Factors affecting Distribution of Population

1.1 Introduction

Population distribution is the spatial pattern of the dispersal of populations, formation of agglomerations, linear spreads of population, etc. In most countries, there are wide regional variations in the geographic distribution of the population. Population densities are different in various parts of the world.

The *2015 Revision* of *World Population Prospects* is the twenty-fourth round of the United Nations' estimates and projections of population. They are prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations(United Nations 2015).

The world's population reached 7.3 billion in mid-2015, which means that the world has added approximately one billion people in the span of the twelve years. The global population is highly dispersed over the seven continents. Most of the world's population (about 60 per cent) lives in Asia (4.4 billion), 16 per cent in Africa (1.2 billion), 10 per cent in Europe (738 million), 9 per cent in Latin America and the Caribbean (634 million), and the remaining 5 per cent in Northern America (358 million) and Oceania (39 million). China (1.4 billion) and India (1.3 billion) are the world's most populous countries and home to19 and 18 per cent respectively of the world's population. India's population is expected to continue growing for several decades. It is projected to reach 1.5 billion in 2030 and 1.7 billion in 2050, while that of China is likely to remain constant and then decrease slightly. Therefore, it is projected that India's population will surpass China in the future.

The ten most populous countries in the world are distributed in all continents: one in Africa (Nigeria), five in Asia (Bangladesh, China, India, Indonesia, and Pakistan), two in Latin America (Brazil and Mexico), one in North America (United States of America), and one in Europe (the Russian Federation). Nigeria's population, currently the seventh largest in the world, is growing most rapidly. With the present rate of growth, the population of Nigeria is projected to surpass that of the United States by about 2050 at which point it will become the third most populous country in the world. By 2050, six of the ten largest countries in the world are expected to have populations more than 300 million: China, India, Indonesia, Nigeria, Pakistan, and United States of America.
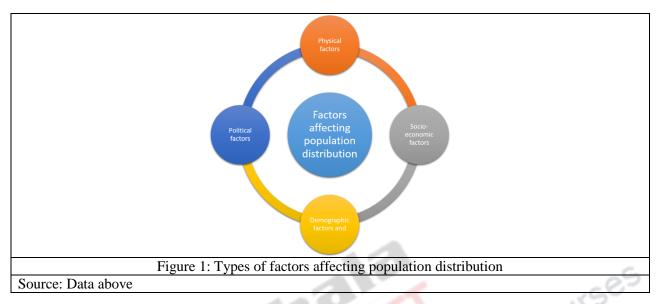
It is estimated that 50.4 per cent of the world's population is male and 49.6 per cent, female. The median age of the global population, that is, the age at which half the population is older and half younger, is 29.6 years. About one-quarter (26 per cent) of the world's population is below 15 years of age, 62 per cent are aged 15-59 years, and 12 per cent are 60 years or over.

Populations are not evenly distributed over the earth's landmass. Physical environments vary from place to place. Hence, it is necessary for demographers to understand how and where populations are distributed. Present spatial distribution as well as projections for the future are integral to a demographer's work. With an understanding of certain patterns, and of the factors that have significant impact on population density and the total population, it is possible to make projections of the growth (or possible decline) in the global population, and its spatial distribution. It will then become possible for leaders and policymakers to frame appropriate policies and strategies to protect the environment, plan for sustainable development, and prepare for changes that accompany changes in population characteristics.

Adverse physical conditions and lack of sufficient livelihood opportunities mainly responsible for discouraging inhabitation of certain areas. The factors affecting distribution of population may broadly be grouped into the following major categories:

1. Physical factors
2. Socio-economic factors
3. Demographic factors and

4. Political factors

Figure 1: Types of factors affecting population distribution
Source: Data above

The physical factors include, chiefly, climate, landforms, topography, soil, energy and mineral resources, accessibility in terms of distance from the coast, natural harbors, navigable rivers or canals etc. Socio-economic factors include cultural characteristics, types of economic activities, technology used (including the type of farming), and social organization. Demographic factors include changes resulting from natural increase and migration. Factors such as political boundaries, political stability (or unrest), disturbances, controls on migration and trade, government policies and transportation facilities are considered as political factors.

1.2 Physical Factors affecting distribution of population
Man makes the choice of molding space according to his cultural values and hence, there are variations in habitations in response to environmental stimuli. He relates to the natural environment through settlements, which are physical embodiments of an ideal environment.

1.2.1 Climate is one of the most important natural conditions. It determines the nature of the flora of the region and influences agriculture. Climate also determines the type of animals that are associated with the region. Humans seek favorable climatic conditions in the places they want to settle in. The climatic belts are the principal areas of most of the human activity. It is evident from the world's population distribution that the highest populated countries of the world are mostly located in the tropical regions.

A warm, comfortable climate attracts people. Regions with such climates provide favourable conditions for a wide range of fauna to thrive, supporting the life systems in the place. Agriculture and animal husbandry make it possible to provide food for large populations. On the other hand, places with extreme climatic conditions are usually scarcely populated because it is difficult to sustain human life in such places. Countries in the temperate regions are also well populated. The regions are colder than the tropical regions but are hotter than the polar zones. The polar zones of the Arctic and Sub-Arctic regions remain the least populated of all. The extremely low temperature is not favourable for habitation. Vegetation is scarce. Cold winters and very short summers make living difficult.

1.2.2 Topography or terrain. Navigable areas are more populated than rough ones. Mountains are less preferred because of lack of arable land. In addition, the cost of transportation, construction and agriculture are considerably higher in such places. In general, high altitudes also impose a physiological

on humans' capacity to adapt. This is because of reduced atmospheric pressure and low oxygen content. Higher altitudes, therefore, do not favour population and growth. Low lying plains and coastal areas are more favoured areas for human settlement. The Himalayas are thinly populated, the Ganges valley is one of the densely populated areas of the world. Coastal regions have the advantage of ocean-going trade and transportation and thus, the major cities of the world are mostly located in the coastal areas.

1.2.3 Water is essential for human survival. The ancient civilizations of the world flourished near rivers and the coastal areas. The Nile, Amazon, and Ganges river systems supported rich civilizations on their banks. Adequate rainfall favours vegetation and agriculture which in turn, determine a place's suitability for habitation. Because of lack of water, vast expanses of deserts are uninhabited. For the same reason, there is less population on the rain-shadow side of a hill or mountain; however, the leeward side is often densely populated. Thus, population is tends to be concentrated in the well-watered river valleys and coastal plains.
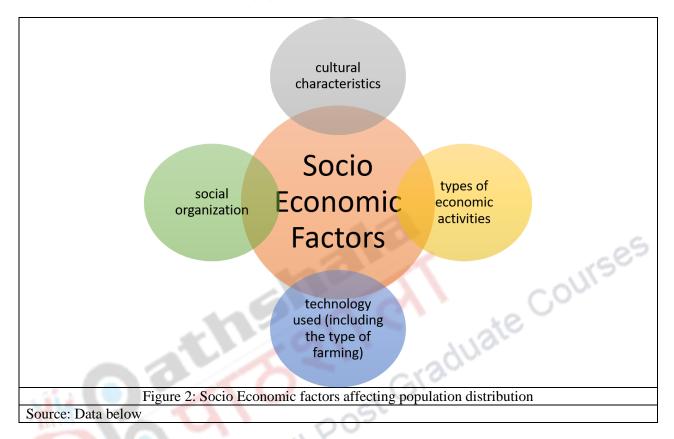
1.2.4 Soil quality influences density and distribution of the population. A substantial population of populations earn their livelihood from agriculture which depends on the quality of soil. Food crops are grown on the soil, thus, is one of the most important raw materials required by population. The alluvial regions, deltas and the coastal regions of India support high population densities. On the other hand, mountainous regions, where soil erosion is a problem, such as the Terai region of Uttarakhand, or the sandy soils of the desert of Rajasthan, cannot support dense populations. However, scientific agricultural practices, with the aid of technology, have succeeded in converting low-yield soils to better quality ones. In the past, degradation or overutilization of soil led to the disappearance of flourishing civilizations, such as the Mayan in Central America.

Vast reserves of *mineral resources* encouraged the establishment of industries, which attracted settlements. The Chhota nagpur plateau is an area rich in mineral resources. The higher population densities in the Chhota Nagpur Plateau of Jharkhand and in the adjoining areas of Orissa are largely due to the availability of minerals.

1.2.5 Location of a place—proximity to major towns and cities—favours concentration of population. Generally, staying within the city limits increases living costs. The city's periphery or nearby towns provide affordable housing facilities. Cheap and reliable transportation provide convenient means of commuting.

1.2.6 Natural disasters discourage population concentration. Frequent storms, earthquakes, floods, wild fires discourage formation of settlements as people migrate to safer places. There are many examples of destruction of settlements due to the natural disasters. The city of Bichuan, in Sichuan province of China was completely destroyed in 2011 by an earthquake of magnitude 8.0 causing collapse of eighty percent of the buildings and a huge loss of lives. The city was not rebuilt and left abandoned to prevent any further loss of human life in the event of recurrence of the disaster in future.[2] Similar examples could be found in history. On August 24, 79 AD, the volcano Vesuvius erupted, covering the nearby town Pompeii with ash and soil, and subsequently preserving the city in its state from that fateful day. Everything from jars and tables to paintings and people were frozen in time. Pompeii, along with Herculaneum, were abandoned and eventually their names and locations were forgotten. They were rediscovered as the results of excavations in the 18th century.[3]

1.3 Socio economic factors affecting population distribution

Figure 2: Socio Economic factors affecting population distribution
Source: Data below

The choice of settlement is generally based on natural processes. However, with time, man has been able to adjust and control the natural processes to some extent. Thus, the factors influencing the choice of a place for settling no longer depends entirely on natural conditions. As needs changed with the evolution of human society, social and economic perspectives gained primacy.

1.3.1 Economic activity is an indicator of employment opportunities. People in the rural areas are largely dependent on agriculture for their livelihood. If the land fails to support the rural population, or with more opportunities available in urban areas, they may choose to migrate to cities. Concentration of population in urban areas is an outcome of diverse economic activities and livelihood options offered by cities. Usually, there is work for almost everyone, which is unlike in villages where there are fewer options.
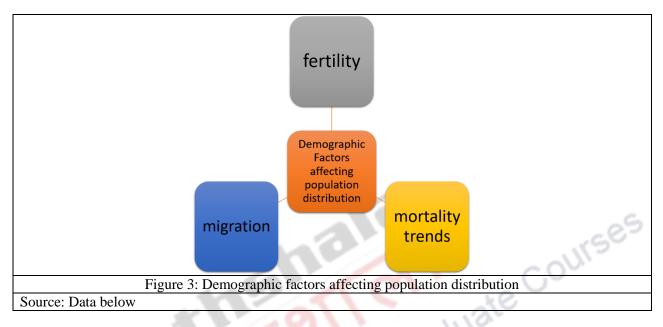
Therefore, population density in the towns and cities tends to be higher than in rural areas, and will continue to increase. By their very nature, cities provide diverse livelihood opportunities in both the formal and the informal sectors. Industries are a large job market, and have attracted cheap labour for several decades. The influx of labour leads to settlements being established, often on otherwise uninhabitable land.

For example, Hydroelectric power stations in largely uninhabited areas attract migrants to these places, resulting in increase in population. Similarly, due to growing service and tourism industry, a large migrant population have settled in the city of Dubai, making it one of the fastest growing cities in the world due to tourism. [1.]

1.3.2 Social Organization of communities in new areas encourages the movement of people and settling in newer lands. Man is a social animal and it becomes essential for him to form a community, creating a

familiar environment where he stays. People moving out of their native places tend to settle in those areas, or parts of the areas, where there are people with language, culture, food habits and habits that are like theirs. It is common to find cities having residential areas which are communal in nature.

1.4 Demographic factors of population distribution

Figure 3: Demographic factors affecting population distribution

Source: Data below

The demographic factors are the characteristics of the population that have considerable influence on population distribution and settlement patterns. These include fertility and mortality trends, and migration. Fertility and mortality together influence the natural increase in a region. Over time, the differential growth rates, results of fertility and mortality, lead to changes in population density and distribution.

1.4.1 Migration has deep influence on population distribution. The push factors, or negative circumstances, at the place of origin tend to motivate people to leave their native places to newer areas. Better opportunities in distant lands also encourage migration.

People may choose to move due to land scarcity, shortage of work in current place of residence, insufficient wages or salaries, inadequate medical facilities and education, etc. Expectations of a better standard of living are often the main factors that drive rural to urban migration. The migration process allows redistribution of population, but it also puts pressure on the place of destination and increases the population density in this place.

1.4.2 Natural increase is the net outcome of fertility and mortality in a region. If in a region, the fertility level is high, the population of that place tends to increase. In such situations, mortality brings stability because of deaths. Epidemics and disease have always significantly influenced mortality levels. In earlier times, high occurrence of disease resulted in more deaths. To offset the loss, a high level of fertility was maintained. With medical advances, many diseases could be cured and the death rate fell sharply. In effect, the population grew. However, this created the problems of high population density and pressure on limited resources. With the introduction of contraceptives and with several family planning options available, birth rate began to go down.

1.5 Political factors influencing population distribution

War, political disturbance, conflict, and weak administration negatively affect population distribution.

1.5.1 War and political conflicts take a great toll on human lives. Death rates are high, and people are forced to move out in search of safety. Mortality rates peak and the out-migration dominates. Safer locations experience a sizeable population growth because of the in-flow of migrants. This is also the situation in regions near the political boundaries of countries that do not have peaceful relations. Even if there is no conflict, the fear of one compels people to move, making these areas the least populated ones.

1.5.2 Political unrest and discrimination are detrimental to population growth. Clashes between different political parties or people with different religious beliefs have often resulted in a reduction of population in the affected area. Before settling in a new place permanently, migrant population looks for a place that not only provides economic opportunities but also provides safe and healthy environment for wholesome living. A politically unstable region is unable to provide both these conditions and hence it discourages not only the incoming migrant population but also the already residing population which might be forced to leave the region in search of peaceful locations for settlement. Discrimination faced by migrants because of race, language, food, culture etc., discourages in-migration. This has reduced the population growth on one hand and newer settlements on the other.

1.5.3 Policies encouraging migration have often led to population growth in the destination region. International labour movements take place where rules governing cross-border migration are lenient. Migration helps in the redistribution of population. Policies that promote reduction in fertility levels, banning of infanticide, etc. also influence the population growth in a place. For example, China's strict enforcement of one-child policy succeeded in curbing fertility levels and controlling population.

1.6 Summing up

No single factor can be considered as solely responsible for concentrated or scanty populations, or their distribution and growth. Most of the factors described in this module are interrelated and often act collectively. Advances in technology have helped humans settle in places where it was not possible a few decades ago. The tremendous population growth in the world population has forced many to settle in uninhabitable regions where there is a shortage of adequate natural resources. Often, people do not have the option of choosing where they must live. Earlier, physical factors determined population distribution; however the industrial revolution and accompanying urbanization increased transport and communication networks. These developments influenced population distribution. In this light present density map of population is a cumulative outcome of the past.

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