I. ESSENCE OF POPULATION POLICY

1.1. Demography as Social Science and Policy Science

Demography, a science which mainly concerns to the study of human populations in relation to the changes brought about by the interplay of births, deaths and migration (Pressat, 1985), has been a matter of scholarly debate for a long time. The earlier debates on demography were mainly concerned on its nature and scope as well as the role of demographers. Demography remained unsure about its disciplinary boundaries, especially in the sense of whether it was defined by its empirical studies and their analysis or could be equated with a larger area of intellectual inquiry-population studies-which includes the cause and impact of demographic change. If the latter was the case, it had a claim to be a social science and a need to draw on such fields as economics, sociology, and anthropology for methodology and explanations (Caldwell, 2003).

Demography as an activity has historically contained elements of both of a social science and a policy science. From Malthusian day to the present, the study of population dynamics has attracted demographers wishing to understand and those wishing to influence (Hodgson, 1983). Demography has come to occupy an important and independent status in the comity of social sciences (Singh and Zacharia, 1986). Demography as a social science concerns to the scientific investigation on causes of demographic problems which are determined by socio-economic factors. Demographer as social scientist seeks knowledge about conditions or problems. His stance requires no commitment to change. He is interested in 'what is' and strives to apprehend reality. From the late nineteenth century through the mid-1940s, US students of population generally employed a strictly social scientific perspective when examining fertility decline. The essence of the perspective was that in the modern era 'fertility' was a dependent variable changing with socio-economic condition (Hodgson, 1983) i.e. any change in fertility level is determined by the variation in socio-economic factors. At the beginning of 1940s Notestein employed a strictly social scientific perspective to examine the population dynamics of non- industrialized areas. Demographic variables were dependent variables, determined by social structural factors. Demographic change was a consequence of socio-economic change (Hodgson, 1983). A series of surveys were undertaken during 1950s by the National Science Foundation to assess the status of science in the United States at that time. After, the completion of the surveys a volume of 900 pages entitled

"*The Study of Population*" was published in 1959 in the field of population. However, none of the page of the book with 33 chapters was devoted to population policy which clearly portrays the social scientific orientation in the field of population during that period. In their introductory chapter, Hauser and Duncan maintain that 'demography has in the contemporary sense become a science rather than a polemical field for the resolution of policy problems" (Demeny, 1988).

In the United States a social scientific orientation characterized the work of demographers with the beginning of the 20th century, as they sought to explain fertility decline attendant on industrialization. Demographic transition theory, the culmination of this effort, when applied in the 1940s to the prospective experience of the non-industrialized nations appeared to foreshadow a crisis of population growth outpacing economic growth. The need for intervention to avert crisis led to calls for efforts to induce fertility decline, particularly among high-fertility peasant societies. The shift from social scientific to policy orientation between the mid-1940s and mid-1950s is illustrated in an analysis of the writings of two leading US demographers--Frank W. Notestein and Kingsley Davis (Hodgson, 1983). In later years, Hauser and Duncan also brought about the marked shift in demographers' inclination to explicitly acknowledge interest in the policy relevance of their research (Demeny, 1988).

Demographer as policy scientist seeks to alter current conditions in a specific direction. His stance is necessarily one commits to change. He is interested "what can be" and strives to provide a desired state (Hodgson, 1983). In this context, earlier, Notestein noted that demographers can contribute more toward the statement of the difficulties than toward concrete and practical suggestions for their solution. He argued that "to answer the concrete questions on which information is needed, demography did not need more work on 'overarching theory of change' but rather organized work at lower level of generality"- work capable of aiding in the "formulation of policy" (Notestein, 1950). The dramatic transformation of the global demographic situation in the years following World War II shifted not only the orientation of population studies but also the roles of demographers. Most demographers and students of population always had a strong interest in orienting their work to help solve important issues of public policy (Demeny, 1988). According to Hodgson (1983), after 1960s, many demographers including many illustrious figures of the discipline decided that their task was not just to interpret the world but to change it. Emergence of

a new approach of viewing population issues as integral part of socio-economic development in 1970s and 1980s perhaps urged demographers towards policy-related research. During the late 20th century, a bulk of demographers concerned to the dramatic change in both the number and the composition of population of the countries which had made the accomplishment of a variety of goals more difficult, whether enhancing national power, maintaining ethnic or cultural hegemony, improving the economy, preserving the environment, or attaining gender equity. Such concern produced a stream of policy-oriented works that highlight an assortment of population problems and argue for a variety of population policies (Hodgson, 2003).

Demography which is termed as 'population studies' in broad sense has been concerned to the study of demographic factors in relation to socio-economic factors. Demographers as social scientists produced several socio-demographic theories and investigated on complex demographic and social phenomena. Demography now has a central intellectual position in the social and environmental sciences (Ehrlich, 2008). On the other hand, demography is concerned to seek the solutions of the demographic and social problems by suggesting appropriate policies. At the present demographers concern not only understand the demographic and social problems but also seek their solution by suggesting comprehensive population policies. Therefore, demography contains elements of both social science and policy-oriented science, and which of the two has been dominant in the given period has markedly affected the nature of theory and empirical analysis.

1.2. Population Knowledge and Population Policies

Scholars have concerned themselves on population problems from the very beginning of human civilization. Numerous thinkers from the ancient times up to now have given their notion on population related matters and some of them have contributed by guiding demographers, societies and political authorities through scientific research and the development of comprehensive population knowledge and relevant theories. Emergence and systematic expansion of population knowledge in the different stages of time frame played important role in initiating population policies to the world community and the governments of the world. It is hardly impossible to

summarize here the complex and intricate process of thinking, exchange of opinion; scrupulous research and emotional controversy through which the international approaches to population problems and policies have gradually evolved (Makura, 1974). However, an effort has been made organizing or structuring existing population knowledge from ancient time to modern era that intended to manage fertility in the following stages.

1.2.1. Ancient Population Thoughts and Population Policies

Ancient thinks were conscious about population size and the negative consequences of under population and overpopulation. Chinese philosopher Confucius (551-479 BC) was in favour of optimum population size. Reasoned accounts of population size and growth appear in treatises on government as early as the fourth century B.C. Plato and Aristotle, observing that republics and monarchies differ in their aims and capacities, argued that each type of government has an optimum population size (Kreager, 2003). To tackle the overpopulation, Plato (427-347 BC) recommended infanticide, exposure and abandonment of deformed infants on ground of eugenics, and even advocated colonization, if necessary (Singh and Zacharia, 1984). Another Greek thinker Aristotle (384-322 BC) was of opinion that an excessive number of people would give rise to poverty and other social ills, since it was not possible to increase land and property as rapidly as the size of population. As preventive checks, he suggested abortion and exposure of babies (Bhende and Kanitkar, 2002). Opinion of Plato and Aristotle are enough to infer that the Greeks were liberal on controlling fertility. Early Romans were characterized by a fertility cult. From Confucius to Varro all writers of that period claimed that the primary function of marriage was to produce citizens. Romans needed more men to fight their wars; hence, they condemned celibacy, advocated monogamous marriage as the type that would produce maximum number of children (Premi, 2003). Roman thinkers Cicero also opposed birth control and favoured large number of people for greater Empire.

1.2.2. Medieval Population Thoughts and Population Policies

Like other branches of knowledge, population thoughts remained suppressed during Medieval period (400 A.D.– 1500 A.D.). Medieval period, which is also known as *Dark Age* in European history, was fully dominated by the religious authorities. In the Medieval period population phenomena were considered to be controlled by the divine power. Theologists of the time argued

that population size and growth can only be influenced by humans in accordance with God-given laws of nature (Kreager, 2003). Jewish emphasized procreation as they believed that 'be fruitful and multiply and replenish the earth' is the decree of their God (Premi, 2003). Childlessness was a serious misfortune in Judaism (Bhende and Kanitkar, 2002). Christian thinkers, during this period took a moral view of the population problem. On the one hand they opposed divorce, killing of children, abortion, etc., whereas on the other hand they laid stress on controlling of passions and leading a bachelor life (Raj, 2000). According to Islam a man was allowed four wives in order to procreate more sons and daughters and increase the Muslim Population. Children were considered as an extension of the father's life through them. The noted 14th century Arab author Ibn Khaldun believed higher density of population was conducive to higher standard of living (Premi, 2003). Issue of birth control was scarcely recited in medieval regimes. Overall, population control philosophy was not supported during the medieval period.

1.2.3. Modern Population Thoughts and Population Policies

i) Pre-Malthusian Thoughts and Population Policies

The Renaissance brought waves of new ideas in different field in Europe. Population thoughts also started to emerge more explicitly in the modern era. The period witnessed emergence of the nation state, new scientific discoveries, the exploration of the territories, and the rapid growth of trade, the gradual dissolution of the mediaeval feudal system and the development of early capitalism which laid the basis for the industrial revolution (UN, 1973). The generative capacities of population and knowledge of them have occupied a critical position in attempts to define and govern human society since the sixteenth century (Kreager, 2003). Major schools of thoughts during early modern period or pre-Malthusian period that contributed in developing population knowledge were Mercantilism, Physiocratic school and Population Arithmetic.

Mercantilism*:* Mercantilists came to the front during 16th century. These people were primarily in favor of increased population. Mercantilists B. Colbest, Charles Devant and John Locke were of opinion that real happiness comes with trade and increased population can help in the development of trade and industry. The general opinion at that time was that birth rates should be increased for purposes of economic and political gains by the adoption of such measures as (a) placing carious

disabilities on celibates; (b) encouraging marriages directly; (c) encouraging fertility; (d) making punishment for illegitimate births less severe or abolishing such punishment entirely; and (e) encouraging immigration and preventing emigration (Stangeland, 1904). The Mercantilists believed that if there was more population then nature automatically checked that and as such there was no need to use artificial means and methods for checking population (Raj, 2000). Mercantile writer Niccolo Macchiaveli (1469-1527) was perhaps the first to view population from the modern angle, by observing that excessive population would diminish through want and disease. Giovanni Botero (1540-1617) was also one of the first to study population phenomena in a broad scientific manner. He thought that population cannot continue to increase as means of subsistence would limit it (Bhende and Kanitkar, 2002). Macchiavelli and Botero who are known as the precursors of Malthus, however, were silent about artificial control over human fertility. Mercantilist doctrine oriented towards economic policy, did not develop a population theory in a strict sense, although views on population occupied a prominent place in the mercantilist system (UN, 1973).

Physiocratic School of Thought: In response to the Mercantilist idea, the physiocratic school of economic thought emerged in France about the middle of the eighteenth century. Physiocrats not only emphasize only on gold and silver like Mercantilists, rather they viewed land as the source of all wealth. Therefore, agricultural development and internal land reform were the best means to generate wealth in a nation. Physiocrats did not accept the populationist tenets of the mercantilist writers, they did not agree with the mercantilist policy of increasing population even at the expense of levels of living (UN, 1973). Quesney (1694-1774), the founder of the physiocratic school and maintained that a large population was desirable only if it could be made comfortable (Bhende and Kanitkar, 2002). Physiocratic authors following Quesnay developed an analysis of economic classes that finally gave pre-eminence to relations between agricultural resources and population (Kreager, 2003). Mirabeau (1715-1789) was of opinion that a larger population would be desirable for the state, but agriculture must be encouraged because this population would have to be fed (Stangeland, 1904). The Physiocrats therefore asserted the principle that legitimate government is based on populations endowed with natural rights, notably producers with rights to economic liberty and material security. Although Physiocrats did not favour unplanned growth, they do not explicitly recommend the measures of birth control to manage overpopulation.

Population Arithmetic: Emergence of *Population Arithmetic* along with '*Political Arithmetic'* was a dramatic turn over on the field of population knowledge. Humanist and scientific developments were closely allied in the sixteenth and seventeenth centuries, opening the order of nature to question by direct, numerical observation. These developments were synthesized in Francis Bacon's (1561–1626) influential program for the systematic reform of knowledge. Methods of scientific observation were directly applicable to problems of government after the first essay in ''population arithmetic,'' John Graunt's (1620– 1674) *Natural and Political Observations* (1662). Many fundamentals of population research were treated cohesively and quantitatively by Graunt for the first time, including ratios of births, deaths, and sexes, the structuring of a population by age, urban and rural differences, proportionate changes over time in causes of death, and possible implications of all these factors for the greatness of states (Kreager, 2003). Sir William Petty (1623-1687) and Edmund Halley (1665-1742) also contributed to the development of population arithmetic as well as 'demography'. Empirical study on birth would help to understand the demographic problems and for further initiation to intervene them. In short, the way was opened to reexamine the potential power of the first generative role of population enunciated by sixteenth- and seventeenth-century thinkers: the capacity of population as a natural force to act on other resources independently of governmental control (Kreager, 2003).

ii) Population Thoughts of Malthusian Era and Population Policies

The eighteenth century was a period of profound change in intellectual climate. Old religious and philosophical beliefs were abandoned under the influence the enlightenment. These changes were to have a decisive influence on social and economic as well as population theory (UN, 1973). Population thoughts also emerged more explicitly during late eighteen century and nineteenth century. By the late eighteenth century a growing body of theory had emerged in which alternative proportional logics were used to explain how population levels rise and fall systematically in relation to political, economic, and moral values. Population arithmetic, carefully applied at the local level by Jean Muret, John Heysham (1753–1834), Vauban, and Antoine Deparcieux (1703–1768), among others, demonstrated convincingly that a range of factors (including infant mortality, epidemics, and emigration) exercised a major check on particular parishes. Such factors underlined

the vulnerability of the poor. A considerable body of British essays in the later eighteenth century by Smith, James Steuart (1712–1780), Young, Joseph Townsend (1739–1816), and others shared French concern over the moral and economic condition of the poor. Adam Smith, for example, took the view that population was in general kept down by high mortality as an inevitable consequence of economic adjustments (Kreager, 2003). Emergence of the prominent pessimistic thought on population growth with Malthus, at the end of the century was perhaps the most significant phenomenon of the era.

Malthusian and Neo-Malthusian Population Thoughts: Thomas Robert Malthus (1766-1834) published the most popular essay of that time entitled *"Essay on the Principle of Population as it Affects the Future Improvement of Society with Remarks on Speculation of Mr. Godwin, M. Condorcet and Others"* in 1798. The main purpose of the essay was to refute the optimistic Utopian ideas of English thinker William Godwin and French revolutionary writer Condorcet who were of opinion that a perfect society without any evil and injustice would emerge soon and all problems will be disappear (UN, 1973). Malthus argued that the tendency of population to grow faster in relation to its means of subsistence had led to human misery and placed several obstacles in the path of human progress. Malthus expresses his arguments on consequent publications of revised editions of the essays on population. Malthus's own writings, most clearly his 1820 tract *Principles of Political Economy*, spell out a broad agenda which expresses the philosophy that came to be dominant in the liberal states of the West in the nineteenth century (Demeny, 2003b).

Malthus bases his principle of population on a natural law; the tendency of all animated life to increase beyond the means available for its subsistence. The natural law of population growth is checked by another natural law; the law of necessity which restrains that growth within certain boundaries and keeps it down to the level of the means of subsistence. Within the human species the natural law of necessity operates through various checks which fall under two main categories: a) preventive checks which control fertility i.e. moral restraint or marriage postponement, and vice. b) positive checks which increase mortality or the probability of dying i.e., "unwholesome occupations, ... poverty ...great towns and excesses of all kinds, the whole train of common diseases and epidemics, war, plague and famine (Gimenez, 1971). Malthus, agreeing that the

generative capacities of population require control if civil society is to be maintained, showed first that this central theme of modern population thought could be narrowed to a single issue: the quantitative regularity of individuals' decisions to marry and have children (Kreager, 2003). Malthus, however, was not in favour of contraceptive use. Should governments actually do anything to influence population growth? That question first emerged in the nineteenth century, after English economist and clergyman. However, as a staunch opponent of contraception, Malthus can in no sense be considered a pioneer of contemporary population policy (Engelman, 2011).

The seminal thoughts of Malthus were strong enough to be followed in later days. Neo-Malthusians (a group of doctors, social scientists, political scientists and economist) who had a faith that whatever Malthus said about population growth, came in front after Malthus. Neo-Malthusianism found its origin as early as in 1884 when Dr. Drysdale brought out his famous book entitled "Elements of Social Science". Neo-Malthusians believe that without any effect on the sexual pleasure of the couple, the growth of population should be checked with the help of contraceptive methods (Raj, 2000). Neo-Malthusian thoughts also heavily affected the population thoughts and population policies up to 20th century.

Development of Population Arithmetic and prominent Malthusian thoughts concentrated scholars on the study of population that made the emergence and development of demography as a separate scientific discipline. Achille Guillard (1799–1876), coined the term ''Demography'' as a general term in 1855. He defined the field of demography as population statistics in its broadest sense, giving pride of place to the vast body of data emerging from the new state statistical bureaus. Population statistics provided effective means of demonstrating major economic, social, and cultural divisions in society, and of differentiating and sometimes stigmatizing subpopulations. With this shift, nineteenth-century population thinking brought to the fore generative capacities of population, notably reproduction and its relation to other natural resources, which had previously been secondary to cohesive membership (Kreager, 2003). This approach was enough to urge governments to intervene demographic trends.

iii) The 20th Century's Population Thoughts and Population Policies

By, 1900 certain widely known empirical relationships between fertility levels and socio-economic factors were being studied by students of population. The three most prominent were the inverse relationships known to exist between standard of living and fertility level, social class and fertility level, urban residence and fertility level (Hodgson, 1983). Population statistics provided effective means of demonstrating major economic, social, and cultural divisions in society, and of differentiating and sometimes stigmatizing subpopulations. The traditional view of population as based in common membership, although reaffirmed at times, generally receded as much greater energy went into trying to identify determinants of enduring population differences (Kreager, 2003). Since the first years of the 20th century, Margaret Sanger, Marie Stopes, and some others started the birth control movement. These innovators were concerned primarily with women's rights and empowerment, particularly the right to avoid unwanted pregnancies, as well as the much social pathology that, in the reformers' views, accompanied unwanted childbearing. The primary focus was on the individual woman and her well-being (Sinding, 2007). In regard to the development of population thought and population policies 20th century can be structured into major three phases.

The Period Between the World War I and World War II: The massive losses of life resulting from World War I and from the influenza pandemic in its immediate aftermath, and the sharp drop in the number of births during the war years, were temporary disruptions in the steadily declining trends of fertility and mortality characterizing the prewar decades in the West. By the late 1920s demographers realized that fertility rates in several Western countries had fallen to such a low level that, in the longer term, natural increase would become negative. This trend became more accentuated and more general under the impact of the Great Depression. By the 1930s such pronatalist policies came to be fairly widely if rather tight-fistedly applied in a number of countries. Among Europe's emerging democratic welfare states, Sweden and France were pioneers in providing financial rewards and services in kind to families with children, especially to larger families. (Sweden, however, also allowed liberal access to contraception.) Similar policies were applied with equal or greater vigor in fascist Italy and Nazi Germany (Demeny, 2003a). Despite the huge losses of life caused by the two world wars, and despite the massive demographic

bloodlettings engineered by the two totalitarian state systems that darkened the history of the continent in the first half of the century, Europe's population grew from an estimated 422 million in 1900 to 548 million in 1950 (Demeny, 2003b). The most important aspect of this period was the development of Demographic Transition Theory. Demographic Transition Theory was solely the product of demographers at Princeton's Office of Research leaded by Frank W. Notestein (Hodgson, 1983). The theory analyzed the relationship between socio-economic changes and demographic changes based on the past demographic experience of Europe. Mainly, Frank Notestein, Kingsley Davis, A.J. Coale, Frank Lorimer, Irene Taeuber, Dudley Kirk, W.E. Moor, C.V. Kiser, and Louise Kiser had contributed to shape the theory during 1930s and 1940s.

The Period after World War II: The population problem was first brought to the attention of many Americans shortly after World War II by the ecologist William Vogt and the conservationist Fairfield Osborne (Ehrlich, 2008). Other thinkers contributed to population research during 1950s and 1960s were Frank Notestein, Kingsley Davis, Philip Hauser, and Dudley Duncan. Notestein and Davis performed their research from social scientific perspective considering fertility as dependent variable, determined by social structural factors (Hodgson, 1983). In 1959, in the field of population, a volume containing 900 pages entitled "*The Study of Population*" was published (Demeny, 1988). After World War II, very many actors were involved, representing a variety of concerns and ideologies and speaking on behalf of schools of thought, governments and national or international groups, reflecting not only the diverse realities of the world but also differences in their interpretation. International public opinion has obviously been affected, as was the United Nations community through whose governing organs the quintessence of the issue had to be distilled into acceptable policy and legislative documents (Makura, 1974). UN also convened the First International Conference on Population in 1954 at Rome.

Population policies emerged more explicitly since 1950s. Though population knowledge had a long history, population policies had been formally started by the governments after the second half of 20th century. As early as the 1950s India, Pakistan and China adopted national policies aimed at moderating population growth, and several attempts were made to expand the population programme of the United Nations system (Makura, 1974). But the population problem was

internationally recognized only in 1966, when the General Assembly adopted its famous Resolution on population and development (UN, 1966). Population policies were pioneered by the social scientists and policy analysts of mid-twentieth century who argued that couples would have fewer children if governments subsidized or otherwise supports the distribution of safe and effective contraceptives, including sterilization for those who wanted no more children at all (Engelman, 2011). Improvement of demographic statistics and research was always an accepted requirement, but its policy relevance was pinpointed only in the early 1960s. The World Health Assembly noted in 1965 'that scientific knowledge with regard to biology of human reproduction and the medical aspects of fertility control is insufficient' and requested further research to be initiated (Makura, 1974). During 1960s demographers also engaged themselves on policy-oriented works which supported governments in launching population policies based on the recommendations of the experts.

By the mid-1960s, in programmatic terms the international population policy debate on the relative importance of demand versus supply (of family planning) was essentially decided in favor of the latter (Demeny, 2003a). By the late 1960s there was a notable increase in attention at the global level towards FP. This shift was led by western countries, notably by Scandinavian countries and later the US, which "pushed harder than any other Western government for developing countries to adopt population policies" (Finkle & Crane 1985). The organizations like USAID, World Bank, UNFPA, and WHO assisted in FP programmes. The access of intrauterine device, sterilisation and oral contraceptives in the 1960s, made active and widespread intervention in fertility behaviour possible. These methods proved popular among users in industrialised countries and donors were keen to fund their distribution in developing countries. Finally, the results of macroeconomic and demographic studies and simulations provided evidence for supporters of FP that rapid population growth was a problem for many developing countries (Lee, nd). For the next quarter-century, population policy in the developing world became essentially synonymous with family planning programs (Demeny, 2003a). The developed world and international organizations, with Neo-Malthusian approach, were helping less developed countries to foster family planning programs. However, results were not satisfactory in some Asian and Africa regions. Demographers increasingly came to believe that deeply embedded cultural inhibitions, as well as the economic

and emotional value of children to poor households, were the primary causes of program failure. This explanation led to the belief that only far-reaching socioeconomic transformations—such as major reductions in infant and child mortality and in illiteracy, as well as educational and employment opportunities for women, increased incomes, and modern old-age economic security systems—would create conditions that were conducive to fertility decline. Social scientists were skeptical that family planning alone would lead to significant fertility reduction. Kingsley Davis was one of the earliest and best-known adherents to this position (Sinding, 2007).

The period between 1970s and 1990s: Since 1970s, significant numbers of countries started national population policy. The neo-Malthusian perspective of controlling birth through family planning methods was still prominent during 1970s. Developing countries were coming under intense pressure, particularly from the U.S. government, to adopt population policies and to mount family planning programs (Sinding, 2007). However, third world countries along with socialist country USSR were of opinion that "development is the best contraceptive". After a hot debate in Bucharest Conference between developed and less developed countries, conclusion was made to enhance socio-economic development and increase use of family planning together in less developed world. However, the central issue of population policy was no doubt fertility, more precisely natality as the total of births, which, in present circumstances, is the dynamic component of natural increase of population (Makura, 1974). Between the late 1960s and the early 1990s national family planning programs became one of the major public health successes of the 20th century (Rosenfield, 2000). In addition, emergence of the approach of socio-economic development in addressing population problem was the most important development of the era. The 1990s began with an international population agenda that had lost its clear neo-Malthusian focus (Hodgson, 2003).

Dramatic changes in the demographic trends and academic analyses of twentieth-century population trends both reflected current population concerns and influenced the development of population thought (Hodgson, 2003). International Conference on Population and Development (ICPD) 1994 paved the new way of population policies. The developmentalist perspective and feminist perspective viewing population policies was evident in ICPD Programme of Actions. The

20-year Programme of Action adopted at the conference enlarged the scope of earlier population policies. It avoided mention of specific population targets but called on governments to take action in many areas to promote human development and to stabilize population growth (Ashford, 2001). Now, at the end of the 20th century, population policies were more than the family planning programmes. In ICPD, family planning programs were redefined, instead, as reproductive health programs, responding to a broader range of women's health needs, such as prevention of unsafe abortions and sexually transmitted diseases, including HIV/AIDS. But beyond this, new emphasis was put on some requirements that would contribute to women's empowerment: reduction of infant and maternal mortality and improvement in girls' education and women's opportunities for employment and political participation. Although the connection was not highlighted, these are conditions that are likely to help reduce the birth rate through stimulating the demand for smaller family size. The Cairo conference, in effect, reverted to some key elements of a demand strategy for reducing birth rates (Demeny, 2003). Since the International Conference on Population and Development, considerable progress has been achieved in many countries in implementing the objectives of the Programme of Action. A review and appraisal of this progress undertaken by the United Nations five years after the ICPD found that reproductive health programmes had been established in many countries, with rising contraceptive use among couples indicating greater accessibility to family planning and more freedom to choose the number and spacing of the children they desired (United Nations 1999).

iv) The 21st Century's Population Thoughts and Population Policies

During the twentieth century most countries experienced dramatic demographic changes. Many observers judged that these demographic changes have made the accomplishment of a variety of development and other goals more difficult. These observers produced a stream of policy-oriented works that highlight an assortment of population problems and argue for a variety of population policies (Hodgson, 2003). Similar approach seems evident even in 21st century. Consensus and the outcomes of the noted intergovernmental conferences (The Earth Summit 1992, ICPD 1994, Beijing Conference 1995, Social Summit 1995) have become the foundation of population and development policies for the governments and the World Community. Particularly, ICPD 1994 has sketched a new developmentalist and feminist approach for addressing population related

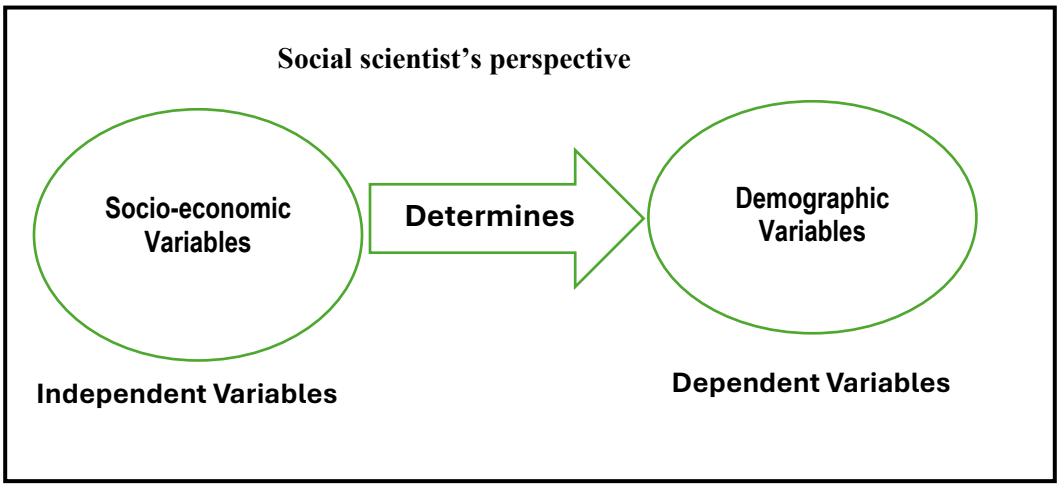
problems in 21st century. With the beginning of the century the world communities have set Millennium Development Goals (MDGs). Particularly, depopulation in Europe, consistent rapid growth in least developed world, spread of HIV/AIDS, reproductive and sexual health, Aging, gender discrimination, increased international migration and trafficking, global warming and climate change are the main challenges of the 21st century on which governments' policies and scholarly works should concern.

Today's knowledge on population is outcome of the complex and intricate process of thinking, scientific research and debates made by philosophers, social scientists, policy scientists, demographers, and different school of thoughts from ancient period to the present. The gradual development and spread of population knowledge and concurrent shift in international approaches to population problems have consistently contributed to formulation and implementation of population policies worldwide. Population studies, as a social science always concerns in updating and exploring new knowledge through scientific studies and research. Such knowledge travels through educational system (universities, colleges, schools, non-formal educational programmes etc.), relevant organizations (GOs, NGOs, and volunteer groups), publications (journals, books, professional papers etc.), media (television, radio, internet etc.) and individuals (researchers, teachers, activists, key persons etc.). It is population knowledge that makes governments or concerned authorities to understand population problems and formulate population policies and programmes accordingly. When population knowledge is interacted to people through educational system, it also helps to change their demographic behaviours and solve population problems.

1.3. Social Science and Population Policy

Science is the study of the nature and behavior of natural things and the knowledge that we obtain about them. Science always concerns in studying natural, socio-economic, demographic and other phenomena and explores knowledge in relevant field. Social science is a branch of knowledge that is solely related to the study of society, social lives, events and processes. Ancient philosopher Aristotle had ever maintained that the unexamined life is not worth living can be generalized to the life of societies (Demeny, 1988),

What is the role of social scientists in addressing population policy matter? The answer given to this question might reveal controversial views among students of population concerning the functions of social science in shaping public policy (Demeny, 1988). Social scientists take demographic variables as dependent variables which are determined by socio-economic variables. For instance, in response to the dire Malthusian warning "The sky is falling! Rapid population growth is the cause!" (Majur, 2009), Marxists have argued that rapid population growth is the consequence not the cause of economic and social inequalities (Sinding, 2000). In this context, social scientists may play important role in understanding or explaining socio-economic factors responsible for demographic imbalance that makes easy to formulate population policies accordingly.

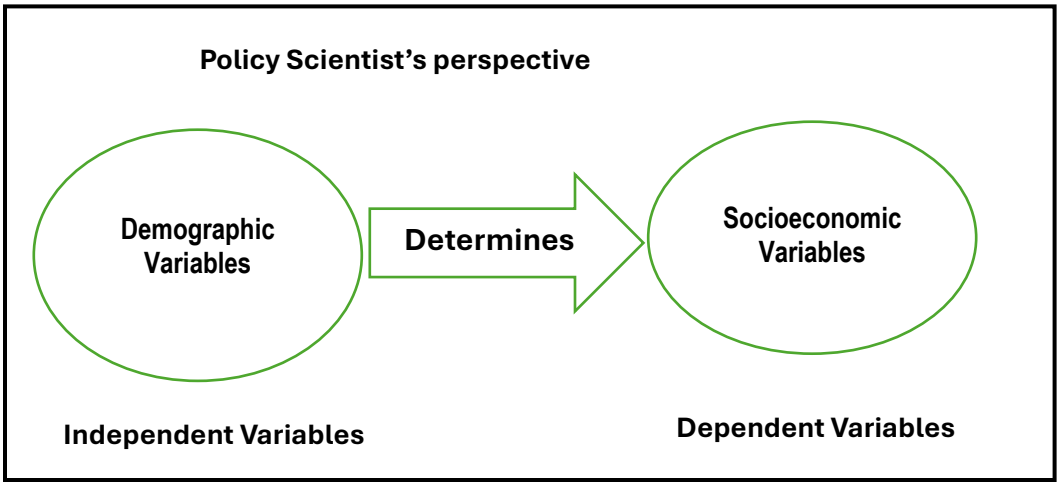


While formulating population policy, depth or nature of the problem is identified at first and policies are formulated thereafter. Social scientists or social scientists, for instance, may contribute to understanding reasons of high or low population growth which is helpful in formulating policies to address fertility. O the other hand, demographic factors (fertility, mortality and migration) have complex interdependence with social factors which are concerned with other disciplines of social science. Therefore, in both understanding the demographic phenomena through exchange of knowledge and solving them through policies, social science may have important role.

1.3. Policy Science and Population Policy

Policy sciences are an approach to understanding and solving problems. Focus of policy sciences is in solving problems through prompt polices unlike social sciences which focus in understanding problems. Whether the problems are local, regional or international, the policy sciences provide an integrated and comprehensive set of procedures for addressing them. Helping people make better decisions is the central objective of the policy sciences, and the fundamental objective is to foster a commonwealth of human dignity for all. In pursuit of this goal, the policy sciences draw on and contribute to all fields of knowledge. The emphasis is on comprehending problems in context in order to develop recommendations that are both realistic and desirable. The variety of problems and issues to which the policy sciences have been applied is vast. These include local, national, and international questions of governance and development; the achievement of human rights in all contexts; natural resources policy and management; the processes of selecting policymakers and decision makers; improving communication, health, and education at all levels. Therefore, policy science also concerns in seeking policy options for better demographic situation.

During the twentieth century most countries have experienced dramatic changes in both the number and the composition of their populations. Many observers have judged that these demographic changes have made the accomplishment of a variety of goals more difficult, whether enhancing national power, maintaining ethnic or cultural hegemony, improving the economy, preserving the environment, or attaining gender equity. These observers (may be termed as policy scientists) have produced a stream of policy-oriented works that highlight an assortment of population problems and argue for a variety of population policies. A chronological treatment of contemporary population thought therefore largely reflects the changing concerns of twentieth-century policymakers (Hodgson, 2003).



Concern of policy sciences may be recommended or make efforts for socio-economic well being of a region or a country which is often determined by several demographic factors. Therefore, they must be concerned to population policies. A policy scientist may treat demographic factors as independent variables and socio-economic factors as dependent variables. Policy science, therefore, may contribute by recommending policy options for solving population problems that affect socio-economic condition of a country. Today, a growing number of people across academic disciplines, professions, and in civic life are finding that the policy sciences offer a useful way to deal effectively with whatever problems they confront. Therefore, policy sciences are also useful in solving demographic problems by formulating prompt population policies.

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