Paper Code: GE504
Population Geography
(Special Paper-II)

1.2 Population Growth and Food Security in India

Food security: During World Food Summit (1996), the United Nations (UN) defined food security as follows: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life."

Following four components can be recognised within the definition of food security:

1. **Food availability:**
   A country can guarantee food availability for all its citizens through domestic production or trade with other food producing states.
2. **Food access:**
   People need to have access to resources that are necessary to acquire foods for a nutritious diet. The UN found that malnutrition is often caused not by scarcity, but rather by an inability to access available food.
3. **Food utilization:**
   Once people have obtained food, a number of factors influence how well the human body can ingest and metabolize that food. Food must be safe and nutritious enough to meet the physiological requirements of an individual. Education about nutrition and food preparation can improve utilization.
4. **Food stability:**
   People must have access to food at all time. Food production and availability should thus be resistant against sudden shocks.

Links between Population and Food Security:

Most of the countries with the highest numbers of people facing food insecurity also have high fertility rates and rapid population growth. This increases the challenge of adequately meeting nutritional needs. India has the high population growth rate. By 2040, even if fertility rates decline, the population of the region is projected to more than that of China. This area also holds 25.5 million of food- insecure people. Food production depends on crop lands and water supply, which are under strain as human populations increase. Pressure on limited land resources, driven in part by population growth, can mean expansion of cropland. This often involves destruction of vital forest resources or overexploitation of arable land. Globally, the world is becoming more urban. Although urban residents have access to a wider array of foods, without land to farm, their food security is dependent on their income and ability to purchase food products. Poor families in urban areas spend up to 60 percent of their budget on food, and low incomes combined with high prices can increase their risk of hunger and malnutrition.

Population pressures in coastal areas are also affecting food security in countries where there is a high dependence on fisheries for protein.

Status of Food Security in India:

The green revolution initiated in the late 1960s was a historic watershed that transformed the food security situation in India. It tripled food grain production over the next three or four decades and consequently reduced by over 50 percent both the levels of food insecurity and poverty in the country, this was achieved in spite of the increase in population during the period, which almost doubled. The country succeeded in the laudable task of becoming a food self sufficient nation, at least at the macro level. The per capita dietary energy supply increased significantly from 2370 kcal/day in the early 1990s to about 2440 kcal/day in 2001-03 and to 2550 kcal/day in 2006-08. The prevalence of undernourishment in the total population also decreased from 25 to 20 per cent during the period of 1990 to 2000, and as many as 58 million individuals were estimated to have come out of the poverty trap. The absolute number of poor persons came down from 317 million to 259 million with other livelihood indicators such as the literacy rate and longevity increasing substantially. The life expectancy at birth for males and females respectively, in 2005-06 was 63 and 66 years respectively as compared to that in 1986-91, which was as low as 58 and 59 years for males and females respectively. (Agricultural Statistics at a Glance; 2007).

Table 1: Per Capita Dietary Energy Supply and Prevalence of Under Nutrition in Total Population

Year	Dietary Energy Supply (Kcal/day)	Undernourishment in the Total Population (%)
1990-92	2370	25
1995-97	2450	21
2002-2004	2470	20
2006-2008*	2550	20

Source: FAO, RAP, 2007/15 and FAO Year Book 2012.

Population Growth of India

India is the second most populous country accounting for over 16% of the total population of the world. The demographic history of India during the twentieth century can be classified into four distinct phases:

1. Period of stagnant population (1901-1921):
The population growth during this period can be turned more or less stagnant because high birth rate was counterbalanced by high death ratio. During this period, the population of India increased from 238 million to 251 million. The progressive growth ratio in 1921 over 1901 was

only 5.75% but 1921 registered a negative growth rate of – 0.31% which happened only once throughout the demographic history of India due to epidemics of influenza, plague, cholera etc.

2 Period of Steady Growth (1921-51):

During 1921-51, the population of India increased from 251 millon to 361 million. This duration of 30 years has this registered a growth of 47.3%. Therefore, this period is called the period of steady growth rate. The mortality rate started showing downward trend as a result of improvement in general health and sanitation condition.

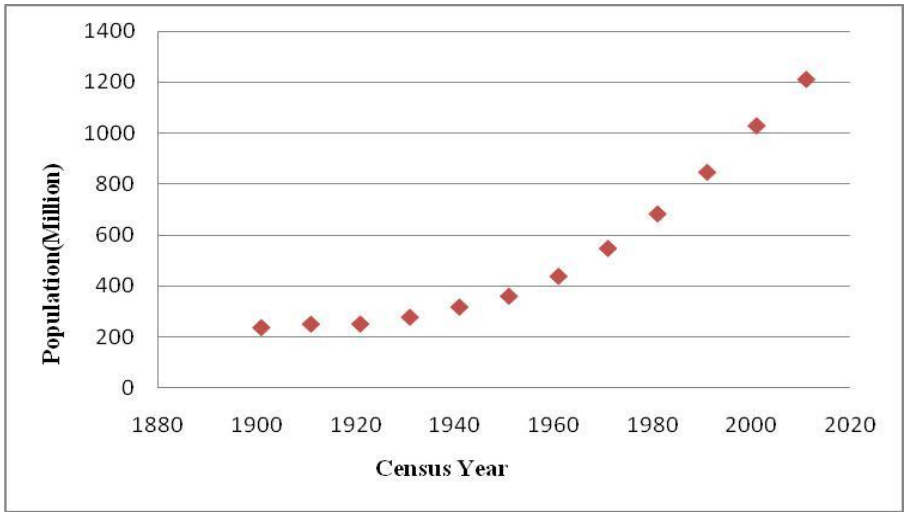
3. Period of Rapid High Growth (1951- 1981):

After 1951, there was a sleep fall in the mortality rate but the fertility remains stubbornly high. So, this period experienced very high rate of population growth and is referred to as the period of population explosion. The population of India increased from 361 million in 1961 to 683 million in 1981 recording on increase of 89.36% in a short span of thirty years.

4 . Period of high Growth rate with definite sign of slowing down (1981-2011):

During 1981-2001, the population increased from 683 million to 1028 million. Although the rate of growth was very high but, it started decline after 1981. Average Annual exponential growth rate of 2.20% was recorded in 1981. It declined to 2.14% in 1991 and further to 1.95% in 2001. India's population is still increasing at alarming rate. The scale at which India's population is increasing is simply mind boggling. While total population of India was 683 million in 1981, it rose to 1210 million in 2011. According to one estimate, if the Present trend continues, the population will be 1400 million in 2025 and in that year India may surpass the population of China achieving the first rank in the total population of world. At present, the growth rate of India's population is 17.64% (2011)

Fig.1: Decadal Growth of Population of India



Source: Census of India, 2001

Population Explosion and Food Security

The issue of population explosion and food security was raised for the first time by Robert Malthus in his theory on population growth. According to Malthus, Availability of food,

nutrition, healthcare, education would ultimately increase per capita G.N.P. Hence, death rate will fall dramatically due to improved medical facilities while birth rate would increase significantly as people would be able to afford large families. He said that growth of food production is in Arithmetical progression (like 1,2,3,4,5,6…..) on the other hand, population increases in geometrical ratio (like 2,4,8,16……..) So, gap between food production and population will increase a man's tendency to press upon the means of subsistence as growth of food production cannot keep pace with population growth. As a result, population explosion creates threat to food security at present day.

PHASES OF FOOD SECURITY IN INDIA:

Adequate food availability is essential for food security and this is dependent upon food production. How much is produced and how much is consumed helps us for identifying the deficit and surplus and also helps us to identify the type of food consumed or nutritional status.

Phase 1: Ancient India is quite sufficient in food grain production and that time, balanced nutritional diet was available to all citizens. Erratic production in food grain started after the commercialization of agriculture during the British period in India. During this period, famine is more common and food insecurity was at the higher level. So, after the independence, India faced severe food shortage.

Phase 2: The beginning of plan period 1950s to 1960s was characterized by severe imbalance which is demand of food and domestic supply. Food grain import increased in an about 20% of the domestic availability had to be imported. This situation was overcome during the period of green revolution and the late 1980s, country achieved self sufficiency in the availability of food grain and there was an improvement of insecurity. So, from chronic shortage, India achieved food security and self sufficiency in food grain production. Food Corporation of India has accumulated 70 million tons of food grains as buffer stock. But, inspite of this huge buffer stock, food insecurity prevails not from the supply side but from the demand side.

Phase 3: The third phase of food production in India is represented by the post economic reform of the 1990s. Though there was macro-economic civilization and structural adjustment, the effect of the reforms on food economy was negative. The growth rate of food grain output was 1.7% per annum where as population growth was 1.9% per annum. So, food production could not keep pace with population growth. The rate of inflation was high at 10% rise in prices of food grains and consequently rises in poverty and inequality. So, during this period, public intervention in food grain market assumed a great significance and the procurement of food grain by the govt increased from 5% to 15% in the post1990s.

TREND OF FOOD GRAIN PRODUCTION IN INDIA

From a mere 50 million tons(mt) of annual food grain production in 1950s, India this year(2011-12) has produced a record 252 mt of food grain mainly attributed to the significant jump in rice and wheat output.

The average growth rate of food grain production from 1950-2011 was 3.2% per annum. Overall, wheat was the best performer with production increasing from mere 6.6 mt in 1950-51 to 90 mt during 2011-12, a huge jump. Wheat was followed by rice which had a production increased from 20mt to 102mt at present.

TABLE 1: India's Food Grain (rice, wheat, coarse grain and pulses) Production Trend

Year	Food Production(mt)
1950-51	50.8
1960-61	82
1970-71	108.4
1980-81	129.6
1990-91	176.4
2000-01	196.8
2011-12	252

Source: Ministry of Agriculture, India

TABLE 2: Per Capita Availability of Food Crops (Per day in Grams)

Year	Cereals	Pulses	Total
1950-51	334.2	60.7	394.9
1960-61	399.7	69	468.7
1970-71	414.6	51.2	465.8
1980-81	417.3	37.5	454.8
1990-91	468.5	41.6	510.1
2000-01	366.2	30	416.2
2011-12	390.9	31.5	422.4

Source: Food and Agricultural Organization

Total availability of crops depends on import of crops. But, Net import of cereals is decreasing day by day because, India become self sufficient for food grain production after green revolution. But still, there are several problems related to food security and food production in India because, increasing demand of food and increasing demand of land for development of activities lying spread of urban area.

IMPACT OF POPULATION EXPLOSION ON FOOD SECURITY IN INDIA

In India, the population growth after independence exceeded the agriculture growth. In order to maintain a balance between food and population, the annual agriculture growth should be over 4.5% and overall economic growth over 7%. At present, the annual agriculture growth is

much lower being only 2 percent. Under the impact of rapid growth of population, the average size of holding has decreased to less than 1.5 hectares. The per capita availability of food has been decreasing day by day.

Population Explosion is the most challenging problem, the country is facing. Today the food security system is near collapse. At against, the total requirement of 25 million tonnes of food grain for buffer stock and public distribution system together, the public stock over 60 million tonnes. A substantial share of this is not even properly stored and may not be suitable for human consumption. The PDS system has virtually collapsed. Recognizing that huge amount of food grains are getting diverted to private market. The Poor people cannot afford the so-called economic price of food grain available in the public Distribution system. The Supreme Court asked government to computerize the entire PDS operations in the country so as to track the movement of subsidized food grains from granaries to individual ration card holders. Gradually, ration cards will be replaced by smart cards.

Reference/suggested books:

1. Kundu, P.(2015), Population Explosion as a Threat to Food Security in India, International Journal of Novel Research in Humanity and Social Sciences
2. https://www.e-ir.info/2011/07/18/food-security-and-population-growth-in-the-21st-century/
3. http://www.esocialsciences.org/Download/Download.aspx?fname=A2015311124323_35.pdf&fcategory=Articles&aid=6574

Note: This is informed to all that this file/study material is compiled and uploaded in the university/department portal only for enrich the knowledge to the students of the Department of Geography, Aliah University on the above mentioned topic which is a part of the syllabus of Geography.

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