Demography and Human Ecology

Demography and human ecology are closely linked to each other. Population is the direct result of births, which is of interest to human ecologists. Human ecology is the study of births, environment and the relationship between the two. An increase in population affects the surrounding environment—it can result in overcrowding, increase in the density of population leading to urbanization and environmental pollution.

Box 1.3

From the ecological viewpoint, population can be seen in terms of the extent to which people share in exploiting and developing the same environmental resources ... Ecology is nothing but bio-demography. Experiments have left no doubt that the population and food habits have close links with each other. Ecology tells us that parasites with low survival possibilities in their complex life have high fertility and that is the reason that the mortality rate among the poor is very high. In the case of human beings too, there is a positive correlation between high fertility and high mortality. Since a demographer also studies death and birth rates, the relationship between the two is quite understandable.

—*Hans Raj, p.22; Srivastava*

One can establish the relationship between demography and human ecology from the fact that life tables are studied by both the disciplines. Human ecology provides a general perspective, and principles, concepts and hypotheses, which are of immense significance to demography. Moreover, it is seen that population density changes with climatic conditions. In places where the climate is either extremely hot or extremely cold, the density of population is low because of difficult living conditions. In places with moderate climate, the population density is high.

The main issues in human ecology can be placed in a frame containing four referential concepts: population, environment, technology and organization. It is within an environment that a particular population lives. Every population has to adjust to the environment in order to survive. Population can also change the environment in which it lives. Human ecologists take into consideration not only biological explanations of population, but also its socio-cultural aspects.

It is difficult to differentiate a human ecologist from a demographer. A human ecologist is interested in a wide variety of demographic issues

and problems, makes use of demographic data and relies heavily on demographic techniques. Demographic aspects determine ecological organization, and are in turn determined by ecology. It is imperative that there be cooperation between demographers and human ecologists to solve a variety of human problems.

Ecology is called 'bio-demography'. Both ecology and demography study biological explanations of human fertility as well as the effect of density of population on human fertility. Certain issues such as relationships between various species, between food and fertility, between predator–prey, host–parasite and so on are studied both by human ecologists as well as demographers.

Demography and Geography

The later half of the twentieth century witnessed an increase in geographers' interest in demography and population studies. Geography is a science which deals with the spatial distribution of resources and population. The emphasis of the subject has been gradually shifting from the 'physical' aspect to the 'human aspect', and the 'geocentric' view is giving way to the 'anthropocentric' view. Since the 1960s, population geography has become a distinct branch of human geography, with a specific body of material, methodology and perspective. Population geography deals with ways in which the geographical character of a place is formed by, and which in turn reacts upon, a set of population phenomena which vary across time and space and follow their own behavioural laws, interacting with one another and with a number of non-demographic phenomena.

Demography and geography study the relationship between spatial distribution of population and the demographic processes of fertility, mortality and migration. Population demography includes the study of location and characteristics of population, spatial distribution of population and patterns of spatial distribution, and the interrelationship between the geographic environment and population. It has been suggested that population geography should include identification o genetic relations, i.e., dealing with categorization, classification and various processes; establishing genetic relations of spatial distributions wherein temporal changes assume considerable significance; and determining the covariant relationships and interaction between geographic phenomena.

The concepts of space, the physical and biotic features of the earth, the patterns of settlement, distribution of population, villages, towns and cities and the relations between different parts of the earth's surface come under the purview of the discipline of geography. There is an increasing emphasis on human geography, which emphasizes on the cultural features of the

earth in addition to the physical features. These features are analysed both generically and genetically in their space relations. Population geography tries to establish relations between cultural features and the physical and biotic environment. Both demography and geography show interest in population differentiation, attributes of population, population settlement patterns and settlement interrelations, and the relationship between natural resources and population. Demographic data is collected from different geographical regions—states, zones, regions and so on. Analysis and comparison of demographic data is also done across geographic areas. The analysis of demographic data is of importance to human geographers. Specific demographic processes such as birth rates, death rates and migration patterns are studied for specific regions. Geographers also use demographic predictions. Various demographic issues such as health conditions, distribution of population, migration, age and sex ratios, occupational distribution, the population economics dynamics and so on are today a part of the study of geography. It was geographers who advocated the idea of rural–urban integrated development. Geographers are also interested in the study of co-variation among population distribution, settlement patterns and functions, which led to the redefinition of human geography as 'human ecology'.

The structures of settlement and population agglomeration (collection) and social functions are of interest to both demographers as well as geographers. The 'landscape school of geography' has given way to the geographical study of racial, societal and economic features of a population inhabiting a particular geographic area. The scope of demography has widened to include geographical studies of populations. Both the disciplines are interested in the climate, biotic processes, organizational evolution, demographic movements and the resulting changes in space content.

Population geography focuses on the 'spatial' aspect of distribution of population, its structure, composition, density, mobility, migration, growth and other demographic processes. The spatial distribution of demographic elements and spatial variations in human populations is an important part of population geographical studies. The study of demographic facts in an environmental context, their characteristics, causes, origins and consequences are also of interest to population geographers. The discipline studies humans and their relationship with the surrounding environment and resources. It examines the influence of the physical and cultural environment on populations. The physical environment includes the location, climate, flora and fauna, soils, natural resources, etc. Cultural environment consists of the economy, political and social factors, education, technology, transport and communication, settlements, urbanization, etc. Demographers as well as population geographers study their influence on demographic processes and demographic phenomena.

Demography and Anthropology

Anthropologists are interested in demographic processes of fertility, mating, mortality, population numbers and migration of various subgroups in a population. In fact, ethnology, a branch of anthropology, studies the distribution of races across the world. Physical anthropology interprets long-term human evolution and biological differentiation of local populations in terms of changes in gene frequency. This change is studied across time as well as space. The study of mutation, selection, gene flow, genetic drift and selective mating is affected by the physical environment in which the populations lived, and continue to live. In fact, the physical and cultural environment has a considerable impact upon the physical and genetic make-up of human populations.

There are various areas that are studied both by demographers and physical anthropologists. Some of these are as follows:

i. **Inbreeding:** Individuals who have common ancestors mating and producing children. This affects the quality of population, and also results in certain physical defects.

ii. **Endogamous breeding:** This refers to the selection of mates within one's own group. Social demographers are interested in intercaste, interreligious and interracial marriages, which have both biological and social effects.

iii. **Associative mating:** In a breeding population, when the mates have more attributes in common than is expected by chance, it is called positive associative mating. When mates have less in common than is to be expected by chance, the system is called negative associative mating. Both types of mating influence the progeny and their physical and mental characteristics. These influences are studied both by demographers as well as by anthropologists.

iv. **Mutation:** Gene variations are based on the process of mutation. Whenever mutation takes place, there is a change in the structure of a gene, which may manifest itself as a change in entire populations, which is of interest to both demographers and physical anthropologists.

v. **Gene flow:** Gene flow can result in a mixture of racial characteristics, more in the case of out breeding where there are significant differences between individuals who mate. These changes may have significant social ramifications, which are of interest to a demographer.

Cultural anthropology, an important branch of anthropology, is the study of the origin and evolution of culture along with the physical evolution of humankind. Demographers are interested in the influence of culture on

various demographic processes, such as fertility, mortality and migration. The cultural environment in which a population lives affects even the composition of population. In fact, culture is seen to be the basis of differences between communities and persons living under identical economic conditions in a particular geographical location. These differences are manifested as differences in languages spoken, values, customs and traditions, marriage patterns, family types, child-rearing practices and so on. These differences also affect fertility, mortality and migration. Since culture has a tremendous impact upon human behaviour and action, it also affects demographic behaviour and processes. Thus, demographic differences can, to a certain extent, be explained in terms of cultural differences.

Population studies and demography are important for understanding population dynamics and changes. Demography is considered to be a comprehensive study of populations. Most disciplines, whether the sciences or social sciences, make use of demographic data. Demography depends upon, and also contributes to, various areas of study including genetics, economics, mathematics, sociology, economics, political science and various other disciplines.

SUMMARY

- Since population is an integral part of the society, it is important to have information about various aspects of the population. Demography or population studies have evolved as an important discipline in the social sciences.
- Demography is a term derived from the two Greek words—*demos*, meaning the people, and *logos*, which means to draw or write.
- Demography is a broad social science discipline concerned with the study of human populations. In general, demographers deal with the collection, presentation and analysis of data relating to the basic life-cycle events and experiences of people. These are birth, marriage, divorce, household and family formation, employment, ageing, migration and death.
- The field of demography also covers broad topical studies of human resources, health and morbidity, family systems and family structures, the role of women, the value of children, and the social, cultural and institutional context of demographic change.
- Demographic studies are as old as the society itself—it started when human beings created civil society. People and societies across the world have kept an account or records of the human population. With

the passage of time, societies started realizing the importance and necessity of maintaining proper population records.

- The credit for starting demographic studies in modern times goes to John Graunt, who initiated a new field of empirical research in population studies. He stated that the processes of mortality, fertility and migration were interrelated. William Petty contributed significantly to the development of population studies. He studied population growth, unemployment, urbanization, national income and so on. William Halley constructed the first empirical life table.
- The history of the development of demography can be divided into various phases: (i) The first phase is the Malthusian phase, in which Robert Malthus gave his ideas on population growth. (ii) The second phase saw considerable progress in the development of population studies, due to the efforts of Joshua Milne, William Farr, John Finlaison and Acille Guillard. (iii) The third phase witnessed significant contributions from modern demographers such as Carr Saunders, Arsene Dumont, Euler, Moser and Lokts, Walter Wilcox and many others. Various organizations such as the UNO were responsible for the development of demographic studies across the world. (iv) The fourth phase witnessed the emergence of communist population doctrine, which was influenced by the Marxian ideology.
- The discipline of demography studies three broad aspects of population—size, composition and distribution. The scope of the discipline can be categorized into narrow, broad and balanced.
- There is a close relationship between demography and various sciences and social science disciplines. Analysis of demographic data is based on the methodological sciences of mathematics and statistics. Demographers depend upon social and biological sciences for explanatory frameworks in order to understand and explain the determinants of demographic behaviour and population trends, and to explore their relationship with wider trends in the society and in the economy. Demography in turn influences biological and social sciences.

QUESTIONS

1 Define demography.
2 What is demographic data?
3 Discuss the nature and scope of demography.
4 Assess the emergence of demographic studies.
5 State the relation between demography and other social sciences.