Population Growth and Environmental Sustainability

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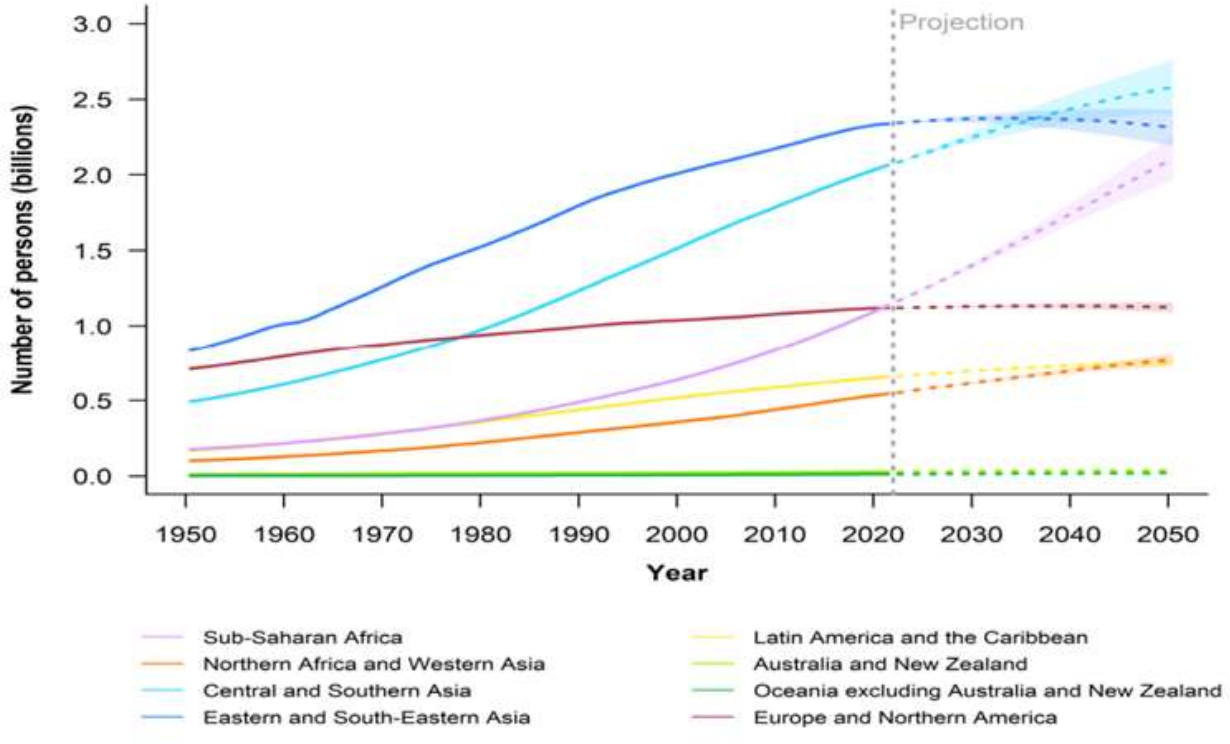
Introduction

- ***A milestone in human development***" as the world population reportedly reached 8 billion
- Two underlying demographic trends:
  - Decrease in global mortality rates and increase in life expectancy at birth
  - Global decline in fertility rates

World Population Estimates and projections by Region, 1950-2050



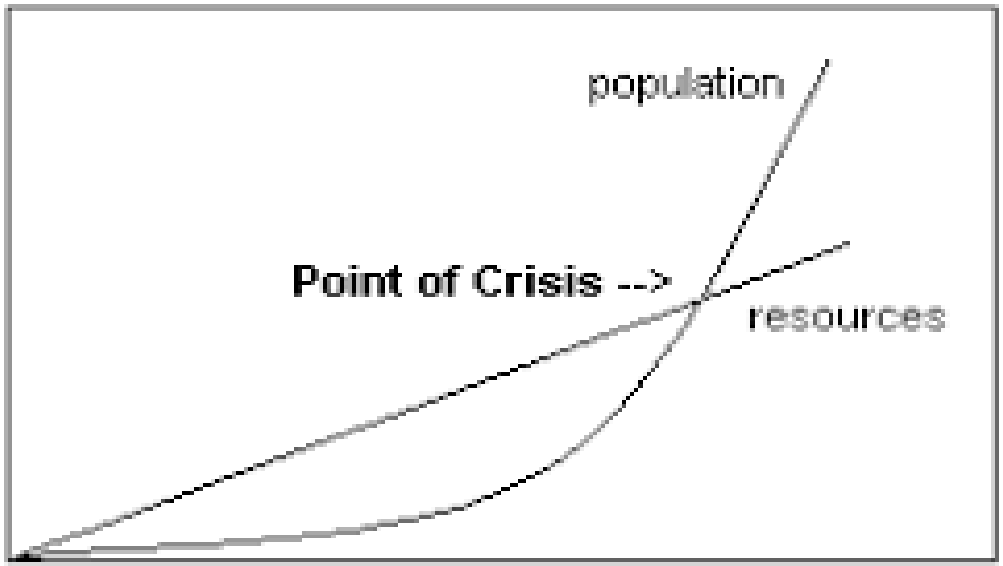
Source: Amended from United Nations (2022)

What does this mean for environmental sustainability?

Thomas Malthus

- Published *"An Essay on the Principle of Population" in 1798 and* described a forthcoming population catastrophe
- Malthusian theory has two basic principles
  - Population grows at a *geometric* rate: i.e. - 1, 2, 4, 16, 32, etc.
  - Food production increases at an *arithmetic* rate i.e. - 1, 2, 3, 4, etc.
- Thus, population grows more rapidly than food supply.
- Eventually, population will exceed the capacity of agriculture to support new numbers.

In essence…



Malthus' Basic Theory

Eventually… “Positive checks”

- Famines,
- Earthquakes
- Floods
- Wars
- Epidemics
- Etc

Chapter

COVID-19: A Neo-Malthusian Event?

Ecological links, Challenges, and Opportunities

By Ramprasad Sengupta, Chetana Chaudhuri

Book Environmental Economics in Developing Countries

Edition	1st Edition
First Published	2022
Imprint	Routledge India
Pages	28

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Was Malthus right?

Proponents argue...

- Global population growth and associated environmental challenges underscore the relevance of his theory in contemporary society.
- Current and projected numbers of food-insecure and/or chronically malnourished people around the world suggest population growth has outstripped food supply.
- Food-related instability, wars and/or conflicts in areas such as the African Sahel as well as “pastoralist violence” in West and Central Africa can be linked to, among other things, competition over natural resources that emerged due to increasing population growth
- The World Meteorological Organisation's projections that climate-related shortages in water resources could affect two-thirds of the world’s population by 2050 is another example.

Critics argue…

- Although global population has grown dramatically since the 19th century, living standards have also improved,
- Famines have been less severe and/or manageable than in earlier centuries.
- Malthus did not anticipate
  - Technological advancements that allowed for the opening of new land for cultivation,
  - Development of irrigation systems and associated increases in yields and crop varieties;
  - Widespread introduction of pesticides and fertilisers;
  - Innovations in farming techniques, such as the Green Revolution which have enhanced agricultural production

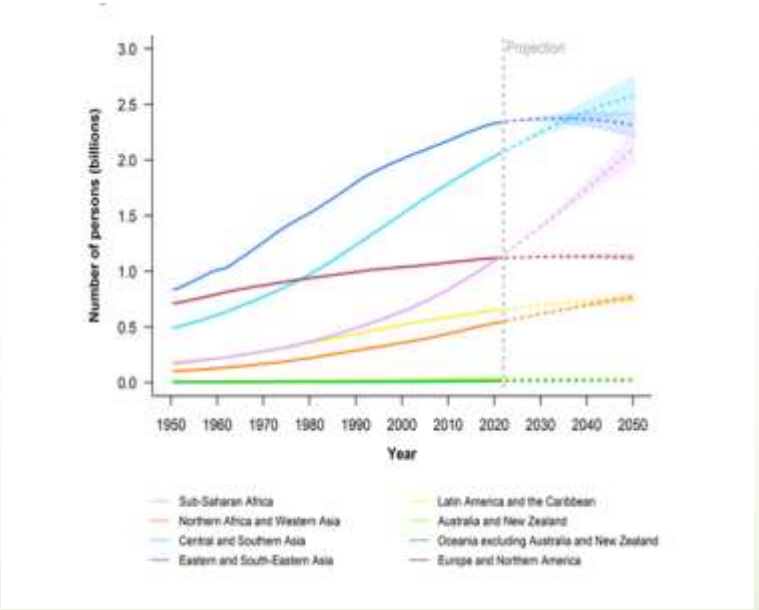
Point of consensus between proponents and critics

- His theory underscores the importance of sustainable development and responsible resource management to address the potential challenges of population growth.
- This has given rise to another contemporary view in relation to this subject, which is “it is more than just numbers”.

The problem is bigger and more complex than just counting bodies. … There are many factors at play. Essentially, it is what is happening within those populations—their distribution (density, migration patterns and urbanisation), their composition (age, sex and income levels) and, most importantly, their consumption patterns—that are of equal, if not more importance, than just numbers (Dovers & Butler, 2015:2

Population distribution

- **Population distribution:** patterns of settlement and dispersal of the population within a country or other area (Population Reference Bureau, 2011),
- Impacts environmental sustainability by adding pressure to local environments.
- More so in developing countries where livelihoods are highly dependent on natural resources
  - Migration patterns
  - Urbanisation



Population composition: *Distribution of different social groups across a population*

Youth

- Account for 16 per cent of the global population
- Becoming a driving force in advocating for a low-carbon and climate-resilient future.
- Youth-led movements … have succeeded in placing climate change at the heart of global policy discussions.
- Additionally, they bring about tangible changes at the grassroots level

Older people

Uniquely vulnerable to the health impacts of climate change

Population Consumption Patterns

- Unsustainable patterns of consumption and production, rather than population growth, are the main barriers to environmental sustainability (Dovers & Butler, 2015)
- Satterthwaite (2009): developing countries with the fastest population growth and far more people have the slowest increases in carbon emissions.
- Ritchie (2023): home to just under half of the world's population, developed countries emit more than 80 per cent of the world’s carbon emissions; lower-middle and low-income countries emit less than 20 per cent; Poorest countries emit less than 1 per cent

Conclusion

- Population growth and current demographic trends are “here to stay”. Their linkages with environmental sustainability, albeit not always clear, will also persist as climate change effects continue, and hence cannot be ignored.

Recommendations

- Develop or increase coverage of family-oriented social protection mechanisms to ensure food security at all times in those world regions vulnerable to climate change effects. ***SDG 1 (No poverty); SDG 2 (Zero hunger)***
- Adopt a family system approach in addressing the needs and circumstances of migrants in concentrated areas as well as environmental migrants. ***SDG, 3 (good health and well-being), SDG 6 (Clean water and sanitation) SDG, 11 (Sustainable cities and communities)***
- "An inclusive, intergenerational response is the only way to address the climate crisis that will define the lives of every person of every age over the next century***. SDG 3 (good health and well-being).***
- Develop and effectively implement policies, standards and incentives to ensure that families, at the household level, adopt consumption behaviours that support and contribute to environmental sustainability. ***SDG 7 (Affordable and clean energy), SDG 12 (Responsible consumption and production)***

Thank You