Demography India
Vo1 29, No. ! (2000). pp. 1-10

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Newer Challenges Facing the Demographic Community in India**

Introduction

I DEEM it an honour and a unique privilege to address this group of demographers and social scientists in my capacity as President, Indian Association for the Study of Population at the Millennium Conference on Population. Development and Environment Nexus. As you are aware this conference is organized jointly by the Indian Association for the Study of Population (IASP), Population Foundation of India (PFI) and the United Nations Population Fund (UNFPA). Having spent most of my professional life since 1959 in the field of population and public health, as a teacher and researcher in various centers in India and abroad, including the Gandhigram Institute of Rural Health and Family Welfare and the International Institute for Population Sciences, Bombay, in recent years I am getting perplexed and some times awed by the changing roles and challenges facing the demographic community in India i.e., those formally trained in demography and population studies in various institutions in India and abroad over the past two or three decades. I am deeply concerned about the future of demography as a separate discipline and demographers as a separate and distinct group of social scientists with an identity of their own in this country. I want to take this opportunity to share these concerns of mine with you not only to stimulate your thinking in this direction but also if possible to make appropriate changes in the teaching and research of demography and population studies to suit the needs of the millennium.

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**Presidential Address delivered at the Millennium Conference on Population. Development and Environment Nexus organized by the Indian Association for the Study of Population. Population Foundation of India and United Nations Population Fund at Delhi on 14th February. 2000.

As you are all aware, the term demography is derived from the Greek word Demos meaning a human being and the discipline owes its origin to the French scholars, with the publication in French in 1855 by Achille Guillard. a Belgian statistician using the term demography for the first time in his article entitled *"Elements de statistique humaine, ou demographique comparee"*. Like all other disciplines, demography admits of both a narrow and a wider definition and the IUSSP defined it in the Multilingual Demographic Dictionary as the "scientific study of human populations primarily with respect to their size. their structure and development". In its wider definition when it is called population studies, it not only deals with levels and changes in the size. composition and distribution of the population, but also with the causes and consequences of the levels and changes. In this wider perspective demography overlaps with a number of other well established disciplines mainly economics, sociology and statistics and to a peripheral extent with social psychology, law. political science and reproductive physiology. Thus demography in its wider definition as population studies is multi-disciplinary in nature and has attracted scholars from various other disciplines mainly economics and sociology who have made valuable contributions to its development.

However, the practical central focus of demography called *formal demography* which is the forte of a demographer, and his bread and butter, if I may use the term. is a set of techniques by which data collected in censuses, surveys, vital registration systems and official service statistics are described, summarized and manipulated. The IUSSP Multilingual Demographic Dictionary defines formal demography as "treatment of quantitative relations among demographic phenomena in abstraction from their association with other phenomena". Thus. formal demography can be considered as a tool-box containing the tools commonly employed by demographers and others in their scientific study of human population. It includes computation of basic rates and ratios relating to vital events, standardization of rates and ratios including computation of life tables, assessment of quality of data and the adjustments for errors of omissions and commissions and population projections.

The traditional role of demographer is thus in the application of the well established demographic techniques to a body of population data with a view to study its age-sex-marital status, estimation of vital rates by applying direct and indirect techniques. population projections under certain alternative set of assumptions of fertility, mortality and migration in the future, and assess the demographic impact of certain programmes of population. He is also equipped to study the long-term implications on size and distribution of continuation or known modifications on the rates of growth of a given population using stable and quasi-stable population theories.

However it has to be mentioned that those who are trained in formal demography and involved in the analysis of population data need not necessarily keep abreast of the developments in other social and environmental sciences, particularly sociology, economics and ecology and heAe his analysis may become sterile and mechanistic. While he may

have good knowledge of the formal demographic techniques, without keeping abreast of the developments in related social and environmental sciences and delineating the variables in these fields that impinge on .the demographic processes, it may not be possible for him to chart the future course of fertility and mortality even within a broad range. Demographic literature on projections is full of gross deviations of the actual from the projected values in population size. The enclosed table presents the projections made by well known scholars and demographers for the year 2000 and 2050. the likely actual for this year and the range of variations expected for 2050. King a famous mathematician of the 17th century projected in 1696 that the population of the world in the year 2052 will be only 780 million a figure that was surpassed within 100 years of his projection. The rate of growth at that period was so low that extrapolation of that growth into the future led to this low forecast for the future. Even as late as 1945, Notestein projected the world population for the year 2000 to be 3300 million a figure surpassed within 25 years of his projection. In recent years, the United Nations has been revising its projections for the world population 1998 onwards almost every two years.

The global population for 2050 according to the 1994 'medium' projection was 9.8 billion. The corresponding forecast was 9.4 billion in the 1996 revision and 8.9 billion in the 1998 revision, almost one billion less in the projected values within a period of 4 years. Even for 1998, the projection made in 1994 by the UN was 5.98 billion, compared to 5.93 billion in 1996 and 5.90 billion estimated in 1998 for the same year. The differences in the projected values reflect only partly the updating of the estimates of fertility and mortality in the past but mostly due to unexpected drops in fertility than anticipated. Differences in the long projections made recently are attributed to

(1) contrary to popular, and probably wishful assumptions, in many developed countries their fertility levels are continuing to decline well below replacement levels, with increasingly larger proportion of women choosing to remain unmarried in their life time;
(2) a more than anticipated decline in the fertility levels in developing countries, started in China in the late 'seventies', converging to replacement levels (though not below it); and
(3) an unexpected rise in mortality attributable to the AIDS epidemic in significant portions of the developing world including India.

It is surprising that wide departures are arising between the projected and actual values of the population even at the global level with a population over six billion when the law of averages are likely to operate forcefully cancelling the opposing effects of many factors not considered in the projections. When projections are made at lower levels of aggregation, country, state or district levels it can be expected that relative errors in the forecasts will be higher. Thus we can see that without a proper understanding of the factors underlying the present levels of fertility and mortality and a substantive

knowledge as to how these factors are likely to change in the future, at least in the immediate future, any projection will be a mechanistic and purely an algebraic exercise. most probably unrelated to the real world. If population projections are done on the basis of extrapolation of the past trends of fertility and mortality, however ingenious and goodness of fit the curves selected may be on the past trends, the future projections will have no meaning and significance to policies and programmes.

However, since the demographer deals with very vital human issues of births marriages and deaths, his writings are read with interest by people from other disciplines and even by the literate population at large and they may be drawing their own conclusions as to the causes and consequences of changes in the human population in the absence of any analysis of factors underlying the projections stated as a part of the projections. Some of the publications in the population field have become best sellers because they are apparently concerned with the survival or extinction of the human race. like the 'dooms-day' scenarios presented by the Club of Rome or the book *'The Population Bomb'* by Paul Ehlrich (1969) which became a best seller. Demographic literature also abounds with a number of books or articles with contrary viewpoints, not to be unduly frightened by high population growth and density, like the series beginning with the pioneering work of Julian Simon's popular book *'The Ultimate Resource'* (1981). Simon argued that population growth and density can really be beneficial to development since critical and scarcity conditions serve, and have served in the past. as trigger points for human innovations and technological breakthroughs and if we can keep emphasizing on education and training of manpower, population size and growth *perse* will not be a problem for development. However critical and scarcity conditions in the modem world may imply millions of deaths. Thus the common men and even professionals are in a way confused by the conflicting viewpoints in the demographic literature, whether population growth is good or bad and what are the relationships between the various social, environmental, economic and political processes and population change.

What should be the role of a demographer in such a situation? This is of crucial significance in India where the population size is about to cross the billion mark officially on 11 May this year; the annual growth rate continues to remain high with 17 million people presently added to its size every year: where high level of poverty. unemployment, illiteracy and malnutrition continue to be daunting problems of development:

family planning programmes are under attack from various quarters including the women's groups and the AIDS epidemic is looming large in the horizon threatening to kill millions in the coming years. Should he take sides with those who want to have strong measures to be taken, including some coercive measures to control fertility or growth rates, or should he take the side of Julian Simon and encourage policies of human resource development not concerned with population growth or should he try to draw lessons from the relatively successful experiences of other countries or regions within

the country which have tackled to a large extent the problems posed by high fertility and population growth and achieved fairly high levels of human development?

I do not think he will be allowed to remain neutral: if he does so claiming that he is a specialist in population studies, he will not remain a demographer for too long! He may be considered an academic recluse, working with some models and theories unrelated to real life situation when the massive problems of high population growth and poverty are threatening the very fabric of this country. In my view he has to involve himself first as a social scientist and then as activist based on whatever findings are available from research studies upto that point of time. There is no waiting until we find an ultimate theory of factors affecting fertility and inter-relationship between demography and development. I do not think such a grand theory exists. Waiting for one to enable us to take appropriate policies and programmes will be begging the question.

For example in the area of population projection he can give alternate scenarios of projections, scenarios by different, social, economic, environmental and political (SEEP) conditions and if possible on the implications of such projections on the demographic, economic and social sectors. Projections based on the high. medium and low alternatives of fertility in the future as is being done now have no policy or programme value. But before he develops the alternative SEEP scenarios he has to learn from the mistakes or gaps in the projections in the past. the current trends in the socio-economic policies and programmes and the processes of change already set in motion, nationally as well as internationally. Now what are the lessons that we leam from the past projections and gaps in them?

(i) An algebraic projection based on an extrapolation of past trends in fertility, mortality, nuptiality and migration has very little practical utility as to in which direction policies and programmes have to be reoriented in order to change these trends. Past trends are poor predictors of the future in demography, unless the factors underlying the past trends are understood.

(ii) The demographic processes of fertility, mortality, nuptiality and migration have to be related first contextually in relation to the prevailing SEEP factors through possible regressional or other types of analysis;

(iii) The possible trends in the SEEP factors have to be projected first, as alternative scenarios and then the impact of such factors on the demographic processes assessed as an outcome of the socio-economic environmental political changes.

Now what are the strong contemporary social, economic, environmental and political (SEEP) factors that are currently underway nationally as well globally that will have a strong impact on the demographic processes. This is not the place to list all of them;

but I will list a few important ones, as I identify them.

In India, on the political front, the seventy-third and seventy-fourth constitutional amendments of 1992 have enable decentralized governance through the creation of a

third tier of micro-legislatures or elected bodies at the village level—the Panchayats and in urban areas—the Nagarpalikas. Through devolution of financial and administrative powers to these bodies, they will be made responsible for social-sector and infrastructure development, particularly in primary education and the provision of basic health services. This constitutional amendment also enhances the participation of women in policy and decision-making by reserving one-third of the elected positions exclusively for women. A number of states have already completed the process of electing Panchayats and Nagarpalikas. Population programmes are now constitutionally in the domain of these local bodies and if any desired trends in fertility, mortality etc. have to be achieved these bodies have to be empowered and educated. Demographers have to develop methods of small area analysis of population data including indicators of fertility, marriage, mortality and movements probably based only on the numerators or just the characteristics of the events of births, deaths, marriages and movements from and to the villages. He is also to develop suitable educational materials to explain and educate on population issues to the elected leadership at the local level. We do not know how the course of demographic parameters will move in future under these conditions but we can expect the unmet needs of couples in the area of contraception and health care more likely to be met in a decentralised situation.

On the economic front, the economic reforms, initiated during the eighties, have become important instruments of economic and social change, particularly since mid-1991. Reforms are starting to contribute to an acceleration of economic performance. However, whether they have also affected poverty levels negatively remains to be ascertained. This new economic environment is redefining the role of government, and its commitment to social-sector development is being questioned by some critics. They point, for example, towards a variety of public health and medical services and specialized hospitals which are being managed by the private sector and are reaping high returns by catering to the emerging middle-class and advantaged populations of the rural and urban areas. In this context, there is a need to include data on health and family planning practices from outside the governmental sector. For example, there is a widening disparity emerging between the trends in official couple protection rate and fertility during the past five years and part of the explanation may be increased acceptance of contraceptives and induced abortion in the non-governmental sector.

On the social front, strong women's movement aiming at gender equity and equality at all levels has become a force to be acknowledged. The various international conferences held in recent years beginning with the International Conference on Population and Development (ICPD) held at Cairo in 1994 followed by the World Summit for Social Development at Copenhagen and the Fourth World Conference on Women held in Beijing both held in 1995 have underlined the need for gender empowerment and realization of gender eqmty in all walks of life as an essential ingredient for sustainable human development. It is coming to be universally recognized that any development that

is not engendered is endangered and unsustainable. Demographers have to look for appropriate indicators of gender equity, equality and empowerment of women and include them as important determinants of demographic processes. What do empowerment of women mean in terms of age at marriage, fertility, child survival, and care of the aged? Henceforth gender equity variable has to be included in any demographic analysis.

There are also major new health challenges facing mankind, especially the AIDS pandemic This epidemic has wrecked havoc in the health, economic and social conditions in many countries in sub-Saharan Africa. In Uganda and Zambia, the life expectancy at birth has been shortened by about ten years within a decade because of very high mortality rates because of AIDS and attendant opportunistic infections both among adults and among children. Recent data from NACO and a number of studies conducted in Tamil Nadu. Maharashtra and Manipur reveal that the disease is spreading very rapidly in the country and its impact on mortality patterns in the coming years can be quite substantial in the next decade including the possibility of a reversal of the rising trends in life expectancy. Demographers have to develop good models for studying the direct impact of AIDS on mortality and the indirect effects on fertility, nuptiality and migration specific to the situation obtained in different states.

All of these changes have both a direct and an indirect impact on human development parameters such as access to mass education, primary and reproductive health care; life expectancy and fertility; employment and well being. As a first step towards understanding the process of social and economic change, an empirical assessment of the prevailing levels and trends of human development both at the national, state and district levels be made imperative.

In recent years, the UN System has increasingly focused on monitoring and facilitating human development across the world, particularly in developing countries. According to the UNDP, in its various Human Development Reports published since 1990, human development has three essential qualitative components.

- Equality of opportunity for all people in society,
- Sustainability of such opportunities from one generation to the next,
- Empowerment of people so that they participate in and benefit from development processes.

The importance of the above aspects of development are found to be reflected in education, health and a minimal level of income to enjoy the basic comforts of life for each individual and ensuring sustainable development. These have been emphasized and analyzed since 1990, in the series of Human Development Reports and have given new directions to development. Gross Domestic Product (GDP), that magic term that guided the growth of most of the developed countries and developing economies is no longer considered as thA sole indicator of development and the yardstick for comparison between the countries. The United Nations Development Programme (UNDP) with the

guidance and advice from noted economists including (late) Mahabub-ul-Haq, and Amartya Sen have introduced a variety of new indicators of development as the Human Development Index (HDI), the Gender Development Index (GDI), and a Capability Poverty Measure (CPM) and Human Poverty Index (HPI) in which education, health, gender equity, levels of poverty and income distribution play a more vital role than gross domestic product. Central to the computation of these various measures for each country are the concerns that majority of the population in the world are living in a state of economic deprivation with a very small proportion of the population controlling the wealth and resources, there are gross gender inequities and inequalities with the females not receiving their due share of development, or political, social and economic justice, and that the conspicuous consumption and life styles of a relatively small proportion of the population in the world, mostly in the developed countries and a few in the developing world are causing global problems of rapid depletion of non renewable resources, global warming of the planet and environmental degradation because of which whole of mankind will come to peril. For instance more than one billion people living in developing countries lack access to safe drinking water and worse still this number seems to be rising much faster than the rate of growth of population. In India less than one third of the population have access to safe water. Expanding croplands necessitated because of population increase introduce many environment problems including land degradation and methods of increasing land productivity through more fertilizers and pesticides and intensive irrigation also contribute to environmental deterioration. The greatest threats to air pollution are the combustion of fossil and other fuels which on a percapita basis is increasing rapidly in the country. In this context, scientists. environmentalists and governments advocate sustainable development which includes control of the population growth which is mainly taking place in the developing countries and at the same time control the unsustainable and wasteful life styles of the population of the developed world. For example, the population of the developed world constituting only 17% of the worlds population consumes 53% of the global energy consumption. In 1992 the carbon dioxide emission percapita. which is a direct contribution to global warming, was 19.1 metric tons in the United States or 20 times that in India. 0.9 mts.

The child mortality rates in developing countries are many times higher than in the developed world. For example, the under five mortality, in India is 115 compared to 10 in the United States. The percent of children underweight in India is 53 compared to less than one percent almost zero in the US. Such gross inequalities in nutrition, health care. availability of necessities such as drinking water make the world a volatile place for global, regional and local conflicts. The developments as they are occurring at present are largely unsustainable.

The term human development has come to connote those aspects of human life that contribute to better health, education, welfare and happiness questioning the sole emphasis, as was done in earlier decades on economic growth as an end in itself.

The experience of a number of developing countries such as Sri Lanka, and the state of Kerala (in India), during the past decade has revealed that a population need not be affluent to enjoy a fairly long and healthy life, good education, and fairly adequate means of living. Infact. material wealth, beyond a limit, tends to damage the environment and create social inequality and conflicts.

What do the above observations imply for the future training and research orientations of the demographers in India? First, any graduate course for training of demographers should include courses on essentials of social, economic, environments and political (SEEP) factors that have an impact on various demographic processes as illustrated above with related theoretical underpinnings. Demographic training should not be merely a series of number crunching exercises. The substantive knowledge of SEEP factors influencing the demographic processes will give meaning and relevance to the population being analyzed. Second, teaching of formal demography should be based both on class room lectures on theory and background of each method and computer based applications of each method with illustrative use of a variety of software packages presently available like Dem-Lab; PAS, Demproj, Spectrum etc. A budding demographer should be made to realize that there are no absolutes in the nature of relationships between SEEP factors and demographic processes and the relationships are space and period specific.