain, Far Western. Mountain, Mid Western Hill and Mid Western Terai regions, all other regions indicated the higher ageing indices for females as compared to males.

The table19.11 indicates that for aged 60+ years; the ageing indices are higher for males than for females in the Eastern development and Western development regions. But for other development regions, ageing indices are found higher for females than for males. Same pattern is found for aged 65+ years. But for aged 75+ years, except for Western development region, ageing indices for females are found higher than for males in all other development regions.

Table 19.11 : Ageing indices by sex for major aged groups, development regions, 2001.

Region	60+ Years			65+ Years			75+ Years		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
E.R	17.31	16.94	17.12	11.26	11.14	11.20	3.42	3.63	3.52
C. Region	23.98	24.72	24.34	10.77	11.56	11.15	3.26	3.66	3.46
W. Region	19.07	19.43	19.25	12.83	12.84	12.83	3.98	4.25	4.11
MW Region	12.32	11.53	11.93	7.50	6.76	7.13	1.96	1.86	1.91
FW Region	13.04	14.14	13.58	8.07	8.59	8.32	2.35	2.59	2.47
Nepal	18.89	19.07	18.98	10.61	10.80	10.70	3.18	3.43	3.31

Source: Present study based on Census, 2001, CBS

19.5.2 Effect of Percent of Population Aged 0-14 Years on Percent of Old Persons

It is generally believed that the decline in the percent of population at age group 0-14 automatically increases the percent of old people. Though it is true in long run, it does not hold true at intermediate stages of demographic transition.

At these stages, falls in percent of aged 0-14 appear to make rapid increase in the percent of population aged 15-59 years and only small increment in the percent of old persons. It is evident from the Table 19.12

Table 19.12: Percents of population by major age groups, regional figures, both sexes, 2001.

Area	Less than 15	15 - 59	60+	65+	70+	75+
Mountain	**40.84**	**52.00**	**7.16**	**4.56**	**2.68**	**1.37**
Eastern Mountain	39.82	52.71	7.46	4.89	2.95	1.52
Central Mountain	40.67	51.08	8.25	5.34	3.18	1.64
Western Mountain	26.91*	63.92	9.17	5.60	3.46	1.82
Mid-Western Mountain	41.28	53.90	4.81	2.83	1.46	0.74
Far Western Mountain	42.79	50.88	6.33	3.88	2.23	1.12
Hill	**38.92**	**54.09**	**7.00**	**4.61**	**2.77**	**1.48**
Eastern Hill	40.04	52.79	7.17	4.77	2.85	1.52
Central Hill	35.06	58.34	6.59	4.45	2.69	1.48
Western Hill	40.19	51.33	8.47	5.69	3.53	1.89
Mid-Western Hill	42.97	52.05	4.98	2.88	1.56	0.72
Far-Western Hill	42.60	50.86	6.55	4.04	2.29	1.18
Terai	**39.46**	**52.62**	**7.92**	**3.79**	**2.24**	**1.13**
Eastern Terai	36.56	57.42	6.02	3.90	2.32	1.22
Central Terai	40.26	47.98	11.76	3.89	2.28	1.12
Western Terai	40.15	53.35	6.50	4.27	2.53	1.27
Mid-Western Terai	41.37	53.52	5.11	3.16	1.83	0.90
Far-Western Terai	42.19	52.90	4.91	2.99	1.77	0.91
Nepal	**39.31**	**53.23**	**7.46**	**4.21**	**2.50**	**1.30**

Source : Present study based on Census, 2001, CBS

Note * The reason of getting this low figure has been explained already in section 19.5.1

From the table it is clearly seen that, falls in percent of population at 0-14 years below 40% have no significant changes in the percent for old persons.

19.5.3 Projections of Percents of Aged persons and Indices of Ageing

The projection is based on the fitting of the linear regression lines for percents of population in old ages on expected falls on CBR and rises in e_0^0. The parameters of fitted equations are shown in the Table 19.13

The models fitted for various age groups show that they are highly reliable for percents of population aged 60+ years and 75+ years only and slightly reliable for the aged 65+ years. The reliability coefficients for first cases are found 72.48% and 86.96% respectively. And for the third case, the reliability coefficient of only 64.6% is observed .

Table 19.13 : Parameters of regression fitted to %'s of aged persons on CBR and e_0^0.

Parameters	%'s of Population Aged		
	60+ Years	65+ Years	75+ Years
Mean	13.05986	6.659733	1.595604
Coefficient for CBR	-0.16403	-0.08017	-0.02625
Coefficient for e_0^0	-0.02541	-0.00225	0.008101
R^2	0.724848	0.646507	0.869673

Source: Present study

But, since percents of young population aged 0-14 years is likely do decline after attaining highest level; the fitting of linear model for this age group is not suitable. Therefore, a parabolic curve is fitted to the time series data of percents of population under 15 years from 1911 to 2001. The fitting yielded the parameters as mean=36.14841, coefficient of x=1.603417; coefficient of x2 = -0.13101 and R^2 =33.59 %.

The expected percentages of population under 15 years based on parabolic curve expected percentages population at old ages based on CBR and e_0^0 for the year up to 2031 are given in the Table19.14. Also the expected indices of aging based on these expected values are also given.

Comparison of observed and expected figures for 1911 to 2001 shows only slight differences in expected values and observed values at different years for different age groups. (See Annex 19.16) Since observed percents are based on unadjusted age distributions and data obtained from different sources, they need to be adjusted. The expected values have completely removed the

irregularities observed in observed age distribution and in ageing indices by showing definite time trend.

Projections made indicate that by 2031, the percent of population aged 0-14 will decrease to 34.85% from present expected percent of 39.08% inducing an increment in the percent of population aged 60+ years from present expected figure of 6.15% to 6.77%, for the aged 65+ years, from present expected figure of 3.93% to 4.41% and for aged 75+ years from present expected figure of 1.17% to 1.44%.

Table 19.14 : Projections of %'s population at relevant age groups and indices of ageing up to 2031, Nepal.

Year	% Aged 0-14 Years	% Aged 60+ Years	% Aged 65+ Years	% Aged 75+ Years	Ageing Index for 60+ Years Aged	Ageing Index for 65+ Years Aged	Ageing Index for 75+ Years Aged
2006	38.54	6.26	4.01	1.21	16.23	10.41	3.15
2011	37.93	6.36	4.09	1.26	16.76	10.79	3.32
2016	37.26	6.46	4.17	1.31	17.34	11.19	3.50
2021	36.52	6.56	4.25	1.35	17.97	11.64	3.70
2026	35.72	6.67	4.33	1.40	18.66	12.12	3.91
2031	34.85	6.77	4.41	1.44	19.42	12.65	4.14

Source: Present study

The table shows that there will be only slight increases in the percents of population at higher age groups with the feature that higher the age group, lesser the rate of increment. But these increments will have substantial impact on indices of ageing. The ageing index for the age group 60+ years will increase from expected value of 15.75% in 2001 to 19.42% in 2031. During the same period, ageing indices for aged 65+ years will increase from 10.06% to 12.65%. For those aged 75+ years, the increment will be from 2.99% to 4.14%.

19.5.4 Expected Number of Aged Persons

Though, there is little expectation of changes in the percent of aged persons, the absolute numbers of aged persons are expected to increase rapidly because of continuous rise in population from one census to other.

Therefore, it is of interest to know their number in future. An attempt is made here to project the number of aged persons by major old age groups. The expected number of aged persons by major age groups is shown in Table 19.15

Table 19.15 : Projection of aged persons in Nepal, 2006-2031, in '000's.

Characteristics	2006	2011	2016	2021	2026	2031
Projected Population	25332	27718	30328	33184	36309	39728
% of Pop. Aged , 60+ Years	6.26	6.36	6.46	6.56	6.67	6.77
Projected Population Aged 60+ years	1586	1763	1959	2177	2422	2690
% of Pop Aged ,65+ years	4.01	4.09	4.17	4.25	4.33	4.41
Projected Population Aged 65+ Years	1016	1134	1265	1410	1572	1752
% of Pop. Aged , 75+ Years	1.21	1.26	1.31	1.35	1.4	1.44
Projected Population Aged 75+ Years	307	349	397	448	508	572

Source : Present study

Note : Population projection made on the assumption of r=1.8%= 0.018 per annum exponential growth

Nepal is reported to have experiencing the rapid fall in its total fertility rate (from 6.3 in seventies to present 4.2) and drop in its IMR from 150 in seventies to present 64 These falls will have only small impact on the proportion of population at different age groups. Because, rapid fall in infant mortality increases slowly the percentage of population in the age group 0-14 years and the increase in life expectancy decreases the mortality at higher age slightly thus increasing the percentage of old people only in marginal rate.

According to the projection made above, those aged 60+ years in Nepal will increase from 1586 thousand in 2006 to 2690 thousand in 2031 (69.6% increase in 25 years). Those aged 65+ years will increase from 1015, thousands in 2006 to 1752 thousands in 2031 (72.4% in 25 years). Similarly, those aged 75 + years will increase from 307 thousand in 2006 to 572 thousands in 2031 (an increment of 86.3% in the same number of years).

Table 19.16 : Expected growth rates of aged person in Nepal,2006-2031,in %'s.

Aged	25 Years	5 Years
60+	69.61	13.92
65+	72.44	14.49
75+	86.32	17.26

Source: Present study

The projection made shows that the growth will be higher as age advances.

19.5.5 Aged Persons 75 Years and Above by Single Ages

It has been mentioned earlier that, except for the purpose of retirement from the civil services, age 75 years is considered as the crucial age for Ageing and attaining the senior citizenships for all practical purposes in Nepal. So it is of interest to know the distribution of persons aged 75+ years by single ages. According to 2001 census, the percent of population aged 75+ years accounted 1.32% of the population (as against expected percent of 1.17%). Number of aged persons by single ages up to 98 years is available in the census report.

Table 19.17: Adjusted percents of aged 75+ years persons by single years ages and by sex and cumulative figures, Nepal ,2001 census.

Age	% of Aged Persons by Sex			Cumulative Percents		
	Male	Female	Both Sexes	Male	Female	Both Sexes
75	27.61	28.82	28.23	27.61	28.82	28.23
76	16.23	16.96	16.60	43.84	45.78	44.83
77	9.65	8.68	9.16	53.49	54.47	53.99
78	8.53	7.74	8.12	62.01	62.21	62.11
79	6.55	6.15	6.35	68.56	68.36	68.46
80	4.51	4.70	4.61	73.07	73.06	73.06
81	4.34	3.99	4.16	77.40	77.05	77.22
82	3.63	3.56	3.59	81.03	80.61	80.82
83	3.11	2.97	3.04	84.14	83.59	83.86
84	2.88	2.81	2.84	87.01	86.40	86.70
85	2.60	2.65	2.63	89.61	89.05	89.33
86	2.20	2.29	2.25	91.81	91.34	91.57
87	1.59	1.51	1.55	93.40	92.85	93.12
88	1.54	1.35	1.44	94.94	94.20	94.56
89	1.19	1.23	1.21	96.13	95.44	95.78
90	0.75	0.99	0.87	96.88	96.42	96.65
91	0.73	0.80	0.76	97.61	97.23	97.42
92	0.68	0.71	0.70	98.29	97.94	98.11
93	0.43	0.53	0.48	98.72	98.47	98.59
94	0.41	0.42	0.41	99.12	98.89	99.00
95	0.28	0.33	0.31	99.40	99.22	99.31
96	0.25	0.30	0.28	99.65	99.52	99.59
97	0.19	0.27	0.24	99.85	99.80	99.82
98	0.15	0.20	0.18	100.00	100.00	100.00
Total	100.00	100.00	100.00			

Source: Present study

But as in the case of other ages, the reported figures suffered lot due to heaping at ages with ending digits in even, and 5, and under enumeration at ages ending in other digits. So data by single ages between 75 years age and 98 years ages have to be adjusted .The adjustment is made

by using inverse log linear model. The percents of aged persons at single year's ages as found by fitting the model is shown in Table 19.17.

The table shows that about 28% of aged 75 years and above belong to those aged 75 years, about 17% those belonging to aged 76 years age, 9% belonging to age 77 years and 8% belonging to age 78 years. Altogether, about 68% of aged 75+ years person belongs to age group 75- 79 years; about 18 % to age group 80-84, 9% to age group 85-89, about 3% belonging to age group 90-94 and about 1% belonging to age group 95 years and above.

19.6 Demographic and Social Indicators Related to Aged Persons

19.6.1 Mortality Rate Among Aged Persons

Though starting age of ageing is considered as 60 years in most of the previous discussions, 50 years age is considered for the starting age for high risk mortality among aged persons. It is based on common observation that by a person reaches 50 years, multitude of Physiological and Psychological problems start to show their effects on the physical health of a person accelerating the risk of his/ her death as age advances.

Table 19.18 : Adjusted death rates among aged persons, Nepal, 2001.

Age Group	Male	Female	Both Sexes
50 – 54	18.70	11.87	14.24
55 – 59	30.04	20.69	23.77
60 – 64	47.59	32.85	37.46
65 – 69	64.39	47.84	52.38
70 – 74	103.10	72.60	82.12
75 – 79	149.89	97.08	114.55
80 +	296.28	211.13	235.35
All Ages	13.89	9.73	11.00
Median Age at Death	78.10	81.60	79.52

Source: Present study, based on Census, 2001, CBS

Unadjusted death rates for all ages according to 2001 census report are found only 5.24 per thousand for males, 4.15 per thousand for females and 4.7 per thousand for both sexes (See Annex 19.16). These rates are very low as compared to 11 per thousand reported for both sexes in U.N's population data sheet for 2002.

The adjusted death rates for persons aged 50 years and above by five years age groups and by sex obtained by making adjustment with UN's estimate are shown in Table 19.18

The table shows that up to age group 50-54 years, the death rates for both sexes are only 3% to 5% higher than for all ages. .But as age advances, the rate substantially increases for both sexes and at age 80 years and above, the rate attaining the levels of 296.28 per thousand for males, 211.13 per thousand for females and 235.35 per thousand for both. From the table, it is clear that among aged persons, death rates for females are much lower than for males. Median age at death for aged 50 + years persons is found as 78.1 years for males, 81.6 years for females and 79.52 years for both sexes.

19.6.2 Causes of Deaths at Age 65+ Years

Deaths occur at old age due to many causes. One cause is the natural processes due to ageing .Others are due to various diseases, accidents and suicides etc. Twenty five specific reasons of deaths are included in Census inquiry of 2001. Data analysis of deaths by specific reasons for 65+ years aged persons by sex shows that highest of 41.33% deaths among males aged 65+ years occurred due to Natural rules followed by 21.66% due to other causes not included for the inquiry. Among females, highest of 26.97% deaths occurred due to causes not included for the inquiry, followed by 16.97% due to Natural rules.

Excluding the cases of Non-stated which accounted to 7.45% in case of males and 8.05% in case of females, third specific cause is the Asthma which caused 11.02% of deaths among aged males and 7.68% of deaths among aged females followed by cancer causing 3.11% of death among males and 4.61% of death among females. Next to cancer, tuberculosis and heart diseases are the main causes of deaths among males, but among females, miscarriage and heart disease followed by the Cancer for causing more deaths. (See annex 19.13 for detail information)

19.6.3 Birth Places of Aged Persons

For the 65+ years aged persons, it is observed from the census data of 2001 that 2% of males and nearly 5% of females were foreign born. Also it is seen that 21% of males and nearly 29% of females are those who were born in other districts of Nepal. The percent of aged persons born in other districts and foreign countries were mostly in-migrants/emigrants in past and in case of females; it was mostly due to marriage.

Since, in-migration at Kathamandu district and Terai region has been occurring since long ago, it is expected that percents of aged persons in these areas must have higher proportion of those born in other places than that observed for the rest of the country. To support above preposition, the case of Kathamndu city is presented. According to 2001 census, 34.20% of the population of all age groups at Kathamandu district is found as those born in other districts.

But due to lack of district wise data by standard age groups, the percents of aged persons, who were born outside Kathamandu district, could not be estimated. A recent study made shows that 43.1% of males and 44.7% of females and 56.25% of fathers and 65.8% of grand fathers at Kathamandu Metropolitan city are those who were born outside Kathamandu Valley { Singh,,2002]

19.6.4 Literacy Rates Among Aged Persons

According to 2001 census, the literacy rate (those who can read and write) for aged 65+ years is found as 27.0% for males and 4.07 % for females. For both sexes, the literacy rate for aged 65+ years is found as 15.64 %. But for districts of Katmandu valley, the literacy rates for both sexes are found much higher than those observed for all Nepal

The table below shows that for Kathamandu district, literacy rates for both sexes at age 65+ years are higher than the corresponding rates observed for Lalitpur and Bhaktapur districts. Bhaktapur , the less urbanized district among three districts of Kathamandu , is found to have lowest rates among females and among both sex. This indicates that literacy rate among aged ones is linked with the extent of urbanization.

Table 19.19 : Literacy rate among aged 65+ years by Sex, districts of Kathmandu valley, 2001

Sex	Kathamandu	Lalitpur	Bhaktapur
Male	86.36	80.84	80.86
Female	66.44	60.26	59.38
Both	77.07	70.77	70.30

Source : Based on Census 2001, CBS

19.6.5 Economically Active Among Aged 65+ Years Persons

Among 65+ years aged persons, 47.12% are found economically active with sex differential of 59.7% for males and 34.30% for females. Development region wise figures are shown in table 19.20.

Table 19.20 : Economically active among aged 65+ years , by development regions, 2001 in %'s.

Region	Male	Female	Both Sexes
Eastern Dev. Region	62.02	35.28	48.74
Central Dev. Region	58.66	29.84	44.20
Western Dev. Region	58.88	36.39	47.86
Mid-Western Dev. Region	55.04	32.83	44.60
Far-Western Dev. Region	65.31	46.12	55.58
Nepal	59.70	34.30	47.12

Source : Based on Census 2001, CBS.

The table shows that Far Western Region as compared to other development regions has the highest percentage of aged persons among both sexes who are economically active. On the other hand, Central Region as compared to other regions has the least % of females aged 65+ years that are economically active.

19.6.6 Marital Status of Aged Persons

According to 2001 census, it is found that, among 65+ years aged person, 86.46% of males and 68.34% of females are currently married, 10. 89% of males and 28.19% of females are widowers / widows; 1.43% of males and 1.22% of females are singles.

It is observed that the percentage of currently married aged person among males do not differ by regions.

Similar case is found among females too. In case of singles, there are high percent of single males in Far Western and Mid Western Development regions. On the other hand, Central development region as compared to other development region has high percent of single females. However, statistically speaking, there is no significant difference in the marital status reported by sexes for the development regions (for detail see Annex 19.15)

19.6.7 Proportion of Disabled Among Aged Persons

As age advances, a person is exposed to many physical and mental defects. According to 2001 census, disability rate including both physical and mental cases for whole Nepal is found only 0.

46% with the sex wise rates of 0.42% for males and .0.50% for females. Of the total disabled reported by the census, 45% are males and 55% are females.

But a sample survey conducted during 1980, Bhaktapur sample survey 2003 and Sarlahi sample survey, 2003 all reported disability rates of about 3%. Also these surveys showed high proportion of males among disabled accounting to 63% males by 1980 survey, 65% males by Bhaktapur survey and 60% males by Sarlahi survey. Among aged persons, the rates were 12.79% at age 75+ years, according to Sample survey 1980, 7.88% at age 60+ years ,according Bhaktapur survey and 5.67% at age 65+ years ,according to Sarlahi survey

19.6.8 Types of Disability

Disability consists basically of two types namely Physical and Mental. Sample Survey of disabled persons, 1980 collected the information on types of disability by these two broad classifications. But Census 2001 separated Blindness and Deafness from Physical disability as separate identities. According to the census data of 2001, where as 44% of disables at age 0-14 years suffered from physical disability, only 32 % of disabled at age 50 +years reported this disability. On the other hand, percent of Blindness which was 13% for aged 0-14 years, increased to 30% for 50 + years aged disabled persons.

The distribution of disabled persons by ages and types as reported in the census of 2001 is shown in the Table 19.21. The recent surveys conducted at Bhaktapur and Sarlahi districts of Nepal extended the types of disability by including Intellectual disability, Epilepsies and others also. These surveys indicated the percentage of multiple disabilities among disabled persons as high as 17.06% at Bhaktapur district and 11.16% at Sarlahi district.

Table 19.21 : Distribution of disabled persons by types and by age groups, census 2001

Aged	Physical	Blindness	Deafness	Mentally Retarded	Multiple Disability
0 - 9 Years	44.22	13.47	23.02	11.24	8.05
20 - 49 Years	37.72	10.89	26.26	17.39	7.74
50+ Years	31.75	30.07	25.04	7.40	5.09
All	39.32	15.92	24.61	12.69	7.33

Source: Estimated for the present study from the data obtained from the census report, 2001.

According to these surveys, the percent of physically disabled persons at age 50+ years accounted to 16.65% at Bhaktapur district and 60% at Sarlahi district. In case of Blindness, the percents were 30.93% and 25.71 % respectively. For deafness, the percents observed were 28.57% for Bhaktapur district and 5.71% for Sarlahi district. The high proportion of physical disability observed at Sarlahi district may be due to high casualties suffered due to Maoist insurgency especially at Chure region of the district [Key Research, 2003] .

19.6.9 Causes of Disability at Old Age

Census data don't provide information about causes of disability. According to Bhaktapur survey, causes of disability among 50+ years aged persons were Infectious diseases (7.69%), Non infectious disease (2.56%)., Accidents (2.56%), Mental (2.56%), Ageing (7.69%) and others (69.23%). At this age group, 8% could not specify the cause of disability. Others specified in this age group included mostly tobacco and alcoholic addictions. On the other hand, according to Sarlahi survey, the causes of disability among aged 60+ years were 15.38% due to communicable diseases, 13.46% due to non-communicable diseases. 13.46% from Birth, 15.38% due to accidents and 25% due to ageing [Key Research, 2003]

19.6.10 Urban Rural Differentials

Though the number urban centers in Nepal has increased rapidly from 10 in 1952/54 census to 58 by 2001 census , the percentage of population in urban centers is still very low accounting to only 11% in 1991 and 13.94 % in 2001. Also, except for Kathamandu Metropolitan city, none of the urban centers of Nepal have urban characteristics found in urban areas of other countries. So analysis of ageing pattern by urban -rural differential in Nepal seems still not appropriate. Also the Data of SAARC countries shows that there is very small positive correlation of amount 0.14 between percentage of urban population and percentage of aged 65+ years.

Yet based on Banstola's data [Banstola, 1995] on age distribution of Nepal by Rural and Urban differentials, an attempt is being made to present the Ageing index differentials between Rural and Urban areas of Nepal. The indices observed are shown in the Table 19.22.

Table 19.22: Ageing index, aged 60+years, urban-rural differentials, 1961-1991.

Area	1961	1971	1981	1991
Urban	14.65	13.67	13.04	13.40
Rural	12.94	13.79	13.73	13.75

Source: Based on Population Monograph, 1991, p275

The table clearly shows that except in case of 1961, there is only a slight difference in indices of ageing between urban and rural areas of Nepal. , and little difference observed is in favor of rural area. Attempt to present rural and urban differential for 2001 is not done partly because of insignificant results so far observed and partly age wise distribution of urban centers of Nepal is yet not properly presented.

19.7 Social Status of Aged Persons in Nepal

In Nepal, though only recently, ageing is considered as an economic problem; socially it is considered, since ancient time, the continued upgrading in social status. Higher the age of a person, more is his/her social status. Eldest male member of the family or the community automatically takes the role of head- ship in the family/community. Almost all social and religious activities are guided as well as performed by him. His views and words are taken as the rules and regulations to be followed by the community / family members. Also individuals who manage to survive more than 75 years of age are considered as those who have attained the god hood. In Newar society of Nepal, elderly persons are facilitated as gods in attaining certain ages through three different ceremonies called Janku. . First ceremony called Bhim Ratharohan is conducted when a person attains the age of 77^{th} year, 7^{th} month , 7^{th} day , 7^{th} hours , 7^{th} minute 7^{th} Pala (Lowest unit of Nepalese chronological time) and second ceremony is conducted at age of 84 and third at the age of 90 years. This shows the high respects shown by Nepalese towards their elderly persons.

Considering the physiological aspects of ageing, Nepalese law have made provisions for protecting elderly persons from possible misuse of their physical and mental disabilities. Nepalese law prohibits making any property and financial transactions with elderly persons aged 75 years and above in absence of his /her near and dear ones. Also, there is a system of providing free foods and lodging to old persons who were discarded by their relatives (examples: Pasu Pati Bridhasram, Tripurshowr temple and other religious places). Besides at present, His majesty's

government of Nepal is giving pension of Rs. 100 per month to all those who are aged 75 years and above. It is very good gesture shown by the government to its senior citizens.

In this regard, it is worth while to mention that Hindus had the practice of going to Banasram (going to settle at forests) after attaining the age of 50 years by handing over all rights and properties to their heirs. This is perhaps meant to minimize the negative impact of ageing in social order. Also till recently, many old Nepalese went to Baranasi, in India, a very pious place for Hindus to die. All above discussions show that traditional Nepalese and Hindus are very conscious of old ages. They have used different methods for adjusting the life at old age.

19.8 Conclusion

Since Nepal is in demographic transition, ageing index for Nepal is very unlikely to grow rapidly. The present ageing index for aged 65+ years of 10.69 % is expected to increase to only 12.65% by 2031. However, in absolute figures the number of aged 60+ years will increase from expected figure of 1586 thousand in 2006 to 2690 thousands by 2031. Also the percent of old old among aged persons is increasing rapidly from 10.51% in 1911 to 20% in 2001.To manage with this growing number of aged persons will be a difficult task for both Government and Society. Also though at present, Ageing is still not a social and an economic problem in Nepal, medical problem is acute [Aging Concern Society of Nepal, 2002]. However, changing Nepalese life style from traditional ways to western ways may pose serious problem of ageing in Nepal in decades to come.

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Annex 19.1A : Age distribution of Nepalese population 1911-1951

C(x)	1911	1921	1931	1941	1951
1	4.00	3.80	3.57	3.59	4.02
1--4	11.94	12.02	11.23	11.93	13.17
5--9	11.84	12.13	11.67	12.43	13.69
10--14	10.90	11.10	10.78	11.21	11.93
15--19	10.14	10.22	10.00	10.12	10.43
20--24	9.20	9.24	9.13	9.01	8.98
25--29	8.30	8.21	8.18	7.90	7.65
30--34	7.30	7.14	7.23	6.87	6.48
35--39	6.26	7.17	6.29	5.92	5.45
40--44	5.50	5.27	5.39	5.06	4.55
45--49	4.30	4.43	4.54	4.27	3.77
50--54	3.42	2.66	3.74	3.53	3.05
55--59	2.62	2.47	2.96	2.83	2.41
60--64	1.85	1.30	2.21	2.16	1.81
65--69	1.26	1.58	1.52	1.58	1.25
70--74	0.72	0.75	0.91	0.94	0.76
75--79	0.33	0.36	0.45	0.48	0.40
80--84	0.11	0.14	0.15	0.12	0.16
85- 89	0.01	0.02	0.03	0.05	0.05
Total	100.00	100.00	100.00	100.00	100.00

Figures based on stable population derived from female life table constructed

(See M. L. Singh, 'Population dynamics of Nepal', 1979, T.U, pp 188-207).

Annex 19.1B : Age distribution, 1952/54-2001 censuses, both sexes, Nepal

Age Group	1952/54	1961	1971	1981	1991	2001
0 --- 4	13.12	14.18	14.68	15.41	14.64	12.12
5 --- 9	13.12	13.98	14.68	14.58	15.18	14.12
10---14	10.46	10.39	10.36	11.36	12.59	13.11
15---19	9.38	9.37	8.71	8.84	9.69	10.51
20---24	9.26	8.85	8.78	8.89	8.58	8.87
25---29	9.04	8.94	8.26	7.73	7.43	7.59
30--34	7.53	7.77	7.72	6.49	6.24	6.55
35---39	6.00	6.00	6.25	5.95	5.56	5.76
40--44	5.56	5.22	5.36	5.01	4.56	4.79
45--49	4.08	4.00	3.76	4.12	3.97	4.06
50--54	3.84	3.88	3.42	3.61	3.24	3.37
55--59	2.37	2.37	2.17	2.30	2.52	2.65
60--64	2.58	2.69	2.71	2.45	2.33	2.29
65--69	1.11	1.16	1.24	1.26	1.46	1.70
70+	1.75	1.74	1.93	1.04	0.99	1.20
75+				0.96	1.00	1.30
Unknown	0.57	0.46	0.00	0.00	0.02	0.00
Total	100.00	100.00	100.00	100.00	100.00	100

Annex 19.2 : e_o^0, b and IMR for Nepal, 1911-2001.

	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001*
e_o^0	19.18	21.71	24.27	30.45	34.83	37.47	41.96	48.20	53.82	58
B	50.00	50.20	44.82	44.70	47.74	46.81	42.14	39.95	37.30	31
IMR	236.08	226.59	216.99	193.81	177.39	167.49	150.65	127.25	106.18	64.

Note * Official figures of CBR and e_o^0 based on 2001 census are yet not published. The figures quoted are estimates based on world population data sheets, 2002.

Figures for 1911-1981 based on stable population derived from female life table constructed (See M. L. Singh, 'Population dynamics of Nepal, 1979, T.U, pp 188-207).

1991 figures based on Table 19.1, second row, p 87, Population Monograph of Nepal, CBS, 1995 IMR for 1911-1991 are based on the relationship IMR=0.308- 0.00375 e_o^0, R^2 =96.31, See M.L. Singh, ibid .

Annex 19.3 : Important population parameters of different areas of the continents in the world, 2002.

Area	% aged 65+	% aged < 15	CBR	IMR	e_o^0
W. Africa	3.00	45.00	42.00	87.00	51.00
S. Sahara	3.00	44.00	15.00	71.00	49.00
S. C. Asia	4.00	37.00	26.00	69.00	63.00
N. .Africa	4.00	36.00	27.00	55.00	64.00
W. .Asia	5.00	36.00	27.00	45.00	68.00
C. America	5.00	35.00	27.00	28.00	74.00
S. Asia	5.00	32.00	22.00	41.00	67.00
Latin America	6.00	32.00	28.00	30.00	71.00
S. Africa	6.00	31.00	22.00	29.00	70.00
Caribbean	7.00	30.00	21.00	43.00	89.00
E. Asia	8.00	22.00	13.00	29.00	72.00
Oceanic	10.00	25.00	18.00	30.00	75.00
USA	13.00	21.00	15.00	6.60	77.00
E. Europe	13.00	18.00	9.00	13.00	74.00
N. Europe	15.00	19.00	11.00	5.00	75.00
Canada	13.00	15.00	11.00	5.30	79.00
W. Europe	16.00	17.00	11.00	5.00	76.00
S. Europe	17.00	16.00	10.00	6.00	75.00

Annex 19.4 : Important population parameters of SAARC countries, 2002

Area	65+	<15	CBR	IMR	e_o^0
Bagaladesh	3.00	40.00	30.00	66.00	59.00
Bhutan	5.00	39.00	34.00	61.00	66.00
India	4.00	36.00	26.00	68.00	63.00
Nepal	4.00	41.00	31.00	64.00	58.00
Pakistan	4.00	42.00	30.00	86.00	63.00
Shree Lanka	6.00	27.00	18.00	17.00	72.00

Annex 19.5 : Age distribution by Sex and districts of Nepal, 2001

District	Less than 15		60+		65+		70+		75+		15--59	
	M	F	M	F	M	F	M	F	M	F	M	F
Taplejung	41.51	39.79	7.68	7.22	5.14	4.78	3.25	2.90	1.67	1.53	50.81	53.00
Sankhuwasabha	40.50	38.13	7.70	7.53	5.15	4.97	3.13	3.09	1.58	1.64	51.80	54.34
Solukhumbu	40.47	38.75	7.43	7.11	4.77	4.33	2.68	2.43	1.32	1.28	52.10	54.14
E. Mountain	**40.83**	**38.85**	**7.62**	**7.31**	**5.04**	**4.74**	**3.05**	**2.85**	**1.54**	**1.51**	**51.55**	**53.83**
Pancthar	42.50	40.20	7.28	6.62	4.82	4.33	2.86	2.58	1.42	1.36	50.22	53.17
Illam	37.59	37.40	6.56	5.77	4.31	3.88	2.50	2.22	1.26	1.20	55.85	56.84
Tehrathum	39.69	40.44	8.00	8.14	5.44	5.59	3.32	3.49	1.83	2.00	52.31	51.42
Dhankuta	37.69	36.20	7.61	7.40	5.16	5.04	3.12	3.01	1.64	1.63	54.70	56.40
Khotang	43.61	40.21	8.03	7.22	5.30	4.79	3.11	2.81	1.63	1.52	48.36	52.57
OKhaldunga	43.25	39.19	8.47	8.36	5.74	5.52	3.51	3.29	1.84	1.77	48.27	52.45
Udayapur	42.61	41.29	5.99	5.88	3.83	3.87	2.32	2.38	1.14	1.30	51.40	52.83
Bhojpur	40.84	37.69	8.74	7.94	5.85	5.25	3.59	3.13	1.93	1.78	50.41	54.37
E. Hill	**41.00**	**39.12**	**7.40**	**6.95**	**4.91**	**4.63**	**2.94**	**2.76**	**1.52**	**1.51**	**51.60**	**53.93**
Jhapa	35.08	33.68	6.65	6.10	4.32	4.02	2.51	2.48	1.29	1.43	58.27	60.23
Morang	36.93	35.61	6.06	5.95	3.90	3.93	2.30	2.39	1.17	1.33	57.01	58.44
Sunsarii	28.41	37.87	5.50	5.72	3.56	3.84	2.11	2.31	1.11	1.28	66.09	56.42
Saptari	39.83	39.03	5.96	6.03	3.80	3.85	2.20	2.26	1.11	1.15	54.21	54.94
Siraha	40.69	39.96	6.01	6.26	3.75	3.99	2.27	2.36	1.09	1.17	53.30	53.78
E.Terai	**36.12**	**37.01**	**6.04**	**6.00**	**3.87**	**3.93**	**2.28**	**2.36**	**1.16**	**1.28**	**57.84**	**56.99**
Dolakha	39.10	37.61	7.69	8.21	4.95	5.26	2.76	3.14	1.33	1.69	53.20	54.17
Sindhupalchowk	46.35	38.61	8.46	8.28	5.56	5.40	3.30	3.24	1.65	1.69	45.19	53.11
Rasuwa	36.78	**39.34**	8.26	9.03	5.17	5.65	3.33	3.64	1.80	1.96	54.95	51.63
C.Mountain	**43.04**	**38.32**	**8.19**	**8.32**	**5.32**	**5.37**	**3.12**	**3.24**	**1.56**	**1.71**	**48.78**	**53.36**
Ramechhap	44.28	40.11	7.84	8.64	5.18	5.82	2.92	3.56	1.77	2.02	47.88	51.25
Sindhuli	43.34	42.18	6.07	6.30	3.99	4.21	2.28	2.54	1.17	1.39	50.60	51.52
Kavre	40.51	38.08	7.47	7.47	5.04	5.00	3.01	2.96	1.56	1.61	52.02	54.45
Bhaktapur	31.07	30.52	6.61	7.27	4.51	4.92	2.68	2.97	1.49	1.69	62.32	62.22
Lalitpur	28.89	**29.09**	6.31	6.50	4.18	4.80	2.51	2.94	1.38	1.73	64.80	64.41
Kathmandu	27.27	28.96	4.76	6.03	3.14	4.12	1.87	2.51	1.03	1.44	67.97	65.01
Dhading	41.55	39.49	8.42	7.53	5.79	5.11	3.59	3.18	1.93	1.77	50.03	52.98
Makawanpur	40.85	40.78	6.21	6.09	4.25	4.04	2.54	2.46	1.31	1.35	52.94	53.13

District	Less than 15		60+		65+		70+		75+		15--59	
	M	F	M	F	M	F	M	F	M	F	M	F
Nuwakot	39.71	38.99	8.33	8.04	5.66	5.31	3.44	3.27	1.83	1.81	51.95	52.97
C.Hill	**35.05**	**35.07**	**6.37**	**6.83**	**4.27**	**4.64**	**2.55**	**2.82**	**1.38**	**1.59**	**58.58**	**58.10**
Dhanusha	40.58	40.34	5.84	6.31	3.64	4.03	2.14	2.31	1.04	1.08	53.59	53.35
Mahottari	40.42	40.42	6.32	6.69	3.99	4.25	2.41	2.49	1.16	1.23	53.26	52.89
Sarlahi	40.99	40.80	6.09	5.74	3.79	4.09	2.21	2.43	1.05	1.22	18.02	18.40
Rautahat	40.68	40.55	6.58	6.51	4.05	4.21	2.39	2.49	1.12	1.22	52.75	52.93
Bara	41.31	**41.23**	5.95	5.72	3.68	3.63	2.11	2.07	1.01	0.98	52.74	53.05
Parsa	40.55	41.72	5.14	5.14	3.07	3.08	1.69	1.65	0.76	0.76	54.31	53.15
Chitwan	37.32	35.58	6.91	6.57	4.67	4.45	2.88	2.78	1.54	1.55	55.77	57.84
C.Terai	**40.36**	**40.16**	**11.75**	**11.77**	**3.82**	**3.97**	**2.25**	**2.32**	**1.09**	**1.15**	**47.89**	**48.07**
Manang	24.67	27.45	8.30	9.80	5.09	6.50	3.30	4.35	1.73	2.20	67.02	62.75
Mustang	25.27	30.17	8.44	10.28	4.76	6.41	2.75	3.82	1.45	2.09	66.30	59.55
W. Mountain	**25.04**	**29.08**	**8.39**	**10.08**	**4.88**	**6.45**	**2.96**	**4.03**	**1.56**	**2.13**	**66.57**	**60.83**
Gorkha	49.31	36.58	10.09	8.78	7.03	6.03	4.52	3.87	2.50	2.20	40.60	54.64
Lamjung	40.07	34.86	10.44	9.15	7.16	6.08	4.49	3.84	2.33	2.07	49.49	55.99
Tanahu	42.79	37.08	8.67	7.84	5.88	5.22	3.73	3.27	2.02	1.85	48.54	55.08
Kaski	36.25	33.29	7.35	7.98	4.97	5.42	3.06	3.38	1.61	1.93	56.40	58.72
Parbat	44.06	36.74	9.52	8.26	6.50	5.38	3.95	3.25	2.01	1.71	46.42	55.00
Syangja	45.07	36.66	9.90	8.56	6.64	5.72	4.03	3.61	2.09	2.01	45.03	54.78
Myagdi	42.34	36.64	9.45	8.36	6.30	5.42	3.78	3.13	1.84	1.64	48.22	55.00
Baglung	45.07	37.65	8.81	7.40	5.88	4.79	3.59	2.91	1.76	1.60	46.12	54.95
Arghakhanchi	46.77	39.66	8.88	6.94	6.07	4.67	3.68	2.88	1.82	1.51	44.35	53.40
Gulmi	47.92	39.24	9.46	7.61	6.46	4.94	4.04	2.97	2.09	1.61	42.62	53.15
Palpa	45.41	38.50	8.42	7.31	5.70	4.76	3.56	2.94	1.82	1.57	46.17	54.19
W.Hill	**43.96**	**36.93**	**9.05**	**7.98**	**6.14**	**5.30**	**3.81**	**3.29**	**1.98**	**1.81**	**47.00**	**55.09**
Nawalparasi	41.35	38.82	6.90	6.25	4.53	4.10	2.74	2.48	1.36	1.30	51.75	54.93
Rupandehi	39.96	39.05	6.61	6.22	4.36	4.11	2.57	2.44	1.25	1.28	53.43	54.73
Kapilbastu	41.27	**41.07**	6.80	6.24	4.54	4.00	2.59	2.35	1.24	1.16	51.93	52.69
W.Terai	**40.76**	**39.52**	**6.75**	**6.24**	**4.46**	**4.08**	**2.63**	**2.43**	**1.28**	**1.25**	**52.48**	**54.24**
Dolpa	37.52	39.81	4.81	5.28	2.53	3.07	1.38	1.62	0.65	0.78	57.66	54.91
Jumla	41.98	43.19	4.19	3.19	2.12	1.48	1.01	0.76	0.46	0.32	53.83	53.62
Kalikot	38.47	43.57	4.05	3.87	1.94	1.78	1.03	0.67	0.45	0.27	57.48	52.56
Mugu	41.08	42.87	5.41	5.35	5.41	3.19	1.98	1.80	1.03	0.87	53.51	51.78
Humla	40.27	40.00	6.14	6.62	3.60	3.85	2.09	2.44	1.19	1.35	53.59	53.38
M.W. Mountain	**40.63**	**41.98**	**4.93**	**4.69**	**3.09**	**2.56**	**1.48**	**1.44**	**0.75**	**0.72**	**54.44**	**53.33**
Pyuthan	49.37	42.06	7.06	6.11	4.49	3.74	2.65	2.18	1.23	1.09	43.57	51.83
Rolpa	44.75	42.04	6.07	5.67	3.71	3.24	2.05	1.76	0.93	0.78	49.18	52.29
Rukum	40.30	40.99	4.62	3.82	2.60	1.99	1.35	1.01	0.60	0.46	55.07	55.19
Salyan	40.64	40.99	4.40	4.31	2.55	2.39	1.21	1.22	0.55	0.59	54.96	54.70
Surkhet	42.69	40.95	4.73	4.52	2.79	2.67	1.52	1.50	0.68	0.80	52.58	54.53
Dailekh	46.48	43.57	5.12	4.64	2.95	2.51	1.52	1.23	0.69	0.58	48.40	51.79
Jajarkot	40.70	42.59	3.80	2.89	1.96	1.36	0.94	0.59	0.39	0.24	55.50	54.52
M.W. Hill	**44.03**	**41.95**	**5.24**	**4.73**	**3.10**	**2.68**	**1.68**	**1.44**	**0.76**	**0.69**	**50.73**	**53.32**
Dang	42.79	40.93	5.01	4.51	3.07	2.72	1.76	1.54	0.83	0.76	52.20	54.56

District	Less than 15		60+		65+		70+		75+		15--59	
	M	F	M	F	M	F	M	F	M	F	M	F
Banke	40.49	40.51	5.82	5.34	3.72	3.34	2.21	2.00	1.09	1.02	53.69	54.16
Bardiya	42.11	41.24	5.30	4.79	3.27	2.91	1.85	1.67	0.91	0.83	52.59	53.96
M.W. Tarai	**41.84**	**40.90**	**5.36**	**4.85**	**3.34**	**2.97**	**1.93**	**1.72**	**0.94**	**0.86**	**52.80**	**54.25**
Bajura	44.04	42.17	5.96	5.83	3.69	3.50	2.26	1.98	1.20	1.01	49.99	52.00
Bajhang	46.13	41.22	6.11	6.43	3.80	3.76	2.16	2.03	1.05	0.95	47.75	52.35
Darchula	42.49	40.44	7.16	6.38	4.64	3.88	2.88	2.18	1.47	1.13	50.36	53.17
F.W. Mountain	**44.44**	**41.22**	**6.40**	**6.26**	**4.03**	**3.73**	**2.41**	**2.07**	**1.22**	**1.02**	**49.16**	**52.52**
Aachham	47.17	41.48	6.15	6.77	3.76	4.02	2.01	2.14	0.94	1.07	46.68	51.76
Doti	40.85	40.40	5.18	6.59	3.05	3.98	1.68	2.22	0.78	1.14	53.98	53.01
Dadeldura	45.96	41.75	6.09	6.56	3.82	4.07	2.20	2.33	1.08	1.21	47.95	51.69
Baitadi	44.01	40.41	7.29	7.34	4.70	4.68	2.90	2.71	1.61	1.54	48.70	52.25
F.W. Hill	**44.36**	**40.94**	**6.21**	**6.86**	**3.86**	**4.21**	**2.21**	**2.36**	**1.11**	**1.25**	**49.43**	**52.21**
Kailali	42.95	41.88	4.88	4.77	2.98	2.86	1.70	1.68	0.83	0.89	52.18	53.35
Kanchanpur	42.12	41.49	5.20	4.91	3.18	3.02	1.93	1.85	0.97	1.02	52.68	53.59
F.W. Tarai	**42.63**	**41.73**	**5.00**	**4.83**	**3.06**	**2.92**	**1.79**	**1.74**	**0.88**	**0.94**	**52.37**	**53.44**
Nepal	**40.04**	**38.58**	**7.56**	**7.36**	**4.25**	**4.17**	**2.52**	**2.49**	**1.28**	**1.32**	**52.40**	**54.06**

Annex 19.6: Age distribution, regional figures, by sex, 2001

Eco-Region	Less 15		60+		65+		70+		75+		15—59	
	M	F	M	F	M	F	M	F	M	F	M	F
E. Mountain	40.83	38.85	7.62	7.31	5.04	4.74	3.05	2.85	1.54	1.51	51.55	53.83
C. Mountain	43.04	38.32	8.19	8.32	5.32	5.37	3.12	3.24	1.56	1.71	48.78	53.36
W. Mountain	25.04	29.08	8.39	10.08	4.88	6.45	2.96	4.03	1.56	2.13	66.57	60.83
M.W. Mountain	40.63	41.98	4.93	4.69	3.09	2.56	1.48	1.44	0.75	0.72	54.44	53.33
F.W. Mountain	44.44	41.22	6.40	6.26	4.03	3.73	2.41	2.07	1.22	1.02	49.16	52.52
Mountain	**42.20**	**39.50**	**7.19**	**7.13**	**4.64**	**4.47**	**2.72**	**2.64**	**1.37**	**1.37**	**50.61**	**53.37**
E. Hill	41.00	39.12	7.40	6.95	4.91	4.63	2.94	2.76	1.52	1.51	51.60	53.93
C. Hill	35.05	35.07	6.37	6.83	4.27	4.64	2.55	2.82	1.38	1.59	58.58	58.10
W .Hill	43.96	36.93	9.05	7.98	6.14	5.30	3.81	3.29	1.98	1.81	47.00	55.09
M.W. Hill	44.03	41.95	5.24	4.73	3.10	2.68	1.68	1.44	0.76	0.69	50.73	53.32
F.W. Hill	44.36	40.94	6.21	6.86	3.86	4.21	2.21	2.36	1.11	1.25	49.43	52.21
Hill	**40.26**	**37.62**	**7.08**	**6.92**	**4.68**	**4.54**	**2.81**	**2.73**	**1.46**	**1.50**	**52.65**	**55.46**
E . Terai	36.12	37.01	6.04	6.00	3.87	3.93	2.28	2.36	1.16	1.28	57.84	56.99
C. Terai	40.36	40.16	11.75	11.77	3.82	3.97	2.25	2.32	1.09	1.15	47.89	48.07
W. Terai	40.76	39.52	6.75	6.24	4.46	4.08	2.63	2.43	1.28	1.25	52.48	54.24
M.W. Terai	41.84	40.90	5.36	4.85	3.34	2.97	1.93	1.72	0.94	0.86	52.80	54.25
F.W. Terai	42.63	41.73	5.00	4.83	3.06	2.92	1.79	1.74	0.88	0.94	52.37	53.44
Terai	**39.57**	**39.36**	**8.03**	**7.81**	**3.82**	**3.77**	**2.24**	**2.23**	**1.10**	**1.15**	**52.41**	**52.84**
Nepal	**40.04**	**38.58**	**7.56**	**7.36**	**4.25**	**4.17**	**2.52**	**2.49**	**1.28**	**1.32**	**52.40**	**54.06**

Annex 19.7: Age distribution by districts, both sex. 2001.

Districts	Less 15	60+	65+	70+	75+	15-59
Taplejung	40.63	7.44	4.95	3.07	1.60	51.92
Sankhuwasabha	39.29	7.61	5.06	3.11	1.61	53.10
Solukhumbu	39.60	7.27	4.55	2.55	1.30	53.13
E.Mountain	**39.82**	**7.46**	**4.89**	**2.95**	**1.52**	**52.71**
Pancthar	41.33	6.94	4.57	2.72	1.39	51.73
Illam	37.49	6.17	4.10	2.36	1.23	56.34
Tehrathum	40.07	8.07	5.52	3.41	1.92	51.85
Dhankuta	36.93	7.50	5.10	3.07	1.64	55.56
Khotang	41.87	7.61	5.04	2.96	1.57	50.52
Okhaldunga	41.14	8.42	5.63	3.40	1.80	50.44
Udayapur	41.95	5.93	3.85	2.35	1.22	52.12
Bhojpur	39.21	8.33	5.54	3.35	1.85	52.47
E. Hill	**40.04**	**7.17**	**4.77**	**2.85**	**1.52**	**52.79**
Jhapa	34.37	6.37	4.17	2.49	1.36	59.25
Morang	36.27	6.01	3.92	2.34	1.25	57.72
Sunsari	33.10	5.61	3.70	2.21	1.20	61.30
Saptari	39.44	5.99	3.82	2.23	1.13	54.57
Siraha	40.34	6.13	3.87	2.31	1.13	53.53
E.Terai	**36.56**	**6.02**	**3.90**	**2.32**	**1.22**	**57.42**
Dolakah	38.34	7.96	5.10	2.95	1.51	53.70
Sindhupalchowk	42.46	8.37	5.48	3.27	1.67	49.17
Rasuwa	38.00	8.63	5.40	3.48	1.88	53.37
C. Mountain	**40.67**	**8.25**	**5.34**	**3.18**	**1.64**	**51.08**
Ramechhap	42.09	8.26	5.52	3.26	1.90	49.65
Sindhuli	42.75	6.18	4.10	2.41	1.28	51.06
Kavre	39.27	7.47	5.02	2.98	1.59	53.26
Bhaktapur	30.80	6.93	4.71	2.82	1.59	62.27
Lalitpur	28.99	6.41	4.48	2.72	1.55	64.61
Kathmandu	28.06	5.35	3.60	2.17	1.22	66.58
Dhading	40.50	7.97	5.45	3.38	1.85	51.54
Makawanpur	40.81	6.15	4.15	2.50	1.33	53.03
Nuwakot	39.35	8.19	5.48	3.35	1.82	52.46
C.Hill	**35.06**	**6.59**	**4.45**	**2.69**	**1.48**	**58.34**
Dhanusha	40.46	6.06	3.83	2.22	1.06	53.47
Mahottari	40.42	6.50	4.11	2.45	1.19	53.08
Sarlahi	40.90	6.27	3.93	2.31	1.13	18.20
Rautahat	40.62	6.55	4.13	2.44	1.17	52.84
Bara	41.27	5.84	3.65	2.09	0.99	52.89
Parsa	41.10	5.14	3.07	1.67	0.76	53.76
Chitwan	36.45	6.74	4.56	2.83	1.54	56.81
C.Terai	**40.26**	**11.76**	**3.89**	**2.28**	**1.12**	**47.98**
Manang	25.99	9.01	5.76	3.80	1.95	64.99
Mustang	27.49	9.27	5.51	3.24	1.74	63.23

Districts	Less 15	60+	65+	70+	75+	15-59
W.Mountain	**26.91**	**9.17**	**5.60**	**3.46**	**1.82**	**63.92**
Gorkha	42.52	9.39	6.50	4.18	2.34	48.09
Lamjung	37.31	9.76	6.59	4.15	2.19	52.93
Tanahu	39.74	8.23	5.53	3.48	1.93	52.03
Kaski	34.73	7.68	5.20	3.23	1.78	57.59
Parbat	40.12	8.84	5.90	3.57	1.85	51.03
Syangja	40.47	9.16	6.14	3.80	2.04	50.37
Myagdi	39.29	8.87	5.83	3.44	1.73	51.85
Baglung	41.06	8.05	5.29	3.22	1.68	50.89
Arghakhanchi	42.95	7.84	5.31	3.25	1.65	49.21
Gulmi	43.15	8.44	5.62	3.45	1.83	48.40
Palpa	41.72	7.83	5.20	3.23	1.69	50.45
W.Hill	**40.19**	**8.47**	**5.69**	**3.53**	**1.89**	**51.33**
Nawalparasi	40.07	6.57	4.31	2.61	1.33	53.36
Rupandehi	39.51	6.42	4.24	2.51	1.27	54.07
Kapuilbastu	41.17	6.53	4.28	2.47	1.20	52.30
W.Terai	**40.15**	**6.50**	**4.27**	**2.53**	**1.27**	**53.35**
Dolpa	38.66	5.04	2.80	1.50	0.71	56.30
Jumla	42.57	3.70	1.81	0.89	0.40	53.73
Kalikot	40.78	3.97	1.87	0.87	0.36	55.25
Mugu	41.95	5.38	4.33	1.89	0.95	52.66
Humla	40.14	6.37	3.72	2.26	1.27	53.49
MWMountain	**41.28**	**4.81**	**2.83**	**1.46**	**0.74**	**53.90**
Pyuthan	45.45	6.55	4.09	2.40	1.16	48.01
Rolpa	43.35	5.86	3.46	1.90	0.85	50.78
Rukum	40.64	4.23	2.30	1.18	0.53	55.13
Salyan	40.81	4.36	2.47	1.22	0.57	54.83
Surkhet	41.81	4.63	2.73	1.51	0.74	53.56
Dailekh	44.99	4.87	2.73	1.37	0.63	50.13
Jajarkot	41.63	3.35	1.67	0.77	0.31	55.02
M.W. Hill	**42.97**	**4.98**	**2.88**	**1.56**	**0.72**	**52.05**
Dang	41.85	4.76	2.90	1.65	0.79	53.39
Banke	40.50	5.58	3.53	2.11	1.06	53.92
Bardiya	41.68	5.05	3.09	1.76	0.87	53.27
M.W. Terai	**41.37**	**5.11**	**3.16**	**1.83**	**0.90**	**53.52**
Aachham	44.16	6.48	3.90	2.08	1.01	49.36
Doti	40.62	5.88	3.52	1.95	0.96	53.49
Dadeldura	43.79	6.33	3.95	2.27	1.15	49.88
Baitadi	42.15	7.31	4.69	2.80	1.57	50.53
F.W. Hill	**42.60**	**6.55**	**4.04**	**2.29**	**1.18**	**50.86**
Kailali	42.42	4.83	2.92	1.69	0.86	52.75
Kanchanpur	41.81	5.06	3.10	1.89	1.00	53.13
F. W. Terai	**42.19**	**4.91**	**2.99**	**1.77**	**0.91**	**52.90**
Nepal	**39.31**	**7.46**	**4.21**	**2.50**	**1.30**	**53.23**

Annex 19.8: Indices of ageing by districts in ascending order for major old age groups, 2001.

District	60+	District	65+	District	70+	District	75+
Jajarkot	8.04	Jajarkot	4.01	Jajarkot	1.84	Jajarkot	0.76
Jumla	8.70	Jumla	4.25	Jumla	2.08	Kalikot	0.89
Kalikot	9.74	Kalikot	4.58	Kalikot	2.13	Jumla	0.93
Rukum	10.40	Rukum	5.66	Rukum	2.92	Rukum	1.31
Salyan	10.68	Salyan	6.06	Salyan	2.99	Salyan	1.39
Dailekh	10.83	Dailekh	6.06	Dailekh	3.05	Dailekh	1.41
Surkhet	11.06	Surkhet	6.52	Surkhet	3.60	Surkhet	1.76
Dang	11.37	Kailali	6.89	Dolpa	3.88	Dolpa	1.84
Kailali	11.37	Dang	6.92	Dang	3.94	Parsa	1.85
Kanchanpur	12.10	Dolpa	7.24	Kailali	3.99	Dang	1.89
Bardiya	12.11	Kanchanpur	7.41	Parsa	4.07	Rolpa	1.97
Parsa	12.50	Bardiya	7.42	Bardiya	4.21	Kailali	2.02
Mugu	12.82	Parsa	7.47	Rolpa	4.38	Bardiya	2.09
Dolpa	13.05	Rolpa	7.99	Mugu	4.51	Mugu	2.27
Rolpa	13.53	Doti	8.65	Kanchanpur	4.52	Aachham	2.28
Banke	13.79	Banke	8.73	Aachham	4.71	Doti	2.37
Udayapur	14.14	Aachham	8.83	Doti	4.8	Kanchanpur	2.39
Bara	14.15	Bara	8.85	Bara	5.06	Bara	2.41
Pyuthan	14.41	Pyuthan	9	Dadeldura	5.18	Pyuthan	2.54
Dadeldura	14.46	Dadeldura	9.02	Banke	5.2	Banke	2.61
Sindhuli	14.47	Udayapur	9.18	Pyuthan	5.28	Dadeldura	2.62
Doti	14.48	Humla	9.26	Dhanusha	5.49	Dhanusha	2.63
Aachham	14.66	Dhanusha	9.46	Udayapur	5.6	Sarlahi	2.77
Dhanusha	14.99	Sindhuli	9.58	Humla	5.63	Siraha	2.81
Makawanpur	15.08	Siraha	9.58	Sindhuli	5.64	Saptari	2.87
Siraha	15.19	Sarlahi	9.61	Saptari	5.65	Rautahat	2.88
Saptari	15.2	Saptari	9.7	Sarlahi	5.66	Udayapur	2.91
Sarlahi	15.34	Makawanpur	10.16	Siraha	5.74	Kapilbastu	2.91
Kapilbastu	15.86	Rautahat	10.17	Rautahat	6	Mahottari	2.95
Humla	15.87	Mahottari	10.18	Kapilbastu	6.01	Sindhuli	2.99
Mahottari	16.07	Mugu	10.32	Mahottari	6.05	Humla	3.16
Rautahat	16.12	Kapilbastu	10.39	Makawanpur	6.12	Rupandehi	3.2
Rupandehi	16.24	Rupandehi	10.72	Illam	6.3	Makawanpur	3.26
Nawalparasi	16.4	Nawalparasi	10.77	Rupandehi	6.35	Illam	3.28
Illam	16.45	Morang	10.8	Solou	6.44	Solou	3.29

District	60+	District	65+	District	70+	District	75+
Morang	16.56	Illam	10.92	Morang	6.46	Nawalparasi	3.32
Pancthar	16.8	Pancthar	11.07	Nawalparasi	6.51	Pancthar	3.37
Sunsari	16.94	Baitadi	11.13	Pancthar	6.58	Morang	3.45
Baitadi	17.35	Sunsari	11.17	Baitadi	6.64	Sunsari	3.61
Khotang	18.18	Solou	11.49	Sunsari	6.68	Baitadi	3.73
Arghakhanchi	18.25	Khotang	12.03	Khotang	7.07	Khotang	3.75
Taplejung	18.32	Jhapa	12.14	Jhapa	7.26	Arghakhanchi	3.85
Solou	18.36	Taplejung	12.19	Taplejung	7.56	Taplejung	3.94
Chitwan	18.49	Arghakhanchi	12.37	Arghakhanchi	7.57	Sindhupalchowk	3.94
Jhapa	18.53	Palpa	12.45	Kavre	7.6	Dolakah	3.95
Palpa	18.77	Chitwan	12.5	Sindhupalchowk	7.7	Jhapa	3.96
Kavre	19.03	Kavre	12.78	Dolakah	7.7	Kavre	4.04
Kathmandu	19.08	Kathmandu	12.82	Kathmandu	7.73	Palpa	4.04
Sankhuwasabha	19.37	Sankhuwasabha	12.87	Ramechap	7.74	Baglung	4.08
Gulmi	19.56	Baglung	12.88	Palpa	7.74	Sankhuwasabha	4.1
Baglung	19.6	Sindhupalchowk	12.9	Chitwan	7.76	Gulmi	4.23
Ramechap	19.62	Gulmi	13.03	Baglung	7.85	Chitwan	4.24
Dhading	19.67	Ramechap	13.11	Sankhuwasabha	7.91	Kathmandu	4.34
Sindhupalchowk	19.71	Dolakah	13.31	Gulmi	8.00	Ohaldunga	4.37
Tehrathum	20.14	Dhading	13.45	Ohaldunga	8.26	Myagdi	4.40
Dhankuta	20.32	Ohaldunga	13.67	Dhankuta	8.31	Dhankuta	4.43
Ohaldunga	20.45	Tehrathum	13.77	Dhading	8.35	Ramechap	4.51
Tanahu	20.70	Dhankuta	13.80	Tehrathum	8.50	Dhading	4.56
Dolakah	20.76	Tanahu	13.91	Nuwakot	8.52	Parbart	4.61
Nuwakot	20.81	Nuwakot	13.93	Bhojpur	8.54	Nuwakot	4.63
Bhojpur	21.23	Bhojpur	14.13	Myagdi	8.75	Bhojpur	4.72
Parbat	22.04	Rasuwa	14.20	Tanahu	8.76	Tehrathum	4.79
Gorkha	22.09	Parbat	14.70	Parbat	8.91	Tanahu	4.85
Lalitpur	22.10	Myagdi	14.83	Rasuwa	9.15	Rasuwa	4.94
Kaski	22.11	Kaski	14.97	Bhkatpur	9.16	Syangja	5.05
Bhkatpur	22.51	Syangja	15.17	Kaski	9.29	Kaski	5.11
Myagdi	22.57	Gorkha	15.28	Lalitpur	9.39	Bhkatpur	5.16
Syangja	22.65	Bhkatpur	15.29	Syangja	9.40	Lalitpur	5.35
Rasuwa	22.71	Lalitpur	15.45	Gorkha	9.82	Gorkha	5.50
Lamjung	26.15	Lamjung	17.66	Lamjung	11.11	Lamjung	5.87
Mustang	33.72	Mustang	20.03	Mustang	11.77	Mustang	6.34
Manang	34.67	Manang	22.15	Manang	14.61	Manang	7.50

Annex 19.9 : Females per thousand males in ascending order, district figures, 2001.

District	<15	District	65+	District	75+
Sindhupalchowk	838.95	Mugu	560.14	Kalikot	500.00
Gorkha	848.51	Jumla	655.22	Jajarkot	588.01
Dhanusha	915.97	Jajarkot	673.36	Jumla	650.60
Parsa	920.01	Rukum	747.48	Rukum	739.58
Mahottari	922.57	Kalikot	762.30	Darchula	798.18
Sarlahi	926.76	Kapilbastu	833.21	Mugu	807.23
Rautahat	928.59	Banke	848.72	Bajura	855.95
Siraha	930.09	Darchula	869.50	Dailekh	870.08
Humla	930.35	Bardiya	878.33	Kapilbastu	887.04
Bara	931.41	Illam	885.5608	Bardiya	890.58
Kathmandu	932.61	Dilek	889.88	Banke	890.64
Saptari	937.71	Arghakhanchi	894.12	Rolpa	895.35
Kalikot	939.67	Parsa	896.92	Parsa	898.23
Kapilbastu	940.01	Salyan	897.47	Bara	909.97
Rupandehi	941.67	Dang	903.04	Dang	934.36
Banke	946.80	Rupandehi	907.05	Illam	935.52
Bhaktapur	946.87	Dhading	919.03	Gulmi	937.75
Kailali	950.38	Kanchanpur	919.55	Taplejung	948.46
Kanchanpur	954.66	Bara	919.93	Dhading	954.70
Bajhang	956.31	Makawanpur	924.60	Dhanusha	956.71
Morang	958.26	Nawalparasi	927.08	Arghakhanchi	960.75
Nawalparasi	960.19	Gulmi	931.02	Bajhang	968.16
Chitwan	961.03	Solou	931.42	Mahottari	976.37
Jumla	962.90	Rolpa	932.54	Khotang	980.92
Lalitpur	965.39	Kailali	933.91	Nawalparasi	981.47
Bardiya	965.80	Pancthar	935.0785	Rupandehi	981.87
Salyan	967.17	Jhapa	942.48	Saptari	991.05
Khotang	969.00	Khotang	951.12	Palpa	991.21
Makawanpur	969.87	Lamjung	954.45	Parbart	993.17
Udayapur	970.24	Nuwakot	958.39	Solou	994.32
Parbat	970.35	Baglung	958.55	Bhojpur	994.69
Kaski	970.77	Palpa	958.73	Pancthar	995.74
Dadeldura	971.34	Chitwan	960.98	Makawanpur	995.79
Jhapa	971.43	Taplejung	962.07	Rasuwa	1000.00
Palpa	972.76	Parbart	962.88	Lamjung	1000.00
Surkhet	973.57	Pythan	964.95	Gorkha	1008.05
Dang	975.04	Bhojpur	966.95	Nuwakot	1011.87
Bajura	976.66	Rautahat	968.17	Chitwan	1016.60

District	<15	District	65+	District	75+
Baitadi	977.49	Bajura	968.41	Rautahat	1017.72
Okhaldunga	977.70	Saptari	970.00	Siraha	1018.79
Lamjung	977.74	Surkhet	970.53	Baitadi	1019.75
Kavre	978.81	Sindhupalchowk	978.12	Kanchanpur	1019.82
Rasuwa	978.815	Gorkha	980.74	Dhankuta	1023.79
Dailekh	979.53	Mahottari	981.81	Pythan	1023.91
Illam	980.5365	Myagdi	990.74	Myagdi	1026.61
Sindhuli	981.55	Rasuwa	1000	Salyan	1029.59
Solou	981.69	Humla	1001.33	Sindhupalchowk	1030.15
Baglung	983.22	Morang	1001.76	Ohaldunga	1036.82
Sankhuwasabha	983.67	Sarlahi	1004.25	Kailali	1044.38
Syangja	983.89	Siraha	1008.39	Tanahu	1045.76
Pancthar	984.01	Sankhuwasabha	1008.73	Humla	1068.27
Arghakhanchi	986.11	Dhankuta	1010.19	Baglung	1069.33
Aachham	986.48	Udayapur	1010.89	Kavre	1073.17
Pythan	987.85	Tanahu	1018.41	Sarlahi	1085.02
Doti	989.36	Dhanusha	1019.56	Sankhuwasabha	1085.37
Dhading	990.03	Kavre	1032.98	Bhakatpur	1091.07
Darchula	990.32	Ohaldunga	1037.91	Jhapa	1119.67
Rukum	991.06	Syangja	1042.37	Morang	1129.90
Mugu	991.70	Bhaktapur	1051.80	Sunsari	1131.02
Taplejung	991.70	Sunsari	1057.62	Udayapur	1137.55
Mustang	992.74	Bajhang	1059.69	Manang	1149.43
Dhankuta	993.19	Baitadi	1061.29	Tehrathum	1152.78
Bhojpur	993.49	Sindhuli	1063.97	Syangja	1165.94
Tanahu	994.62	Tehrathum	1087.29	Dolpa	1180.56
Myagdi	996.98	Lalitpur	1101.39	Surkhet	1187.91
Gulmi	997.16	Dolakah	1108.48	Mustang	1193.28
Ramechap	1002.04	Mustang	1120.82	Sindhuli	1201.74
Nuwakot	1002.54	Dadeldura	1138.14	Dadeldura	1204.27
Rolpa	1002.57	Kaski	1153.59	Lalitpur	1206.49
Dolakah	1003.06	Kathmandu	1153.75	Kathmandu	1227.70
Manang	1006.44	Manang	1156.25	Ramechap	1266.14
Jajarkot	1013.63	Dolpa	1191.49	Kaski	1269.64
Dolpa	1041.64	Aachham	1200.68	Aachham	1275.39
Tehrathum	1079.26	Ramechap	1217.67	Dolakah	1326.05
Sunsari	1309.84	Doti	1302.02	Doti	1458.02

Annex 19.10 : Percents of over stated/ understated by sex, single ages above 75+ years,2001

Age	Male	Female	Both Sexes
75.00	0.00	0.05	0.03
76.00	-47.46	-54.37	-51.06
77.00	-32.14	-29.13	-30.68
78.00	13.17	12.22	12.71
79.00	-31.18	-35.19	-33.16
80.00	260.12	260.85	260.50
81.00	-28.35	-29.53	-28.93
82.00	0.00	0.00	0.00
83.00	-16.35	-22.97	-19.65
84.00	0.00	5.81	2.93
85.00	66.85	77.08	72.12
86.00	-27.64	-34.14	-31.02
87.00	-25.00	-18.22	-21.63
88.00	0.00	0.00	0.00
89.00	-37.15	-42.14	-39.74
90.00	193.19	168.26	178.77
91.00	-44.11	-47.52	-45.93
92.00	-37.03	-26.42	-31.49
93.00	-33.93	-36.28	-35.25
94.00	-52.04	-34.86	-43.13
95.00	140.34	139.68	139.98
96.00	0.00	0.00	0.00
97.00	-21.99	-25.91	-24.32
98.00	378.18	386.93	383.27

Annex 19.11: Adjusted population, 75+ years.

Age Group	Male	Female	Both Sexes
75---79	99313	102941	202254
80--84	26731	27157	53888
85---89	13211	13611	26822
90--95	4328	5198	9526
95+	1271	1676	2947

Annex 19.12 : Adjusted figures by fitting inverse log linear model at age 75 and above, single ages, by sex.

Age	Male	Female	Both Sexes
75	40000	43400	83400
76	23505	25541	49046
77	13975	13078	27053
78	12349	11654	24003
79	9484	9268	18752
80	6527	7078	13605
81	6282	6007	12289
82	5251	5360	10611
83	4501	4479	8980
84	4170	4233	8403
85	3765	3997	7762
86	3184	3450	6634
87	2304	2272	4576
88	2230	2034	4264
89	1728	1858	3586
90	1086	1490	2576
91	1052	1208	2260
92	983	1075	2058
93	619	791	1410
94	588	634	1222
95	409	504	913
96	360	453	813
97	282	413	695
98	220	306	526
Total	144854	150583	295437

Annex 19.13 : Percents of deaths among aged 65+ years by Causes, 2001

Causes	Male	Causes	Female	Causes	Both Sexes
Natural rules	41.53	other causes	26.97	Natural rules	30.46
other causes	21.66	Natural rules	16.08	other causes	23.97
Asthma	11.02	Not reported	8.83	Asthma	9.57
Not reported	7.45	Asthma	7.68	Not reported	8.05
Cancer	3.11	Cancer	6.56	Cancer	4.61
Tuberculosis	2.86	Mis carries / delivery	6.10	Tuberculosis	3.68
Heart disease	2.84	Tuberculosis	4.75	Heart disease	**3.19**
Cholera/Diarrhea	1.53	Heart disease	3.65	Mis carries / delivery	2.66
Blood pressure	1.46	Cholera/Diarrhea	3.22	Cholera/Diarrhea	2.26
other accidents	1.13	Suicide	2.91	other accidents	1.84
Diabetic	0.91	other accidents	2.76	Suicide	1.44
Pneumonia	0.88	Jaundice	1.55	Blood pressure	1.32
Typhoid	0.60	Malaria	1.18	Pneumonia	0.95
Malaria	0.57	Blood pressure	1.12	Jaundice	0.92
Transport accidents	0.53	Pneumonia	1.04	Malaria	0.84
Jaundice	0.44	Typhoid	0.98	Diabetic	0.78
Suicide	0.31	Transport accidents	0.86	Typhoid	0.76
Natural calamities	0.31	Natural calamities	0.69	Transport accidents	0.68
Appendices	0.22	Diabetic	0.60	Natural calamities	0.48
Aid	0.16		0.49	Appendices	0.34
Violence/ Murder	0.16	Aid	0.43	Aid	0.28
Viral influenza	0.13	Violence/ Murder	0.40	Violence/ Murder	**0.26**
measles	0.07	Meningitis	0.31	Meningitis	0.18
Meningitis	0.07	Measles	0.29	measles	0.16
Hepatitis	0.05	Hepatitis	0.23	Viral influenza	0.16
Mis carries / delivery	0.00	Viral influenza	0.20	Hepatitis	0.13
Rebel	0.00	Rebel	0.09	Rebel	0.04

Annex 19.14 : Observed and expected values of b and e_o^0.

Year	Time	b = CBR		e_o^0	
		Observed	Expected	Observed	Expected
1911	1.00	38.83	51.48	19.18	17.05
1921	2.00	50.20	49.37	21.71	21.48
1931	3.00	44.82	47.26	24.27	25.91
1941	4.00	44.70	45.15	30.45	30.34
1951	5.00	46.81	43.04	34.83	34.77
1961	6.00	42.15	40.93	37.47	39.20
1971	7.00	39.95	38.82	41.96	43.63
1981	8.00	37.30	36.71	48.2	48.06
1991	9	33.00	34.6	53.82	52.49
2001	10	31.00	32.49	58.00	56.92

Annex 19.15: Marital status of aged 65+ years by sex, regional figures, 2001.

Region	Sex	Single	Widow	Divorced	Separated	Not Stated	Currently Married
Eastern	Male	1.31	10.27	0.14	0.18	0.75	87.34
	Female	1.40	26.66	0.21	0.39	1.86	69.48
	Both Sexes	1.35	18.41	0.18	0.29	1.30	78.47
Central	Male	1.61	11.38	0.13	0.16	0.98	85.75
	Female	1.20	29.44	0.12	0.33	1.73	67.19
	Both Sexes	1.40	20.44	0.12	0.24	1.36	76.44
Western	Male	1.31	10.18	0.16	0.18	0.76	87.40
	Female	1.32	27.02	0.13	0.22	1.38	69.93
	Both Sexes	1.32	18.44	0.15	0.20	1.06	78.84
Mid-Western	Male	1.59	13.04	0.17	0.16	1.20	83.84
	Female	0.87	30.01	0.18	0.25	2.37	66.31
	Both Sexes	1.25	21.02	0.18	0.20	1.75	75.61
Far-Western	Male	1.43	10.89	0.14	0.16	0.93	86.46
	Female	0.82	28.86	0.11	0.13	2.60	67.48
	Both Sexes	0.99	19.71	0.08	0.12	2.12	76.97
Nepal	Male	1.43	10.89	0.14	0.16	0.93	86.46
	Female	1.22	28.19	0.15	0.30	1.81	68.34
	Both Sexes	1.32	19.46	0.14	0.23	1.37	77.48

Annex 19.16: Unadjusted death rates at higher ages by sex, 2001 census

Age Group	Male	Female	Both Sexes
50--54	7.06	5.06	6.09
55--59	11.34	8.83	10.16
60--64	17.96	14.02	16.00
65--69	24.30	20.42	22.38
70--74	38.91	30.98	35.09
75--79	56.56	41.42	48.94
80--+	111.81	90.09	100.56
All	5.24	4.15	4.70
Median Age at Death	**78.10**	**81.60**	**79.52**