

Forum: Environmental Commission

Issue: Maintaining land sustainability as an impact of overpopulation in South-Asian regions

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Introduction

Land sustainability is a vital factor when discussing universal goals toward the sustainable development of men. It highlights the inevitable and imbalanced relationship between limited resources and changing human needs. Under this unpredictable future, overpopulation is continuously aggravating the concern. South Asia, in particular, converges the core of this environmental issue of land management. The region, recognized to hold some of the largest populations globally, comprises eight nations: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

There are numerous routes leading to the overpopulated result. Some argue that economic restraints, insufficient medical care systems, and the lack of enough nutrition raise the mortality rates of newborns. Parents, therefore, are maximizing births as they believe having more children will increase the overall survival percentage. Another contributor is the impoverished situations in the countries, as an additional family member is equivalent to an extra source of income. At the same time, cultural platitudes and inequalities regarding genders are further pressuring the parents to have children until males are born. These factors, assisted by illiteracy, marriage policy, illegal migration, and so forth, are the fundamental facilitators of overpopulation in South Asia. Efforts were made by individual governments and larger institutions to combat overpopulation, but the general frustration remains. As the population is expected to expand for at least another decade, the resources provided on land will reduce correspondingly, eventually reaching a terminal of scarcity.

When trying to maintain land sustainability, it is crucial to combine efforts on several aspects, such as soil, water, energy, and wildlife, with social and economic considerations. Remarkably, India is having some positive progress in achieving sustainable farming with the application of management systems and the embrace of diversity which is inspiring for other South Asian nations.

Definition of Key Terms

Overpopulation

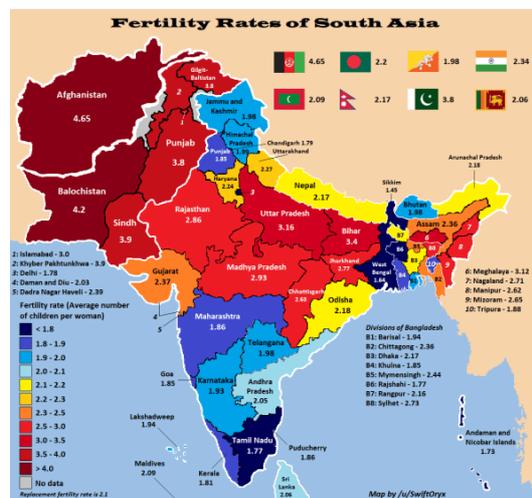
Overpopulation is the exceeding concentration of species in a region where environmental resources do not equate to their requirements, leading to the competition for food and space. Common causes are increased birth rates, reduced death rates, and large-scale migration, with rising mortality and morbidity as consequences.

Land sustainability

Land sustainability is the capacity to maintain a balance between the consumption of natural resources for human needs and their long-term productive potential. It can be measured by the disbursement and surplus of soils, water, animals, and plants.

Fertility rate

The fertility rate is the average number of children born to a woman over her lifetime under two conditions. First, the woman meets her age-specific fertility rate (ASFR), a measure of annual births to 1000 women of a specific age or age group. Second, the woman survives until the end of her reproductive life.



Caption #1: The map of South Asia recognized by fertility rate per region/country (Brown Pundits)

Mortality rate

The mortality rate is the number of deaths per year in a region divided by the population of that region then scaled to 1000. There are several types: crude mortality rate (considers all causes of death in a region), cause-specific mortality rate, age-specific mortality rate, infant mortality rate (commonly used for representing and comparing the health status of countries), etc.

Background Information

The doubts surrounding land sustainability in South Asia are undeniably rooted in overpopulation; in this case, possible precautions should target this origin. There are various factors contributing to the overcrowding status quo, ranging from economic to social and cultural influences. Not only do they share a correlation, but also together join forces in forming a dreadful vicious cycle.

Uniqueness in South Asia

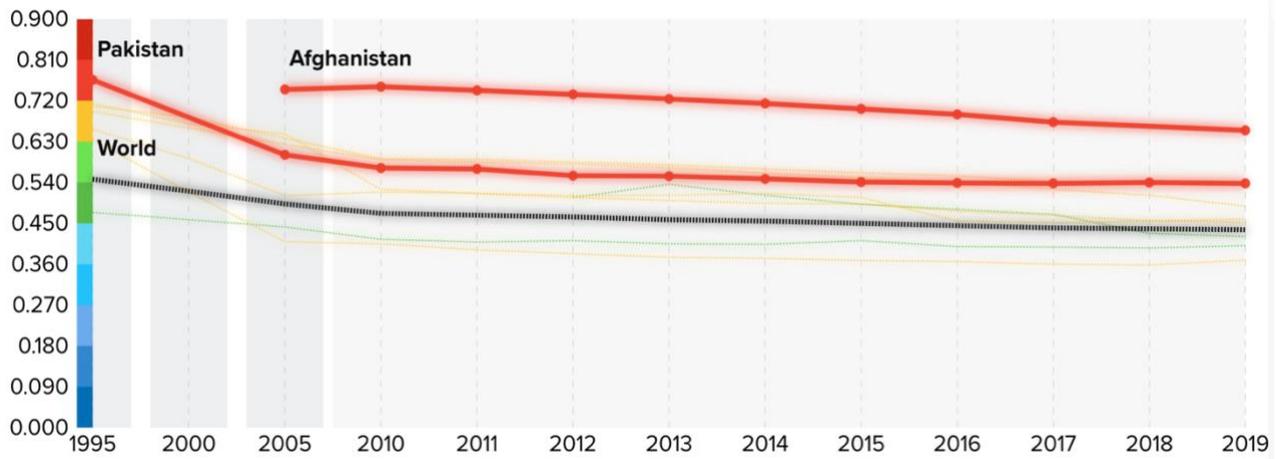
In South Asia, 8% of the world's habitable land is home to more than 24% of the population. It holds some of the most advanced developments in solar technologies and is a key player in market connectivity. However, this small portion of land is progressing towards serious overpopulation. The concern poses unique threats in South Asia because most nations it comprises lie their foundation in agriculture. When fields are unsustainable, the production of food will decrease, becoming insufficient to fulfill a large number of people. This lack of basic living needs will widen social disparity, raise deaths from diseases, and, uncommonly, higher fertility rates among impoverished families.

In addition, the region has poor governance, as measured by the Corruption Perception Index (a rank of 180 countries on a scale from 0 to 100; a lower score means a more corrupted government). The three lowest values in South Asia come from Afghanistan (16), Bangladesh (26), and Pakistan (28). A high level of corruption in a country means that resources are inefficiently allocated among the citizens to achieve the maximum outcomes. In other words, large companies and wealthy individuals are enjoying the benefits while limited support is provided for middle- and low-income households. As a result, potential solutions to cure overpopulation and the economy, such as building infrastructures, establishing skill training for workers, and enhancing social welfare, are harder to achieve when they require monetary efforts devoted by governments and private sectors.

Gender Inequality

Patriarchal values and social norms are continuously aggravating gender inequality in South Asia. A male is often more privileged than a female in accessing opportunities and resources, and this phenomenon occurs from birth to adulthood.

The Gender Inequality Index (GII) provides an insight into the situation with statistics of three dimensions: reproductive health, education, and the labor market. A lower value represents a country being closer to achieving gender equality.



Caption #2: Gender Inequality Index of South-Asian countries (United Nations)

There are three highlights based on the Gender Inequality Index. First, Bangladesh and Afghanistan have notably high adolescent birth rates, 83 and 69 births per 1000 females, resulting from early marriages that are especially common in South Asia. Second, the gender gap of the population receiving at least secondary education is up to 23%, where women are often found illiterate and lack the skills to work. Third, more than three-quarters of males from the region are a part of the labor force; however, the participation rate of females is only around 20%. Under this condition, the significance of females lies in giving birth to male children. One extra workforce in the family is equivalent to one more source of income and social insurance. Therefore, parents are continuously expanding their household size, and this repetitive practice in South Asia contributes greatly to overpopulation. For specific data on each country, please refer to the appendix.

Cause of overpopulation

Overpopulation is the result of an imbalance between fertility and mortality rates. Over the past decades, various forms of technologies have been embedded in the current agriculture, pharmaceutical, and public health systems. The developments of chemical fertilizers, genetically modified organisms, and other sophisticated machinery allow a gradual expansion in food production, successfully maintaining acceptable nutritional intakes for the population. Moreover, scientists have explored effective and efficient ways to prevent and treat diseases. Vaccines and regular healthy practices are receiving growing recognition and promoting awareness that reduces the death rates in South Asia, especially for infants. With technological improvements, people are also gaining access to more secure water supply and sanitation methods, lowering the risks of infections. These three factors have assisted the increase of life expectancy. A high fertility rate and low mortality rate lead to overpopulation.

Consequences of land unsustainability

When farmers and governments are burdened to provide food for the large population in South Asia, the focus shifts from quality to quantity. Poor agricultural management systems drive land degradation, or land unsustainability, causing environmental, social, and economical harm.

Water Sanitation and Eutrophication

Overcultivation in population-dense areas provokes soil nutrient depletion, land destruction, and desertification. When vegetation becomes harder to grow in these regions, a natural water filter, which prevents heavy metals, chemical residues, and fertilizers from leaking into lakes and rivers, will be missing. As a result, runoffs will increase sedimentation and eutrophication that disturb aquatic biosystems.

Eutrophication is a detrimental process. Organic pollutants overstimulate plant and algae growths underwater, leading to an intensive competition of dissolved carbon dioxide. Organisms that do not access enough of this particle will die, either floating on the surface or decaying to toxic substances. They block sunlight, reduce oxygen levels, and the surrounding environment turns into an anaerobic dead zone. Additionally, contaminated drinking water threatens humans with intestinal infections, skin diseases, mental retardation, and heart damage. In Pakistan, the issue is expected to endanger 2.2 million people.

Poverty

Unsustainable land is directly related to rapid crop production decrease in South Asia. The issues that arose from this reduction can be summarized in two following aspects. First, the farming population experiences a cut down in income. While their revenue is largely dependent on exporting food across the countries, the limited supply puts the rural population in a paradox where they need to choose between selling the necessities to others or keeping them for personal consumption. Neither route can stabilize the individuals' economic state, and this significant drop will put more than 200 million farmers in extreme poverty. When they lack basic requirements for living, the pressure is on local governments and taxpayers to provide sustenance practices. The second constraint is on the entire region. It is estimated that 75 billion tons of soil loss cost \$400 billion annually, and the agricultural Gross Domestic Product is approximately 7% less. Unsustainable land not only restricts the impoverished but has a corresponding effect on societal well-being, quality of living, freedom of trade, and international status.

Major Countries and Organizations Involved

Republic of India

India is the second most populous country in the world with 1.4 billion people occupying the land. It has various geographic landscapes which result in a variety of ecosystems essential for numerous species. Under this flourished environmental foundation, the rising population, however, has significantly damaged the overall biodiversity and natural supplies on land. As the country is highly dependent on agriculture, land unsustainability depicts a lack of sufficient nutritional intake, hunger, poverty, and a collapsed economy. Farmers and experts, thus, are forced to explore new methods of producing food; this process is undoubtedly costly and complicated.

Islamic Republic of Pakistan

Pakistan has the fifth highest population in the globe with 224 million people in the 2021 census. Over the past decades, the country experiences agricultural advancements, improved medical facilities, and higher chances of overcoming poverty. While the general image may appear to be progressing positively, 60% of its citizens are facing food insecurity, and the population growth is overly rapid. Each impoverished woman has six or more children under the insufficient family planning programs the nation applies. Being unable to maintain sustainable land, the food crisis will continue to aggravate, supplying fewer people and further damaging the environment with chemical products.

Bangladesh

Bangladesh has a population of 165 million, ranking third in South Asia. Overpopulation is recognized as the most detrimental and severe concern in the country. With poverty acting as a prominent driver, the government is facing challenges to decide the allocation of investments and attention to infrastructure, education, healthcare, etc.

Timeline of Events

Date	Description of event
April 1 st , 1951	India implemented the First Five Year Plan that targets the development of agriculture, rural areas, and overall population policy.
October 1987	The Brundtland Report was published by the United Nations. It was the first piece of writing that introduced the concept of sustainable agriculture.

May 15 th , 2018	BASF India provided the new version of Sanrakshan Kit to farmers, enhancing technological support available for crop production in limited space.
November 14 th , 2019	The ICPD+25 was held in Kenya where countries came together to further discuss population variables and control methods.

Relevant UN Treaties and Events

- World Population Conference, 10 September 1954 (**E/CONF.13/417**)
- International Conference on Population and Development, 13 September 1994 (**A/CONF.171113/Rev.1**)
- 29th Special Session of the UN General Assembly, 22 September 2014 (**A/69/62**)

Previous Attempts to solve the Issue

BASF India

BASF is a German multinational company that established the program Samruddhi in India in 2007 to educate farmers on ways to protect crops. Its soybean project has accomplished great success in developing and expanding the market to open more opportunities for employment and businesses. Specifically, regarding sustainable farming, BASF has introduced adapted versions of the Sanrakshan Kit (Sanrakshan meaning “protection”) to smallholders. It offers equipment, information, and hands-on training about applying agricultural products. Such an attempt ensures more food is produced with limited space and resources and reduces possible damages caused by chemical fertilizer runoff.

Five Year Plan India

Since 1951, India has established Five Year Plans that target the development of its country. However, due to the failure of previous plans, the annual Plan Holidays were announced from 1966 to 1969, and they accomplished remarkable success in addressing agricultural concerns. Around the period, India was drawn into a crisis where food shortage required immediate measures taken by the government. After a series of explorations and examinations, experts presented a new farming strategy. It included high-yielding seeds, extensive fertilizer, soil irrigation detection tools, and methods of conserving existing fields.

Possible Solutions

- Consider applying no-till farming, in which the soil surface remains in its natural condition, with a layer of stalks and leaves on top. The land becomes more resistant to erosion caused by wind and water with such a mulch cover.
- Improving the quality of water used for fresh produce and livestock is beneficial for consumers' health, and long-term efforts are proven effective in reducing vulnerability to infections and diseases.
- Preserving biodiversity around farmland is crucial because each specie serves a purpose in maintaining the sustainability of the environment and holds additional value for the growth of vegetation.

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Appendix or Appendices

- I. <https://hdr.undp.org/data-center/thematic-composite-indices/gender-inequality-index#/indicies/GII>
How Gender Inequality Index is calculated and additional data
- II. <https://www.unicef.org/topics/rosa>
UNICEF ROSA reports on humanitarian situations in South Asia, including ways to empower females and solutions to gender inequality.