SATSA Mukhapatra - Annual Technical Issue **27** : 2023 ISSN 0971-975X **Invited Paper**

Challenges of Bulging Population, Livelihood Security and Environmental Protection

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((Received : January 03, 2023; Revised : January 27, 2023; Accepted : February 04, 2023)

ABSTRACT

The unprecedented rise in world population without proper control will lead to the consequences of which will be unavoidable and will impair people's livelihood as well as the environment. There are demographic factors responsible for this population change. The analysis of these factors revealed that they are directly connected to the socioeconomic conditions of a specific geographical area. Numerous serious socio-economic and environmental crises are being worsened by population increase. Heavy pressure on land, land degradation, forests, habitat destruction, and loss of biodiversity lead to an overall degradation of the environment which ultimately results in water pollution, water scarcity, resource depletion (water, mineral, forest, sand, rocks, etc.), global warming and climate change. In order to attain the goals and objectives of the 2030 agenda for Sustainable Development, nations having relatively low per capita incomes and high rates of fertility will need to see robust and sustained economic growth through international assistance and implementation of policies for poverty alleviation as well as healthcare and sustainable agricultural practices.

Keywords : Population increase, poverty trends, climate change, economic crises, sustained development

Introduction :

Rapid population increase, especially in developing and underdeveloped countries causes a significant global crisis. According to the world's statistical data, the world population has exploded by more than three times since the middle of the 20th century, from over 2.5 billion in 1950 to nearly 8 billion in 2022. If we look at the rate of growth, there are almost 67 million people added annually. Surprisingly, 45 new people have populated the world since the time you read the text above. This unprecedented rise in world population without proper control over it will create an adverse effect in near future. Consequences of which will be unavoidable and will impair every aspect of people's livelihood as well as the environment. Diving deep would let us gain more information, which might guide us to find sustainable solutions.

Cause of population increment :

The underlying cause of population increment in a certain place is influenced by a multitude of complex interlinked factors. The most common are demographic factors, such as births or

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natality, deaths or mortality, fertility, migration, and immigration. Changes in such factors result in variations in population size, distribution, and composition.The second is the immigration factor. In the United States alone between 1880-1920 more than 23.5 million newcomers arrived from Asia, Canada, Mexico, and south-eastern Europe due to the Influenza pandemic which leads to a sudden increase in population (Kraut, 2010). Civil wars and unrest in specific geographical regions also cause disbalance in population distribution causing overload. In India, during the 1970-1973 period, there had been a tremendous rise in immigration-related population increment. As per United Nations estimate and projections data of Indian migration from 1950-2023, this surge was 7.5%. The surge inflicted a sudden rise in basic human requirements, which in turn continued to add to the population (discussed below). Although there has been a decreasing trend in the % immigrants (in 2022 there has been a -3.93% decline from 2021), but given the existing Indian population, this % in actual numbers is quite high. A good estimate can be obtained from the fact that in the year 2015, the total number of immigrants was close to 52.5 lakhs people (https://www.macrotrends.net/countries/IND/india/immigration-statistics)

Upon analysis of these factors closely, we can see that they are directly connected to the socioeconomic conditions of a specific geographical area. High fertility rates, rapid population growth, and widespread poverty frequently coexist. As an example, Niger has the highest fertility rate in 2022 (6.7 births per woman) which is also the poorest country in the world (https://knoema.com/atlas/Niger/Fertility-rate). In such countries, individuals may be deprived of a decent standard of living due to poverty, illiteracy, and gender inequality. This limits their ability to manage their fertility and maintains high rates of childbearing that frequently begin early in life.That ensures the population's ongoing rapid expansion which is also associated with hunger, food insecurity, and malnutrition. According to the United Nations report, in India the incidence of poverty fell from 36.6% in 2015-2016 to 21.2% in 2019-2021 in rural areas and from 9.0% to 5.5% in urban areas (Figure 1).

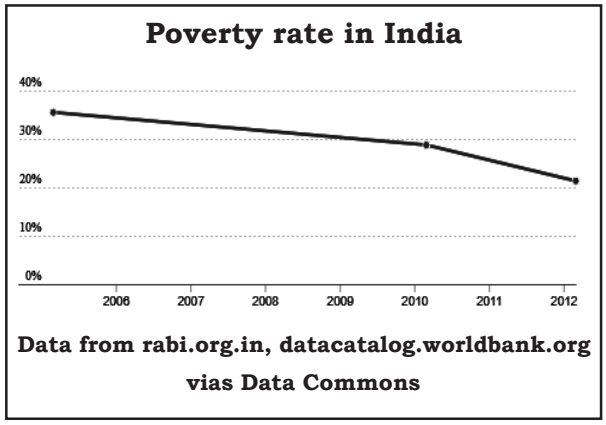
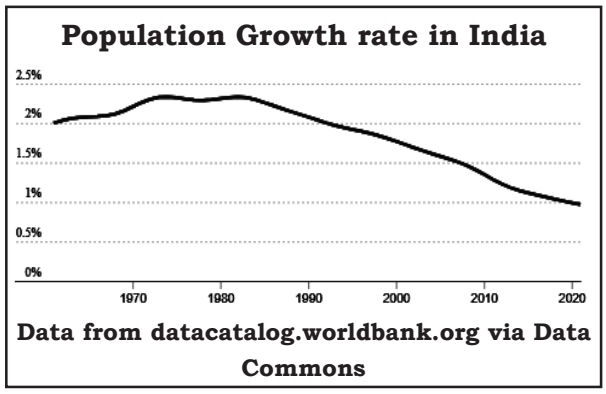


Figure 1. The poverty trend of rural India. (Figure source is given).



As per the above data the population growth rate is close to or just below 1%.This means that number of people born is equivalent to the number eliminated. So the Indian population is almost reaching a platue. According to current estimates, if the declining rate continues and goes below 0.8%, which is going to happen by 2050, the Indian population will start declining.

Impact of population increase :

Demand for energy has increased as a result of changing consumption patterns. Numerous serious socio-economic and environmental crises are being worsened by population increase. Heavy pressure on land, land degradation, forests, habitat destruction, and loss of biodiversity lead to an overall degradation of the environment which ultimately results in water pollution, water scarcity, resource depletion (water, mineral, forest, sand, rocks, etc.), global warming and climate change. The world's temperature is increasing daily, and the warmest years on record occurred between 2015 and 2019. According to the intergovernmental panel on climate change (IPCC), the average global temperature has increased by nearly 1° C which greatly depends on anthropogenic emissions of greenhouse gases such as carbon dioxide, methane, and nitrous oxide (IPCC, 2018). Clearing the Amazon rainforest is a prime example of that situation. On the other hand, rapid population growth is threatening the environment through the development and intensification of agriculture, and the unrestricted spread of urbanization and industrialization. Amidst a rapidly expanding population, sub-Saharan African nations like Somalia, Burundi, and the Democratic Republic of the Congo experience regular droughts, violent floods, scorching heat, and soil degradation. An extreme case in point is the Sahel region, where between 100 and 200 million people in the coming 30 to 40 years will likely lack access to sustainable food sources (Potts *et al.*, 2013). The population there has increased from 31 million in 1950 to 100 million in 2013 and is expected to reach 300 million by 2050.

The Indian Ocean region has previously been described as the fastest-warming ocean in the world, with an increase in temperature of one degree Celsius as against the global average of 0.7°C between 1951 and 2015 (Sangomla, 2022). Ocean heat content had already reached record levels in 2021 globally.As a consequence, the increase in sea levels is not happening uniformly in all parts of the global oceans. In the Indian Ocean region, the rate of sea-level rise is the fastest in the southwestern part, where it is faster by 2.5 mm/year than the global average. In other parts of the Indian Ocean region, including the coastlines, the rate is between 0 and 2.5 mm/year, faster than the global average (Sangomla, 2022).

Even more alarming is the delta region. Sea levels have risen at a rate of 30 mm per year in the Sunderbans delta in the last two decades (Sangomla, 2022), with a 12 % loss in the shoreline, according to National Aeronautics and Space Administration's Landsat satellite imagery. This is more than six times the global average and has already led to the displacement of around 1.5 million people from the delta (Sangomla, 2022). The

coastal economy (fish and other aquatic resources) has plummeted by 11% from 2015-2021. People living in the delta region are drawn to poverty with menial ways of living, resulting in poverty- linked increase in population for the reasons mentioned above. Thus overall, global warming and population incrementare part of a vicious cycle. Population increment leads to global warming which in turn reduces the available resources. Marginal resources cause low income, low health hygiene, less education, low awareness, and an increased population. One leads to the increment of the other and the other to the first.

Economic impact of increasing population :

The effects of environmental degradation on the overall economy are detrimental which is amplified by the increasing population. It leads to rise seriouseconomic crises such as the challenge of finding employment for the expanding population, problem of manpower utilization, overburdened infrastructure, pressure on land and other renewable natural resources, increased production costs, and unequal income distribution. Environmental deterioration is both a cause and a result of poverty and inequality. Poor families are moving to towns in greater numbers as a result ofenvironmental pressuresand the lack of prospects for employment in rural areas. Thus, urban slums are growing as megacities are developing. It has increased the difference between the supply and demand for infrastructure services including electricity, housing, transportation, communication, education, water supply and sewage, and recreational amenities. On the other hand, farming practiceshave been changed to meet the needs of the bulging population for ensuring food security. Intensive cultivation practices cause soil erosion, land salinization, and nutrient loss which have an immediate negative impact on the ecosystem. Particularly salinization, alkalization, and water logging are effects of intensive agriculture and irrigation on the environment. Water bodies can get contaminated by leaching from the heavy use of pesticides and fertilizers. Moreover, all of these are impeding the country's overall development and threatening livelihood security.

Policies for population control :

Several policies and programs have been implemented by governments around the world to control population growth. In 1952, India became the first country in the world to implement a population control program. National Population Policy was first announced in 1976 and then revised in 2000, with the long-term goal of achieving population stability by 2045 (National Population Policy, 2000). Various initiatives have been implemented as part of the national family planning program, such as new contraceptive options, mission Parivar Vikas, compensation schemes for sterilization acceptors, and so on. Aside from India, the Chinese government also implemented a one-child policy in September, 1980, limiting the vast majority of family units in the country to one child each. Most countries are now taking legal measures to control their populations which bring us one step closer to achieving sustainable population growth. As a result

of legal restriction of nation the birth rate of India wasreduced at 17.16 per 1000 people in 2022 which declined 1.23% from 2021 (www.macrotrends.net).

Although legal measures have been implemented, smart policies are also required to transform the entire food system and economic conditions into sustainable practices that protect biodiversity and aid in reducing climate changewhile ensuring everyone has access to safe, sufficient, affordable, and nutrient-rich food. Thus, every person can enjoy a varied, balanced diet as well as possess sufficient security for livelihood.

Among all the gory pictures, the silver lining is that India appears to have bounced back on its strategy and planning. In India,the agriculture sector itself contributes to 16% of the overall GDP and accounts for the employment of approximately 52% of the Indian Population. Although the recent COVID pandemic impacted the economy detrimentally but was an eye-opener for many. One of them is the reverse migration of labourers. The closure of workspaces in urban areas due to the pandemic could have a positive impact on the rural agricultural sector as migrants that returned home are now involved in farm work.Ample farming hands aided by a good monsoon have made way for higher sowing of agricultural lands in some states. Official data shows that *kharif* crop sowing across India this year is 21% more than last year. Experts predict that the plentiful harvests and a good *kharif* harvest could support the sagging Indian economy.

Recent trend in organic farming and its projection as safe food has also attracted many educated youths to leave urban jobs and shiftto farming in rural areas. This involved not only agriculture but sweet water fisheries and dairy farming. However, the burning example of economic collapse in our neighbouring country Srilanka has led to the re-valuation of central policies. Indian Government is now taking calculated steps and endorsing a balance between organic and other traditional farming methods. Increasing examples of food sustainability linked to general health and treatment options to combat old age diseases are also surfacing. A complete revamp of the research and development carried over in Indian institutes are bound to revolutionize food sustainability. Besides pushing for developing high-yielding, stress, and pest- resistant varieties, to extremely viable quality seeds Govt of India is taking ardent stepsof training the farmers for sustainable farming by introducing newer crops. Incentivizing molecular level research has allowed scientists to go out of the box and explore new dimensions for food sustainability by linking it to neurodegenerative diseases. One such example is the Rajasthan University researchers finding where dairy-based protein nanostructures have been shown to have the potential to eliminate certain toxic substances in the brain tissues and eliminate their neurotoxicity.

In order to attain the goals and objectives of the 2030 agenda for Sustainable Development, nations that now have relatively low per capita incomes and high rates of fertility will need to see robust and sustained economic growth. An international community must be established to assist these nations in fostering long-term economic progress. It will definitely prevent

future environmental harm by taking strategies of increasing employment, spreading awareness, and making policies for poverty alleviation as well as healthcare and sustainable agricultural practices.

Acknowledgements :

The Author acknowledges Mr. Ankan Chakraborty, (PhD student) for collecting some of the information. The contribution of Reuter, TOI, The Third Pole, the UN online portal, and various other news and media reports is duly acknowledged for painstakingly collecting, collating, and making important data available on online platforms, which has been sourced by the author to generate this technical report.

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