Population and Development : Issues in Nepalese Perspectives

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INTRODUCTION

More than fifteen years have elapsed since Bucharest International Conference on World Population (1974), the debate on resilience and consequences of increasing dimension of population has been a persistent feature resulting in a greater global concern toward this intractable problem facing developing countries. Whether population growth is a boon or curse to society, a matter subject to one's own judgement relating to prevailing socio-cultural and economic settings, it has definitely been a central issue of the contemporary era.

Population and development are interlinked in complex ways. In both developed and developing countries, the population issue is about human and not about numbers. It is misleading and injustice to the human condition to see people as consumers. Their well-being and security -- old age security, falling infant mortality, health care and so on - are the goals of development.[1]

The reiteration of "Malthusian population trap"[2] that high rates of population growth dampens prospects for economic and social development still has validity under weak presumption of false paradigm model.[3] The idea inherent in the philosophy of The Limits to Growth[4] has strengthened the roots of pessimism reaped by classicists in the development frontier. However, this was not just a Malthusian hangover. This was a response to a serious analytical effort to study all the interrelationships between population, resources, pollution and technology.

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The given size of population is not always detrimental to economic development, if it is supplemented by quality and the resources available to meet the growing demand for basic needs of ultra-poor. It is in this perspective this paper seeks to analyse the interrelations between population and development, on the one hand, and more importantly examine the issues and perspectives at the national and global level, on the other.

THE ARITHMETIC OF WORLD'S POPULATION GROWTH

In the past, for much of human history, prosperity and population growth went hand in hand. But it is not true to-day. The current phenomenon is that progress and development have often been circumscribed by high population growth. Therefore, a comprehensive understanding of population and development demands a fresh inquiry into its antiquity.

With a dimunitive 300 million around 250 A.D. the world population took fifteen hundred years to double its size. Population grew at the rate of 0.5 percent a year and reached 1.7 billion within 150 years from 1750 to 1900. In the twentieth century population growth continued to accelerate from 0.5 to 1 percent till 1950 and then to a remarkable 2 percent. Again in just over thirty years between _0 and 1985, world population nearly doubled from 2.5 billion to 4.8 billion and is expected to mark 6 billions by 2000. Over a long period wo__d population increased by far less than 1 percent a decade compared with 25 percent a decade today.[5]

Since 1950 population growth is concentrated in the developing regions of Asia, Africa and Latin America which accounted for 78 percent of global population. During the period the population growth rate never exceeded 1 percent in Europe and seldom crossed 1.5 percent in North America, number of living children being not more than three per family. Japan's post-war families were even smaller. In 1986 Japan's birth rate fell to 11.4 births per 1,000 persons, the lowest on record.[6] On the other hand, of the total population in developing countries, 32 percent live in China and South Korea with birth rates below 25 and death rates below 10; 41 percent live in Brazil, India, Indonesia and Mexico where birth rates have fallen but not as much as death rates, population growing at around 2 percent per annum; and remaining 27 percent live in countries, such as Algeria, Bangladesh, Iran and Nigeria where death rates have fallen slightly but birth rates remain high. Overall population growth ranged between 2.5 and 3 percent and even higher in countries such as Kenya.[7] In the developed regions of the world population growth rate is steady due to, considerably, low fertility. Population estimation indicate an increase in world population to 6.2 billion by 2000, and 8.5 billion by 2025 (Table 1). More than 90 percent of increase is estimated to be in developing countries.[8]

The increasing growth rate of population in the poorest regions and rapidly declining fertility in industrial economies have important bearing on the changing age distribution patterns. In developing economies more than 39 percent population fall below 15 years; those 65 or over account only 4 percent. The young, significantly, have occupied

Table 1
Demographic Indicators of Selected Developed and Developing Countries

Heading \ Countries	Nepal	Sri Lanka	Republic of Korea(s)	Japan	Less developed countries	More developed countries	World
1. Population in million (mid-1987)	17.6	16.4	42.1	122.1	4,087.0	1,205.0	5,292.0
2. Life expectancy at birth years (1987)	51.0	70.0	69.0	78.0	59.7	73.4	61.5
3. Average annual growth rate of population (1980-87)	2.7	1.5	1.4	0.6	2.1	0.5	1.7
4. Crude birth rate/1000 (1987)	41.0	23.0	20.0	11.0	30.9	14.6	27.1
5. Crude death rate/1000 (1987)	15.0	6.0	6.0	7.0	9.9	9.8	9.9
6. Total fertility rate/woman (1987)	5.9	2.7	2.1	1.7	3.9	1.9	3.4
7. Infant mortality/1000 births (1987)	128	33	25	6	79	15	71
8. Median age (years) (1990)	18.8	24.3	26.6	37.2	22.0	33.7	24.2
9. Dependency ratios (1990)	82.8	60.5	45.4	43.3	66.7	50.2	62.7
10. Population density/ sq. km. (1990)	136	262	443	327	52	21	39
11. Sex ratio/100 females (1990)	105.4	100.7	100.4	96.7	103.6	94.2	101.4

Source: 1. World Population Prospects, 1988, United Nations.
2. World Development Report, 1989, World Bank.

Note : The figures, for less developed and more developed countries including the World, are of 1990.

the structure of population in developing regions of the world with higher dependency ratio. There is a remarkable departure in the population scenario of developed and developing countries. The population scenario of to-day's industrialised nations in the 19th century completely differed from what is happening in to-day's developing world. The modern developing economies are facing protracted problem which the developed economies never had to go through in their beginning. "Population growth never represented the burden that it now does for developing countries."[9] The situation, to-day, is drastically different.

As per 1988 revision of the United Nations Population Projections, the total world population in 1990, under medium variant, is estimated to be 5.3 million. By 1985 only one quarter of the world population comprised residents of the more developed regions and their rate of growth has been 0.5 percent in 1987-88. While the rate of growth in less developed regions was estimated to be 2.1 percent in the same period, after reaching a peak of 2.5 percent at the end of the 1960s. Within the less developed regions, the levels and trends of population growth are more diversified than within more developed regions. During this period fastest growth rates were found to be in Africa (3.0 percent) followed by Latin America (2.2 percent) and Asia excluding Japan (1.9 percent). Within the group of more developed regions, for the same period, population growth rate was slowest in Eastern and Northern Europe (0.16 and 0.17 percent) where population hardly increased.

The total fertility rate (TFR) for the world as a whole as per high, medium and low variant is estimated, for the period 2000-05, to be 3.3, 3.0 and 2.5 children per women. The TFR declined to 3.6 in 1980-85 from 4.5 children per women during 1970-75. As per medium variant projection, TFR for the world is estimated to be 3.1 per women for the period 1995-2000, and further likely to fall below 3 during 2020-025. In highly developed regions TFR has been declining fast, approaching to below replacement level tending to resulting in negative population growth rate. In less developed regions TFR varied tremendously. According to UN projections, TFR in less developed regions fell from 6.2 in 1950-55 to 4.2 in 1980-85 and is estimated to be 2.3 in 2020-25 (Table 2). The life expectancy at birth (e^o) for the world was 59.6 years in 1980-88. It was 72.3 for developed and 57.6 years for less developing regions. The e^o in more developed and less developing regions is estimated to be 75.4 and 63 years for the period 1995-2000.

For the world as a whole the sex ratio was estimated at 107.2 males per 100 females in 1985, USSR having the lowest sex ratio. In the same period half of the world population had median age 23.4 years; it is further expected that median age will increase to 26 years in 2000 A.D. The median age is same as in 1950. In 1985 child population under 15 comprised of 34 percent, aging population being 9 percent of the world population. The total dependency ratio in the world was 65 (55 children aged 0-14 and 10 persons aged 65 and over) per 100 persons of working age. In less developed and more developed regions the dependency ratios were 71 and 51 in 1985 and was expected to reach 64 in developing regions by 2000. Africa had by far the highest dependency (94) ratio in the world.[10]

Table 2
Social and Economic Indicators for Selected Developed and Developing Countries

Countries Headings	Nepal	Sri Lanka	Republic of Korea(s)	Japan
1. GNP per capita in US $ (1987)	160	400	2,690	15,760
2. Average annual growth rate of GNP in percent (1965-87)	0.5	3.0	6.4	4.2
3. Average annual rate of inflation in percent (1980-87)	8.8	11.8	5.0	1.4
4. Share of agriculture in GDP (1987)	57	27	11	3
5. Share of industry in GDP (1987)	14	27	43	41
6. Share of services in GDP (1987)	29	46	46	57
7. Average index of food production per capita (1979-81=100) (1985-87)	99	83	100	109
8. Energy consumption per capita (Kilograms of oil equivalent) (1987)	23	160	1,475	3,232
9. Gross domestic savings as percent of GDP (1987)	11	13	38	34
10. Gross domestic investment as percent of GDP (1987)	21	23	29	30
11. Resource Balance (1987)	-10	-10	9	4
12. Expenditure on education as percent of total expenditure (1987)	12.1	7.8	18.3	N.A.
13. Expenditure on health as percent of total expenditure (1987)	5.0	5.4	2.3	N.A.
14. Hypothetical size of stationary population (millions)	57	26	57	113
15. Assumed year of reaching net production rate of 1	2030	1995	2030	2030
16. Population momentum	1.8	1.5	1.5	1.1
17. Percentage of women child bearing age (1987)	46	53	55	50
18. Total fertility rate/ women (1987)	5.9	2.7	2.1	1.7

Countries Headings	Nepal	Sri Lanka	Republic of Korea(s)	Japan
19. Doctor/population ratio (1984)	1:32,710	1:5,520	1:1,170	1:660
20. Daily calorie consump- tion (1986)	2052	2401	2907	2864
21. Percentage of age group enrolled in primary education (1986)	77	103	94	102
22. Percentage of age group enrolled in secondary education (1986)	25	66	95	96
23. Percentage of enrolled in tertiary education (1986)	5	4	33	29
24. Primary Education: Females / 100 males (1986)	41	93	94	95
25. Secondary Education: Females/100 males (1986)	30	109	88	99
26. Total expenditure as percent of GNP (1987)	18.3	32.4	17.4	17.4
27. Central government current revenue as percent of GNP (1987)	8.6	21.5	19.0	12.6
28. Total external debt in million US $ (1987)	847	4,733	40,459	–

Source: World Development Report, 1989, World Bank.

The developing countries have had unique but similar population
scenario of high growth rate, falling crude birth rate (CBR), declining
crude death rate (CDR), fast falling TFR, steadily increasing e^0, a low
median age for older people, high child population and apparently, a
higher dependency ratio against the scenario of low growth rate, steadily
falling CBR, TFR moving below replacement level, high median age for
older people, comparatively lower child population, and low dependency
ratio of developed countries. The painful geometric population growth
syndrom in developing regions has brought about nothing but catastrophe,
beyond imagination, to entire mankind. At this critical juncture, the
alarming quantity of human world population has had its serious implica-
tion on the qualitative management of population. The quality of popula-
tion refers to the acquisition of knowledge and skills, full intake of

caloric requirements, medical care and sanitation through which the pro-
cess of human resource development is initiated.

The experiences of industrialised and more advanced south-east
Asian economies manifest that investment in human capital is a crucial
underlying factor in accelerating development. Marshall's famous dictum
that "the most valuable of all capital is that invested in human beings"[11]
is a very brilliant message to recognise the value of labour essential
for economic growth. The spectacular economic performance of newly in-
dustrial economies (NIE) could be attributed to the quality of their
human resources. A positive correlation is found between composite
index of human resource development and GNP per capita.[12] The improve-
ment in the quality of population irrespective of the size of population
may lead to a rise in GDP, however, it is not always necessary that higher
GDP would lead to a higher composite index of human resource development.

"Overtime the increases in the demand for quality, in children and
on the part of adults in enhancing their own quality, reduce the demand
for quantity, that is, quality and quantity are substitutes, and the
reduction in demand for quantity favours having and rearing few children"[13]
The shift toward quality of the population has been instrumental to the
solution of population problem.

The empirical studies especially of Ram and Schultz for India,[14]
explicitly proved that the improvements in health revealed by the longer
life span of people in many less developed regions of the world have un-
doubtedly been the most important achievement in population quality.
Japanese life expectancy at birth (e^o) increased from 60 in 1950 to 78
in 1987.[15] During the period e^o reached 70 in Sri Lanka, 69 in S. Korea
and China, and 58 years in India.[16] A close examination of per capita
income and e^o in these countries indicate that there is significant cor-
relation between these variables, e^o could increase even in low per
capita. With $ 400 per capita Sri Lanka's e^o (70) crossed the level of
many other countries having per capita more than $ 1,800. Sri Lanka's
total central government expenditure (CGE) on health and education in
1987 was 5.4 and 7.8 percent of total expenditure respectively. During
the same period, the central government expenditure on health and educa-
tion was 2.3 and 18.3 percent in S. Korea. Iran, with more than $ 5,000
estimated per capita and e^o being 63, has 6.0 percent CGE on health and
19.6 percent on education. In Sri Lanka the doctor-population ratio
(D/P) was estimated to be 1:5,520 in 1984; 1:1,170 in S. Korea and 1:660
in Japan in the same period. The primary education enrollment in these
countries have been 103, 94 and 102 respectively as percent of primary
school going age group in 1986, the corresponding per capita income being
$ 400 (Sri Lanka), $ 2,690 (S. Korea) and $ 15,760 (Japan) respectively.
In each of the Asian countries, except Thailand, enrollments in higher
education have risen much more rapidly than expected even taking into
account the rapid growth in their incomes. Though there is negative
resource balance, gross domestic investment (GDI) has been 23 percent
in Sri Lanka, 29 percent in S. Korea and 30 percent of GDP in Japan with
favourable resource balance situation.

The effect of qualitative dimension of population has been substantive over the years. Paul Ehrlich's danger signal[17] that human race would breed itself into a catastrophic crisis situation in which the finite physical resources of the earth would no longer be able to support the world's even growing human population, could be a green signal if, in addition to health and education indices, technological factor is taken into consideration.

DYNAMICS OF POPULATION AND DEVELOPMENT

Whether the population growth is detrimental or instrumental to economic growth, the complex relationship between population and economic growth is clearly established. Population growth and structure are largely held to influence the economy's output through their effects upon the basic factors of production.[18]

The relation between population and development, economic(Y) and social (W), can be examined by identifying population as both dependent and independent variables. Development and demographic factors could be interlinked employing significant variables such as natural resources (N) capital (K), technology (T) and institutional changes (V). The terms development and economic development have been used interchangeably.

In case of population being dependent variable the relationship between population and development, by decomposing indices of development, could be expressed as:

Model 1: $P = f (Y, W, V)$

The parameters of W being life expectancy at birth (Z) and literacy rate (L).

Similarly, economic development (Y) being dependent variable and other identified variables being independent the relationship could be expressed as:

Model 2: $Y = f (P, N, K, T, V)$

These models are more authentically workable in the long run. To make further inquiry into the relationship between population and development, various alternative path models could be developed under varying assumptions. For example, what would happen to Model 1 under the condition of short-run as well as long-run equilibrium ? Similarly, what would happen to Model 2 when given variables lack homogeneity and assigned equal weighted average for each dependent variable ? To further elaboration, alternative path models could be framed to comprehensive understanding of the dynamics of interrelations between population and development. Under varying economic, social and institutional framework the change in population could be expressed:

Model 3: $\Delta P = f (\Delta Y, \Delta W, \Delta V)$

and, interchangebly, assuming Y as dependent variable Model 2 could be written as:

Model 4: $Y = g (\Delta P, \Delta N, \Delta K, \Delta T, \Delta V)$

The Model 4 could be further expressed under varying population dimensions or growth rates by suppressing other independent variables. Then, the relationship could be expressed as:

Model 5: $Y = h \left[\Delta P_{(+, \; 0, \; -)} \right]$, where N, K, T, V are supposed to be constant. Similarly, the relationship between population and economic development could be examined by decomposing economic and social variables into different parameters. This could be written as:

Model 6: $P = j (Y, C, S, X, E, e, Z, U)$

Where Y = per capita income, C = capital formation, S = savings, X = productivity, E = employment, e = educational enrollment at primary level, Z = life expectancy at birth and U = urbanization.[29]

There are various specific studies on the effects of population on macro economic and social indicators. The presumption that rapid population growth jeopardises the opportunity for economic growth does not appreciate the quality dimension and the potential of larger population.[20] This view, further, received endorsement from the club of Rome researchers in their locus classicus 'Limits to Growth'. "They built a simulation model on the assumption that the pace of technological change would be insufficient to overcome diminishing returns arising from limited supplies of essential resources. Falling standards of living and increasing levels of population would lead to a population collapse within 100 years."[21] Whereas to quote Julian Simon's book The Ultimate Resource: "The ultimate resource is people-skilled, spirited, and hopeful - who will exert their wills and imaginations for their own benefit and so, inevitably for the benefit of us all." These conflicting views on the consequences of rapid population growth are in no way analogous but contrary to each other. The implications of these views differ significantly. The story of human fertility is contrasting. For example, in some countries fertility rates are too low and this is, particularly, true in France, Hungary, Romania, Argentina, Bolivia, Burma, Chile, Guinea, Israel, Ivory Coast, and Kompuchea. Surprisingly, countries like Hungary and Romania have favoured pronatalist approach. Romania has attempted to raise fertility by placing limits on both abortion and contraception.[22]

The relation between population and development is juxtaposed and cannot be dealt with in isolation. The abrupt conclusion that rapid population growth has slowed development is by no means clear cut and convincing. However, there are several ways in which population growth can affect economic growth and economic development might bring a balance between resource and population. Therefore, the functional relationship between population and development has widely been acclaimed.

As the size of population affects the level capital formation and savings, standard of living, productivity, labour employment and ultimately overall economic growth, economic development has also significant bearing on the demographic pattern and behaviour. In other words, it is a process where population is adjusted under varying assumptions and where other variables such as N, K, T and V also come into action to determine the size of population. "Population development is manifested in the occurrence of continuous change in population both in terms of quality and quantity and reflected in its growing overall productive force, man gaining better knowledge of the natural and social processes and mastering them, the rising potential of science, tools and technology, a rise in the educational, cultural and technical level of all members of society and the development of the personality."[23]

Population also determines the size of savings (S). Recent savings and investment rates in Indonesia, Japan, Korea and Japan have varied remarkably. The Japanese savings rate highest in industrialised countries, ranged over 35 percent of GNP during the last two decades, and estimated to be double the US rate. The Japanese saving has been consistently above the standard profile[24] and is accounted for by two reasons: declining child dependency and a higher rate of economic growth.[25]

The complex relationship between demographic change, human resource development, and economic growth is facilitated by Suits and Mason (1978) by employing econometric model.[26] Empirical evidence on the saving population link was first provided by Left (1969), Muller Bilsborrow (1973 and 1979) and Ram (1982 and 1984). The standard profile approach shows that population growth does not affect the saving rate independently, but in conjunction with the rate of economic growth.[27]

The debate on population growth presents a paradox. Firstly, increase in population may reduce living standards due to the adverse effect of population on savings and capital. Secondly, on the contrary, population growth or growth in labour force can raise standard of living through learning, specialization and scale of economies. The 'paradox of labour' can be seen more easily by taking the identity $0 = P (0, P)$, or in differential form $\Delta(0/0) = \Delta(P/P) + \Delta(0/P)/ (0/P)$, where 0 is output and P is population and where constant fraction of the population is assumed to work. The question whether population growth is stimulus or an impediment to growth of living standard is largely a matter of whether the relation between (P/P) and $\Delta(0/P) / (0/P)$ is significantly positive or negative. If relationship is positive then effect of population growth on the growth of output is favourable. Thirlwall evaluated the effect of population growth on living standards by employing Cobb-Douglus production function.[28] Unfortunately, it is extremely difficult to be precise about how much of NNP is attributable to population growth and how much to other factors. Estimates based on Cobb-Douglas production function show that in developed countries during the past 75 years population growth, with respect to human resource, has brought about 30 to 50 percent increase in NNP, remaining attributed to capital and technical progress.[29]

A Danish economist, Boserup (1965) formulated a more optimistic hypothesis that population growth, rather than being a hindrance to economic growth, is actually prerequisite for agricultural development. But Boserup's theory does not evaluate the relationship between population growth and development. It ignores the potential of trade in goods, ideas and technology. "If the world is a 'global village', as is often claimed, it is to be hoped that international flows of goods, ideas and technology will take place, assisting in the alleviation of 'over population' and population-resource imbalances."[30]

The argument that population has strong positive correlation with development might be relevant in the initial stage of economic development. The Notestein's 'demographic transition model'[31] is a step toward this direction. The perception of neo-classicals and post-Keynesians regarding interrelations between population and development is in no way a proposition to undermine the implications of population shocks. There is also need to identify the critical limit or danger point[32] of over population from where it would be absolutely impossible to increase the 'welfare'[33] and maintain a higher order equilibrium. A population beyond critical limit, will have far reaching consequences creating undesirable effects in the economy. However, it is practically difficult to determine the size of critical limit of population in a developing economy like ours. It is also necessary to be careful not only in selecting appropriate parameters measuring the critical limit of population but also in analysing the effect of time lag, the important element in the study of population and development.

THE NEPALESE CONTEXT

Population Scenario

Nepal is a country with a rapidly growing, largely young overwhelmingly illiterate and economically subsistence population. As shown in the World Development Report, 1990, Nepal's estimated population, with $ 180 per capita income (Y), is 18 million in mid-1988. There is a wide variation in the per capita income of the countries having similar population size. For example, Sri Lanka with 16.6 million population has $ 420 per capita, Malaysia with 16.9 million has $ 1,940 per capita; and Venezuela with 18.8 million population has $ 3,250 per capita.

Nepal is the poorest country in the world, next to Bangladesh. "The likely scenario is that Nepal will replace Bangladesh as the poorest country in the world by the turn of this century."[34] Nepal's population increasing at the rate of 2.7 percent a year with built-in momentum of doubling every 26 years. Population momentum for 1990 is 1.8. A little over 50 percent of population is below the age of 20 and above 60 and over.

Approximately 91 percent of total population is still engaged in agriculture, a subsistence sector, where chronic disguised unemployment exists. Nearly 70 percent people were illiterate in 1986.[35] In the same period, there were 83 dependents for every 100 economically active population, median age being 19. The urban-rural population ratio is esti-

mated to be 9:91 in 1990; population below absolute poverty line was
42.5 percent in 1977.[36] Life expectancy at birth was 51 during 1985-90
and is estimated to be 56 during 1995-2000. Sex ratio per 100 women was
105. In the same period, CBR and CDR remained 41 and 15 per 1000 per-
sons. The estimated CBR and CDR, for the period 1995-2000, are 33.9 and
11.4 per 1000 persons. The percentage of women of child bearing age
reached 46.

The total fertility rate (TFR) has come down from 6.0 to 5.9 in
1987 and is estimated to be 4.6 in 2000 A.D.[37] Gross reproduction rate
for 1985-90 is 2.9, estimated to be 1.7 in 2000-05. Infant mortality,
however, remained still high. It declined from 147 during 1975-80 to
128 in 1987 per 1000 live births and is estimated to be 99 per 1000
births during 2000-05. Population density per sq. km. was 136 in 1989
and likely to reach 171 in 2000.[38] These estimations are under medium
variat projections.

Nepal's population, as per the estimation of WDR for 2000, and 2500
A.D., will be 24 and 37 million respectively. Similarly, hypothetical
size of stationery population will be 57 million. Assumed year of reach-
ing net reproduction rate of 1 is 2030 A.D. Doctor population ratio in
1987 was 1:20,022. Daily calorie supply per capita (2052) in 1986 fell
short of requirements. Total enrollment in primary school as percent of
school going children aged between 6-11 was 79 in 1986. Enrollment in
secondary level was 25 percent of the age group population. Expenditure
on education and health was 12.1 and 5.0 percent of total expenditure
respectively.[39]

Corresponding to population scenario, Nepal's economic growth per-
formance is, unfortunately, dismal. During the last twelve years GNP
per capita, virtually, remained stagnant barely exceeding the population
growth rate. The growth in per capita, however insignificant, did not
'trickle down' to ultra poor, viciously circumscribed by 'low level
equilibrium trap.[40] The average index of food production per capita
(1979-81 = 100) for the period 1985-87 was 99 only; structure of demand
is also not very encouraging. The gross domestic investment and savings
are 11 and 21 percent of GDP respectively, resource balance being suffi-
ciently negative (-10 percent of GDP). There is always critical shortage
of highly skilled manpower in Nepal. The supply of skilled manpower has
fell short of demand especially, during seventh plan which made 'Basic
Needs Approach' more vulnerable.[41]

In the context of basic needs approach certain standard norms were
set up in the population front. For example, by 2000 A.D. CBR is esti-
mated to be 20.5 and CDR, 8.5. Infant mortality is estimated to be 60
per thousand; child mortality aged between 1-4 would be 10; estimated
average expectancy of life is 65, and doctor-population ratio 1:10,000.[42]
Interestingly, demographic projection have no proximity to each other.
The demographic projections for basic needs are not only difficult to
attain but also highly optimistic and superflous.

Interrelation Between Population and Development

The effect of population growth, especially, on employment and structural transformation of the economy is a matter directly concerned with raising productivity of increasing labour force and reducing the level of poverty. Since basic needs deals with the dimensions of poverty, interrelations between population and development can be examined by analysing macro economic consequences of population growth, particularly with reference to domestic savings, employment and structural transformation of the economy.

The relation between population growth and domestic savings, is inverse. Higher population growth will lead to lower domestic savings and, hence lower capital investment and this would, in turn, lead to a reduction in total production (GDP). Savings are reduced because of high dependency ratio. "The argument is that with higher population growth the composition of investment shifts more toward such overhead investment than when population growth is lower."43 Coal and Hoover use a more realistic long run growth model where growth in output is dependent not only on the amount of capital but also on the size of the labour force. The model states though the growth in total output is higher under higher fertility, growth in per capita income is higher under low fertility.44

According to one critical estimation the increase in domestic savings in Nepal would be 20 percent in 2000 against 12 percent in 1985; the investment ratio will likely to be 60 percent against a poor 21 percent during the period. The increasing gap between domestic savings and investment would be met by foreign aid. Whereas per capita income is estimated to increase from $ 160 in 1985 to $ 513 at 1985 prices in 2000. Less than 3.2 times increase in per capita would follow 1.7 times increase in savings at the rate of 2.3 percent growth in population.45 Faster the decline in population growth and rapidly felling TFR the magnitude of savings might go up under given demographic framework. Since the relationship between government savings and population is unsystematic, government savings and investment can be influenced by public policies irrespective of demographic trends, especially, when human resource development is taken into consideration. Initially, investment in human capital, though yield return over a long period, considerably may affect the level of domestic savings.

Similarly, the relation between population and employment is crucial in Nepal. Largely, ours is a case of severe disguised unemployment. The contribution of additional labour force to the GDP growth has been insignificant. In Nepal the case of open unemployment, though not acute outwardly, has to be viewed from a broader prospective. The extent of present underemployment may, further, aggravate, if increasing labour force participation is centred around agriculture sector. The expansion in disguised unemployment in Nepal is attributed to higher population growth. However, there is one possibility to step up process of capital formation through shifting underemployed 'reserved population' to non-agricultural sector. There is a strong negative correlation between per capita income and disguised unemployment.

The interrelation between population and unemployment should be interlinked with structural transformation of the economy. In 1988 contribution of agricultural sector to GDP in Nepal has been 56 percent, followed by industry (17 percent) and tertiary sector (27 percent). As and when there would be upward movement of the economy, the share of agriculture sector, substantially, declines with increase in per capita income. India's share of agriculture and industry in 1989 had been 30 percent each with per capita income touching $ 300.46 A comparative study of the variables above specified shows that though complex, a direct interrelation between population and development does exist.

Similarly, the effects of per capita income on demographic variables could be interlinked with. Apparently, growth of per capital income is attributed not only to increasing size of population but also on its quality dimension. Increase in per capita income can lead, simultaneously, to a decline in fertility, increase in educational enrollment and increase in life expectancy rate. In Nepal, with $ 180 per capita, the enrollment in primary education is just 79 percent of the school going population aged 6-11, and life expectancy at birth is not over 51. A considerable growth in per capita will also bring about a reduction in dependency ratio.

Nepal's case, with respect to population and development is vulnerable. The conflicting views between population growth and development on the one hand, and human resource development and economic growth on the other, are two sides of the same coin. Theoretical underpinnings of classical presumptions suffer from rational and pragmatic approach to the interrelations between population and development. Thus, the contemporary equilibrium approach developed by neoclasicists and post Keynesians to study population dynamics has been dominant in recent years. "It is difficult to think of Nepal as a country with population problem. Nepal's population density is not particularly high nor is its population growth rate, compared to that of other less developed countries, exhorbitant. But population per unit of land is a less relevant measure of population pressure than population in relation to existing resources and technology, and from this point of view many areas of Nepal already over population."47

The debate on whether Nepal is under populated or over-populated, though not a nucleus of development drama, it is particularly relevant from the perspective of population phenomenon being a longrun phenomenon. Thus, the problem with us is to develop an appropriate strategy, integrating human resource and development planning, for planned population growth which ensures economic growth in conformity with prevailing socio-cultural settings.

CONCLUSION

The declining trend in total fertility rate in recent years in Nepal has had no bearing on economic growth subsequently, resulting in accelerating the magnitude of population below absolute poverty line to 60 percent of the total population. If this observation has any proximity to reality, this calls for a critical reassessment of the activities of government and non-government agencies providing family planning

services to the population at target. Since demographic data have been
subject to authencity as critics claim, rapid decline in fertility and
increase in the use of contraceptives in Nepal have been 'window-dress-
ing' that, completely, overlooked the welfare aspect of family planning
schemes.

The 'air conditioned' or 'Five-Star' approach to family planning
is a mockery of development that Nepal is experiencing over the years.
The message of family planning never reached thatched huts; the dream
of paradise shattered. What else could poor do with medicated contra-
ceptives? Therefore, the time has come to review the productivity of
family planning activities at the national as well global level. Is
spending on family planning a wastage in Nepal? Whether demographic
data are exact? and whether economic development is circumscribed by
population growth? These are the pertaining questions not yet fully
answered. Many neo-classical economists unanimously voiced that devel-
opment is the best contraceptive.

The dawn of twenty-first century has to elicit the truth revealed
in the Amsterdam Declaration on the future of population in 21st cen-
tury.[48] In the context of lowering fertility and increasing per capita
GDP, development economists have had greater fascination of transmitting
the success story of some countries, in the same proportion, to the land
and the people totally different to each other. The change in knowledge,
attitude and practice (KAP) is attributed to not only economic progress
and declining fertility but also more effectively to socio-cultural, re-
ligious, psychological, anthropological as well as historical factors.
China's one child policy of world's most stringent effort might have
ensured unprecedented economic progress but at the cost of sacrosanct
values totally destroyed.[49] Nepal's present socio-cultural scenario
does not provide a scope to adjust 'one child population shock' to Nepali
environment. Thus, a successful implementation of a radical approach to
family planning has no guarantee that it would be a panacea to all devel-
oping economies. If we are sincerely concerned with the population prob-
lem, the question of lowering fertility, human resource development,
technological innovation and ecological balance should be simultaneously
dealt with.

The 'running away strategy', delinking population and development
adopted by policy makers in most of the developing economies, has been
a discouraging factor to futuristic view that human resource, cateris
paribus, is the only product not subject to diminishing returns. Lastly,
let me allow to cite one extreme example: whether animal fertility be-
haviour has anything to do with human fertility behaviour? If the law
of human fertility holds true in the animal kingdom, no single space in
this beautiful planet would have been left unoccupied by this time.

The assumption that the imbalance between population growth and
industrial production will cause the world to run out of resources has
completely ignored the incredible strength of human resource to sustain
warranted socio-economic order by eliminating imperfections brought
about by so-called alarming numbers.

FOOTNOTES

1. World Commission on Environment and Development, Our Common Future, New York: Oxford University Press, 1987, pp. 95-102.

2. See T.R. Malthus, An Essay on the Principle of Population, Reaves and Turnover, 1878 (Eighth Edition); Karl Brandt, "Malthus and Malthusians are wrong" in P.A. Samuelson (ed.), Readings in Economics, Mc Graw-Hill, 1970, pp. 20-26.

3. M.P. Todaro, Economic Development in the Third World, Longman, 1981; 63-4. Poor nations have failed to develop due to selecting incorrect model of development usually prescribed by western economists that overstressed capital accumulation without giving due consideration to social and institutional changes.

4. Dennis C. Meadows et al, The Limits to Growth, A Report for the Club of Rome's Project on the Predicament of Mankind, Universe Brooks, 1972.

5. World Development Report, 1984, World Bank, 1984; pp. 56-78.

6. Ronald S. Jones, "The Economic Implications of Japan's Aging Population," Asian Survey, Vol. XXVIII, No. 9, September 19, 1988, pp. 958-69.

7. Based on data from UNCTAD, Handbook of International Trade and Development Statistics 1985 Supplement, New York, 1985.

8. Department of Industrial Economic and Social Affairs (DIESA), World Population Prospects: Estimates and Projections as Assessed in 1984, UN, 1986.

9. World Development Report, 1984, op. cit., Footnote No. 5, p. 60.

10. For detailed see, UN, World Population Prospects, 1988 (1989), pp. 27-62.

11. Alfred Marshall, Principles of Economics (8th Edition) Macmillan, 1930, pp. 216 and 564.

12. Frederick Harbison and Charles A. Myers, Education, Manpower, and Economic Growth, Mc Graw-Hill, 1964, pp. 3-11.

13. T.W. Schultz, "Nobel Lecture: The Economics of Being Poor," Journal of Political Economy, 88 (4), pp. 645-8.

14. R. Ram and T.W. Schultz, "Life Span, Health, Savings and Productivity," Economic Development and Cultural Change, 27 (1979), pp. 399-421.

15. Population Growth and Economic Development: Lesson from Selected Asian Countries, UNFPA, 1986, pp. 9-29.

16. World Development Report, 1989, World Bank, pp. 164-65 (Table 1).

17. P. Ehrlich, The Population Bomb, London, 1971.

18. "Population and Development" in Population Debate; Dimensions and Perspective, Papers of the World Population Conference, Bucharest, 1974, pp. 415-24.

19. These models need rigorous econometric analysis and illustrate functional relations between population and development. Identifying their merits one is able to assess the relationship by transferring these models into double log linear or constant elasticity model.

20. Robert Cassen and Margaret Wolfson (eds.), Planning for Growing Population, Oxford and IBH, OECD, 1978, pp. 11-25.

21. World Development Report, 1984, op. cit., Footnote No. 5, p. 80.

22. Ibid., p. 82.

23. R. Salus and D. Valenti, Population and Socio-Economic Development, Progress Publishers, UNFPA, 1986, p. 7.

24. A Standard Profile represents a long-run path of income and population.

25. Population Growth and Economic Development, op. cit., Footnote No. 15, p. 41.

26. Daniel B. Suits and Andrew Mason, Gains from Population Control: Results from an Econometric Model, Papers of the East-West Population Institute No. 49, April, 1978.

27. Population Growth and Economic Development, op. cit., Footnote No. 17, p. 1-7.

28. A.P. Thirlwall, "The Population Problem," in B.N. Ghosh (ed.), Studies in Population and Economic Development, New Delhi: Deep and Deep Publications, 1987, pp. 290-306.

29. Joseph J. Spengler, "Population as a Factor in Economic Development" in B.N. Ghosh (ed.), op. cit., Footnote No. 28, pp. 186-215.

30. "Population and Development", op. cit., Footnote No. 18, p. 57.

31. This model discusses three different demographic stages that an economy must pass through over a period of time.

32. A separate econometric model of critical limit of population has to be developed identifying the importance of human capital. My personal view is to explore the possibility to what extent Composite Index of Human Resource Development (CIHD) plus employment index could be identified as critical limit of population.

33. Welfare should be viewed from equilibrium point of view-equilibrium between population and other resources employed for economic development.

34. Sukhadev Shah, "Nepal's Economic Development and Prospects," _Asian Survey_, 28(9), September 1988, p. 946.

35. _Demographic Sample Survey, 1986-87_ (First Report), NPC/N, 1987, pp. 31-39.

36. _Survey on Income, Employment and Output_, NPC/N, 1977.

37. _World Development Report, 1989_, World Bank, Table 26, and 27.

38. _World Population Prospects, 1988_, op. cit., Footnote No. 10, pp. 472-73.

39. _World Development Report, 1989_, op. cit., Footnote No. 37, Table 11.

40. 'Low level equilibrium trap' is also known as 'population trap.' An economy with a very low level of income per head may well find that the rate of growth of population exceeds the rate of growth of real income. If so, this is equivalent to saying that the real income per head will decline.

41. See _Seventh Five Year Plan_, 1985-90, NPC/N, 1985.

42. _Programme for Basic Needs Fulfillment_ (Summary), Task Force, NPC, Nepal: 1986-87, 62-63.

43. For a detailed examination of the relation between population and development see A.J. Coal and E.M. Hoover, _Population Growth and Economic Development in Low Income Countries_, Princeton University Press, 1958; and Stephen, Enke, "The Economic Consequences of Rapid Population Growth," _Economic Journal_, 1971.

44. This view is quoted in R.D. Pant and S. Acharya (eds.) _Population and Development in Nepal_, NPC, 1988, p. 124.

45. Sukhadev Shah, op. cit., Footnote No. 34.

46. _World Development Report, 1989_, Footnote No. 37.

47. Myron Weiner, "The Political Demography of Nepal", _Asian Survey_: 1973-13 (6), pp. 629.

48. The declaration focussed on the following priority areas 1. Status of women and children 2. Integration of population and development planning 3. Population and environment 4. Delaying marriage 5. Reduction the proportion of people who are using contraceptive unreliably 6. Role of women in decision making process of development.

49. Karen Hardee-Clearland and Judith Banister, "Fertility Policy and Implementation in China, 1986-88", _Population and Development Review_, 14(2), 1988, 245-86.