

POPULATION RESOURCE RELATIONSHIP

Human beings are perhaps the most successful species on earth till now. The size of human population has grown immensely over the past decades. Along with this human beings have developed the level of consumption of resources and technologies. The success of human being on one hand is showing positive side of new inventions and technologies for future betterment of human race and on the other hand it is threatening the available resources of the planet. In present world India stands only next to china in terms of population numbers. But what counts is on how much land the population is living, which refers to the density of population as the most crucial factor. The population density of India is very high but the same is the case with South Korea, Japan, Netherlands but these countries are coping with the situation very efficiently by making good use of the resources they have using advanced technologies. India has the most amount of arable land (land that can be used for agriculture) in the world and almost half of India's land mass can be used for cultivation yet a large number of populations starve in India.

There exists an intricate relationship between human beings and the resources available. Growth of population is a vital element in assessing the population resource nexus. But there exists a debate that whether high population growth or deficiency of resources can be held responsible for the man-resource imbalance. It is not always the deficiency of resources or high population growth that gives rise to population-resource imbalance. The pattern of social structure, the stage of technological development, the pattern of population distribution, government policies etc. sometimes become responsible for the nature of balance between the people and resources of any area.

According to E.W Zimmermann (1933), "The word resource does not refer to a thing or a substance but to a function which a thing or a substance may perform or to an operation in which it may take part, namely, the function or operation of attaining a given end such as satisfying a want. In other words, the word resource is an abstraction reflecting human appraisal and relating to a function or operation". Resource is something that is termed as something useful for the use of human beings by the human beings. So unless there is human interference the utility of resources remains very low. If the resources are classified according to the nature, then there are mainly two types of resources i.e. natural resources and human resources. Under the natural resources there are renewable and non-renewable resources. While human resources can be classified into structures and institutions and quantity and

quality factors. In a complex form of resource classification there are four criteria based on which world resources are classified i.e. on the basis of nature (material and non-material), on the basis of durability (flow, fund and renewable), on the basis of ownership (individual, national and international) and on the basis of distribution (ubiquitous and localized). According to Zelinsky, he was of the view that in the analysis of population resource relationship, the term resource should inclusive of physical and biological potentialities of minerals, soils, biota, water, atmosphere, etc. as they can be realised by the occupants of a particular region. (Zelinsky, 1966). In this aspect the population theory of T. R Malthus has opined that population grows exponentially while the food resources grow arithmetically which would result in a future when human beings have no resources to survive on (Malthus, 1798).

The direct relationships between population and resources are attracting the attention of geographers. The size of a country's population may be it large or small, is of economic importance for two main reasons: people are producers and consumers. The factor of production is dependent to a very large extent upon the amount, availability, and quality of human labour and the supply of this labour is itself closely related to the numbers, age composition, and education of the population. Consumption may be thought of as representing the total quantity of goods and services bought and consumed during a period; in other words, it is the expression of total consumer demand. Two factors influence consumption: income and the propensity to consume. The level of income largely determines the level of consumption, though Keynes introduced the psychological influence of the propensity to consume, that is the keenness or otherwise of people to buy consumers goods. For instance, in a country such as the United States not only are levels of income generally very high but psychological factors such as mass media advertising, 'keeping up with the Jones', etc., are likely to promote increased consumption. The standard of living of a people bears a close relationship to the total numbers sharing the national income that is the total of goods and services produced by the economically active population. In the case of Canada a small number of people share a large national income, hence living standards in general are high; in contrast, in India a very large number of people have to share a less large total national income and, accordingly, standards of living generally are extremely low.

There is a great imbalance between population and resources in different parts of the world. According to Human Development Report (1995), “more than three – fourths of the world’s population live in developing countries, but they enjoy only 16 percent of the world’s

income, while the richest 20 percent have 85 percent of global income.” The existing imbalance between population and resources should be viewed in terms of sequence of occupation and the trends of growth. Growth, distribution and density of population must be considered a vital element in any assessment of population resource relationships. There are many areas in developing world that are deficient in resources but have high rate of population increase and consequently they are facing imbalance between population and resources. Apart from the deficiency of resources there are so many social, cultural and economic reasons which promote the imbalance between the two. The nature of social structure, the stage of technological advancement, the characteristics of the distribution system and the public policies are other elements of the system that govern the balance between the people and the resources of any area. Thus the number that a given piece of land can support does not merely depend upon its territorial resources but also upon a host of social, cultural and political conditions.

Natural Resources

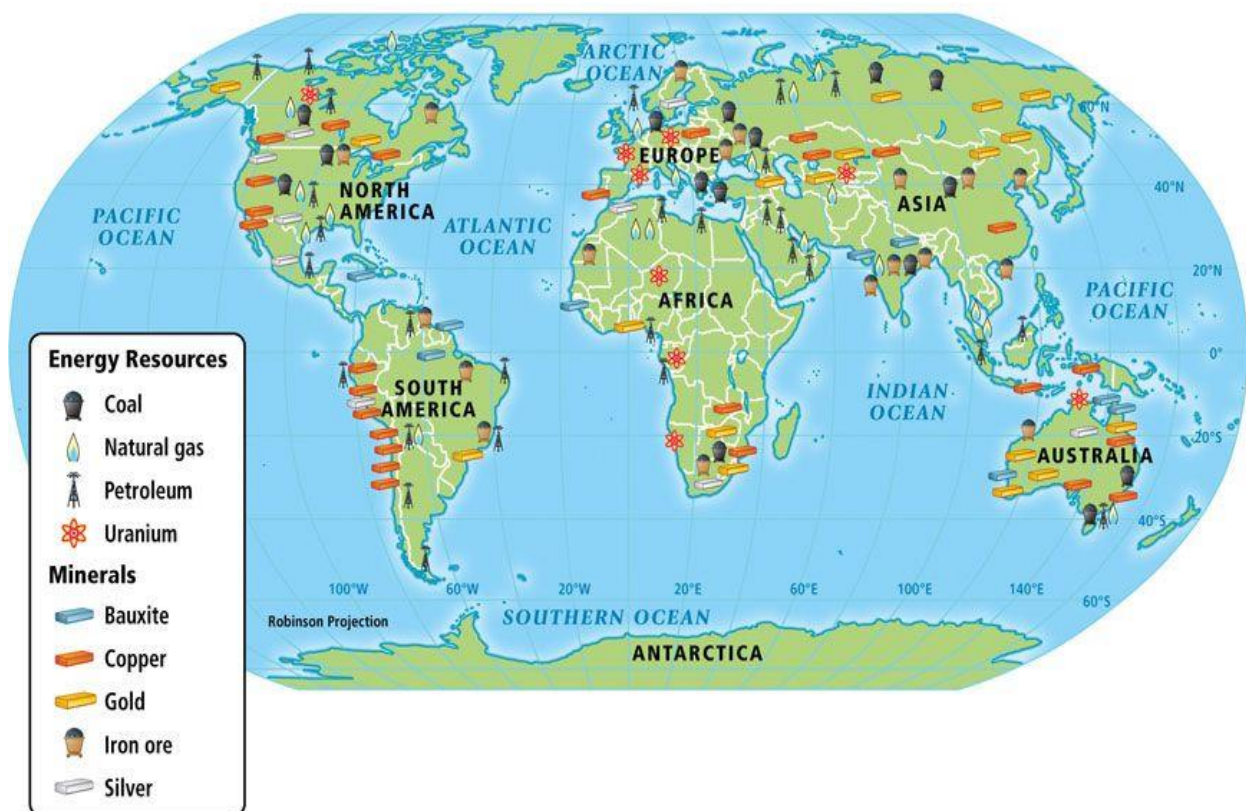


Fig. 1: Distribution of Natural Resources in the world

While both developed and developing countries have contributed to global environmental problems, developed countries with 85% percent of the gross world product and 20% of its population account for the largest part of mineral and fossil-fuel consumption, resulting in significant environmental impacts. With current technologies, present levels of resource consumption by the developed world are likely to lead to serious negative consequences for all countries. This is especially apparent with the increases in atmospheric carbon dioxide and trace gases that have accompanied industrialization, which have the potential for changing global climate and raising sea level.

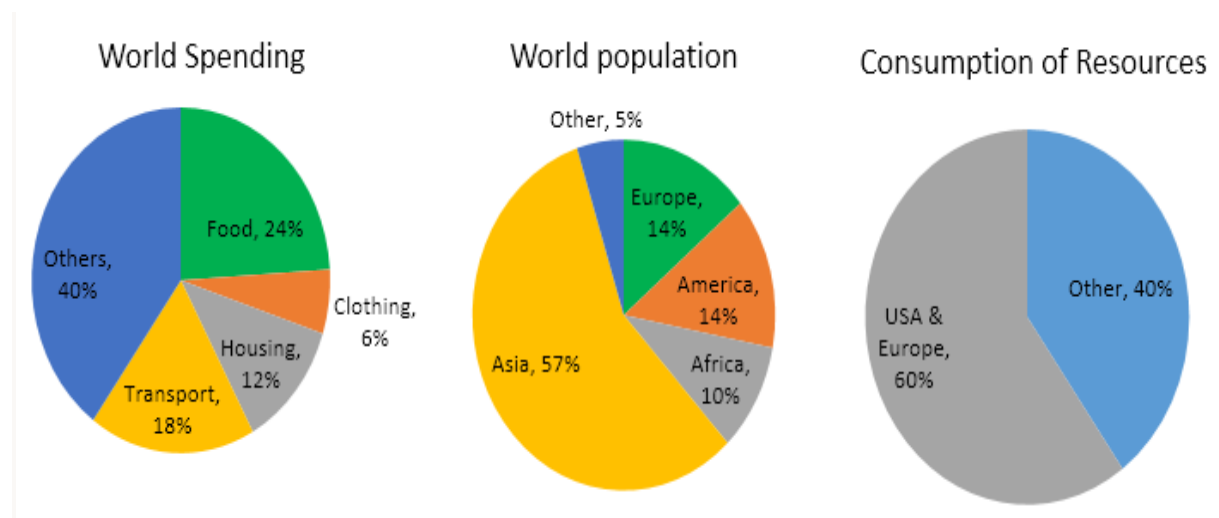


Fig. 2: World pattern of Resource Consumption

Population and resources have a strong relationship with one another. The growth and decline of population affects the availability of natural resources. At the same time, the availability of natural resources affects the trends seen in population. Availability is described to be the amount of natural **resources** that is present and can be used by humans. If the availability of natural **resources** decrease, a **population** will have to resort to different means of getting their needed materials, this can dramatically change the flow of **population** trends.

Resource use, waste production and environmental degradation are accelerated by population growth. They are further exacerbated by consumption habits, certain technological developments, and particular patterns of social organization and resource management. As human numbers further increase, the potentiality of resource consumption for irreversible changes of far reaching magnitude also increases. Indicators of severe environmental stress due to higher resource consumption include the growing loss of biodiversity, increasing greenhouse gas emissions, increasing deforestation worldwide, stratospheric ozone depletion,

acid rain, loss of topsoil, and shortages of water, food, and fuel-wood in many parts of the world.

The relationships between human population, economic development, and the natural resource are complex. Examination of local and regional case studies reveals the influence and interaction of many variables. For example, environmental and economic impacts vary with population composition and distribution, and with rural-urban and international migrations. Furthermore, poverty and lack of economic opportunities stimulate faster population growth and increase incentives for environmental degradation by encouraging exploitation of marginal resources.

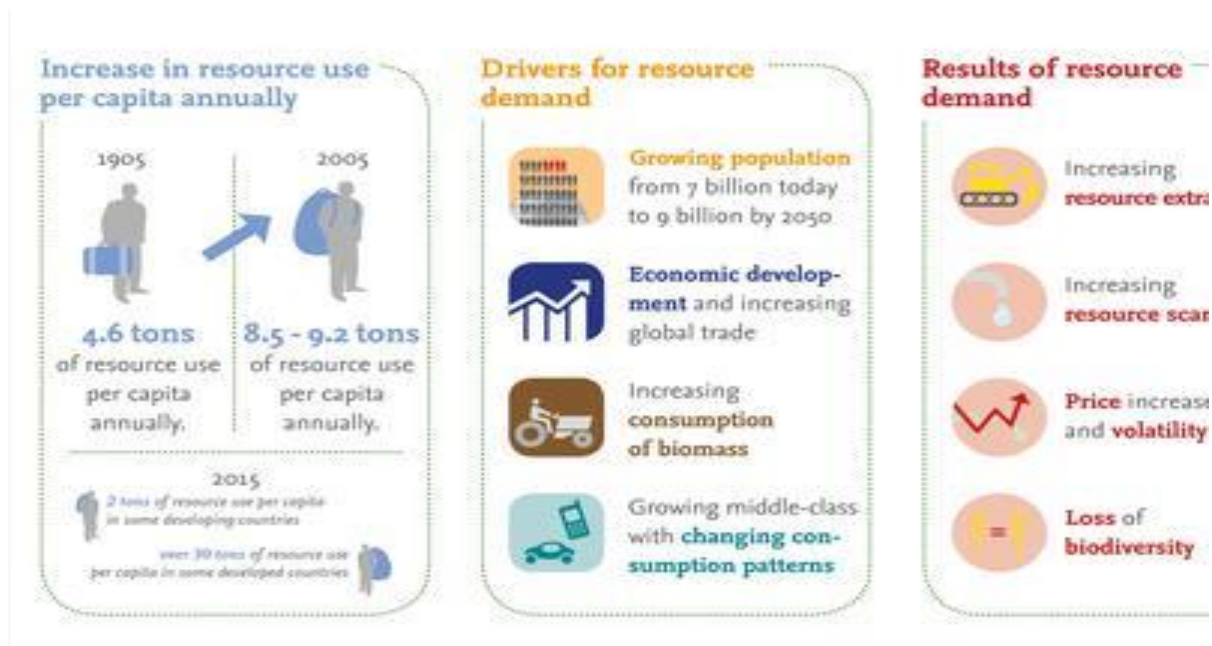


Fig. 3: Future Consequences of Excessive Resource Consumption

The relationship between population growth and resource consumption is complex. As human numbers further increase, the potentiality of resource consumption for irreversible changes of far reaching magnitude also increases. Resource consumption patterns have the most effect on ozone depletion, while population growth threatens biodiversity of and within species through the destruction of ecosystems. Population growth and resulting higher population density is often argued to lead to increased stress on water and natural resources, decreased food security, slower development and, consequently, to poverty. It is indeed obvious that more people relying on same natural resource base put these resources under increasing pressure. As a result there are fewer resources available per person, which is likely to impact negatively both food insecurity and social and economic development of the area.

Resource utilization is a major factor affecting living standards. It follows a history of initial abundance, followed by exponential growth of annual productions. Exponential growth of resource utilization has accelerated more each year and could lead to depletion. Advances in the technology of resource extraction and production initially offset the loss of quality of the supply. But usually the lessening of the supply's quality results in an increase in real cost and a slowing of production. It is important to note that as this process occurs in a country like the United States, the demand for the resource still continues to grow, resulting in a marked increase in imports from other countries. The final stage of resource exploitation is one of declining production and eventual depletion of the resource. As the quality and quantity of supplies decrease, the real cost of exploitation forces the country to depend on imports for the resource—that is, if foreign supplies are obtainable. Otherwise the country must suffer whatever disruptions result from the absence of the resource.

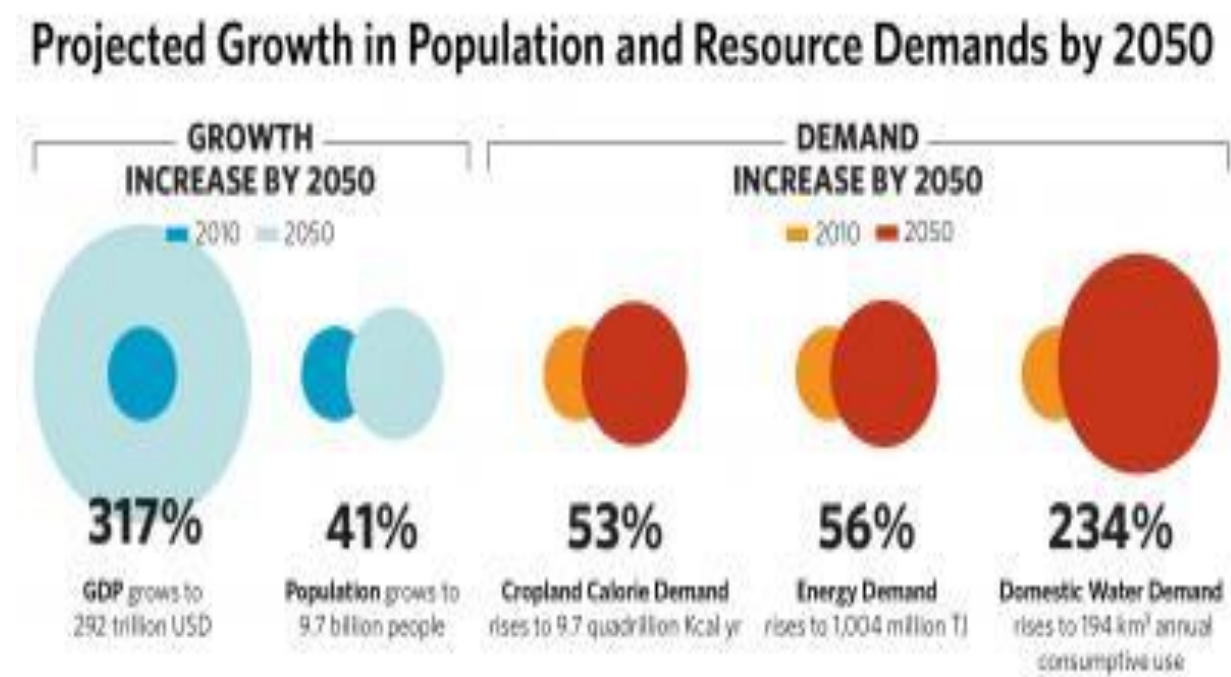


Fig. 4: Projected Growth in Population and Resource Demands by 2050

Government policymakers and planners around the world use population projections to gauge future demand for resources such as food, water, energy, and services, and to forecast future demographic characteristics. Population projections can alert policymakers to major trends that may affect resource consumption as well as economic development and help policymakers craft policies that can be adapted for various projection scenarios. By 2050 the world's population will reach 9.7 billion, 34 percent higher than today. Nearly all of this

population increase will occur in developing countries. Urbanization will continue at an accelerated pace, and about 70 percent of the world's population will be urban (compared to 49 percent today). Income levels will be many multiples of what they are now. In order to feed this larger, more urban and richer population, food production (net of food used for biofuels) must increase by 70 percent. Annual cereal production will need to rise to about 3 billion tonnes from 2.1 billion today and annual meat production will need to rise by over 200 million tonnes to reach 470 million tonnes. The statistics are sobering -- with 9.7 billion people on the planet by 2050, we can expect a 53 percent increase in global food demand, 56 percent increase in energy demand and 234 percent increase in domestic water demand.

