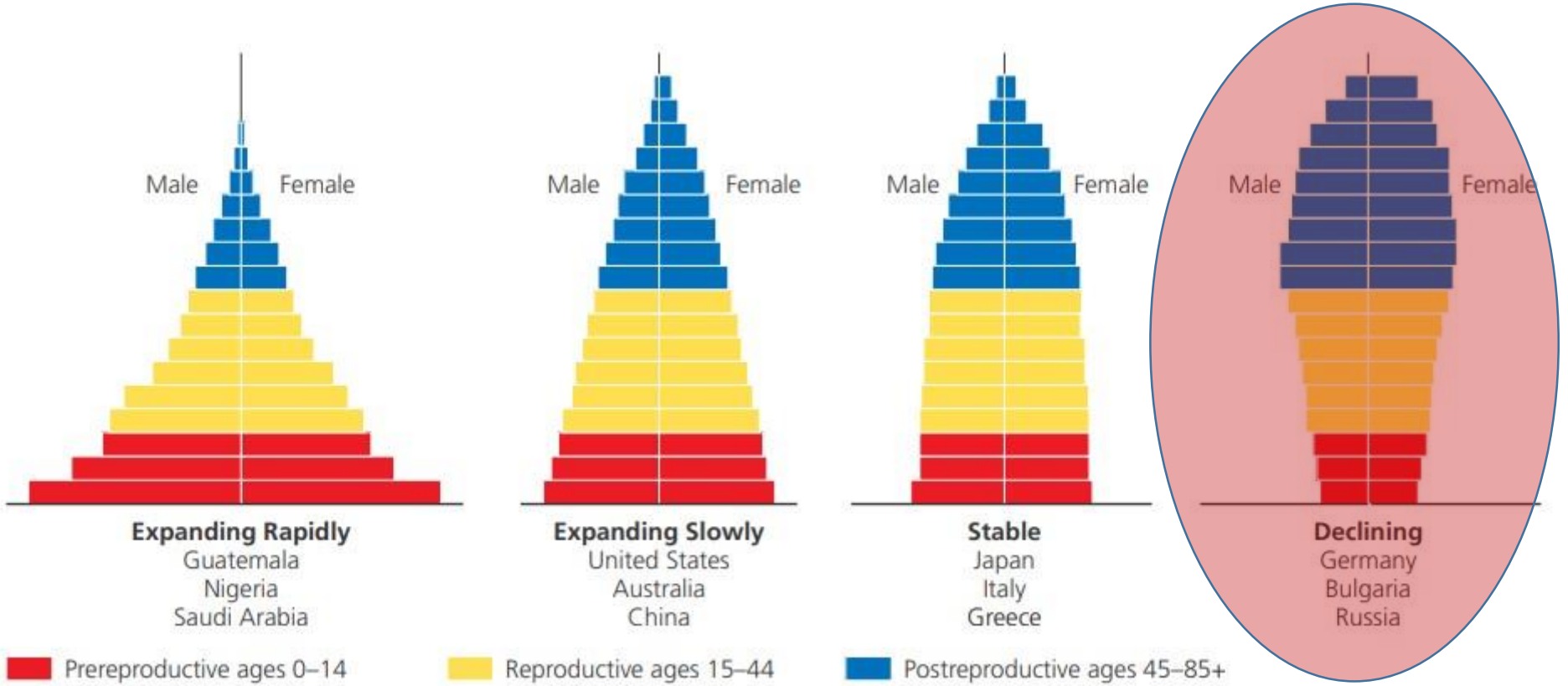
# Environmental Sustainability

**Dr. Pradeep Kumar Kayshap**
Assistant Professor, VIT Bhopal

**(Module 4)**

# Age Structure of the Population

**The age structure of the population refers to the proportion of persons in different age groups relative to the total population.**




**Population experts construct a population age structure diagram by plotting the percentages or numbers of males and females in the total population in each of three age categories: pre-reproductive (ages 0–14), reproductive (ages 15–44), and postreproductive (ages 45 and older).**

# Age Structure of the Population

*The age structure changes in response to changes in levels of development and the average life expectancy.*

- *Initially, poor medical facilities, the prevalence of epidemic disease, and other factors make for a relatively short life span. Moreover, high infant and maternal mortality rates also have an impact on the age structure.*
- **With development, especially medical facilities, quality of life improves and with it life expectancy also improves (epistemological transition). This change in the age structure is known as epistemological transition.**

**Now relatively smaller proportions of the population are found in the younger age groups and larger proportions in the older age groups. This is also referred to as the ageing of the population.**

# Age Structure & Economic development -Growth

**Age Structure maps out a population pyramid: Indian Case**

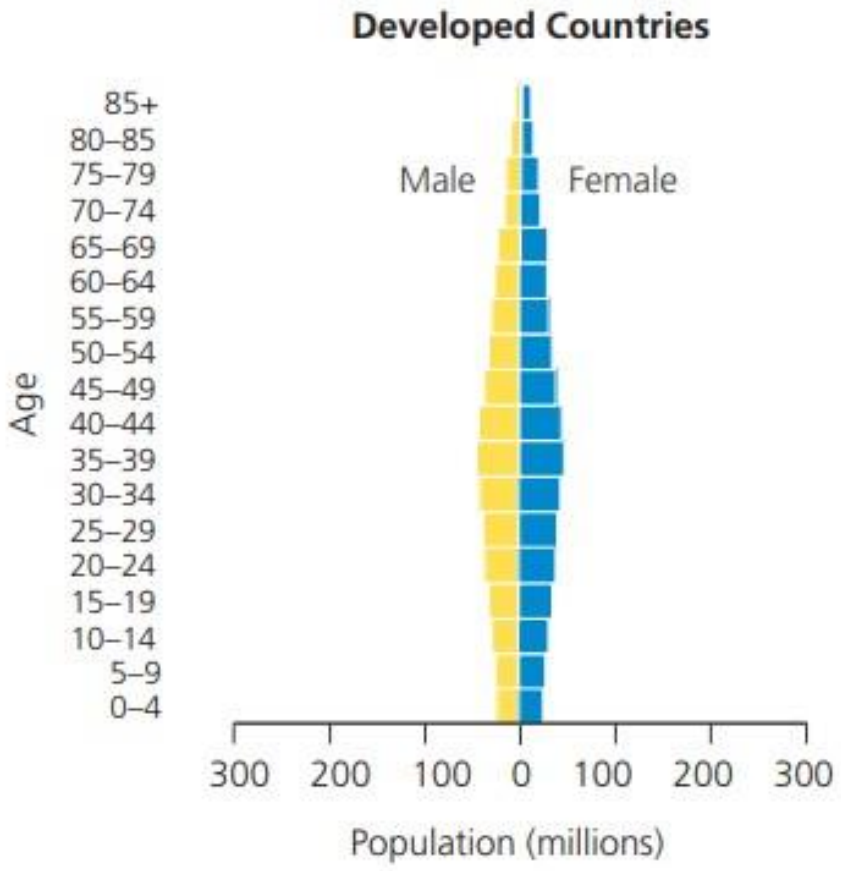
- *In the case of India, those under 15 years old have decreased from 42% in 1971 and are projected to be 23% by 2026.*
- While the over 60 years age group will increase from 5 to 12 % in the same period.
- **In the same period, the working age group has increased from 53% to 64%.**

This is known as the demographic dividend. **Such an age structure bodes well for the economy as there would be a low dependency ratio and more availability of workforce** that could **contribute towards economic growth as has been witnessed in East Asian countries in the 1990s.**

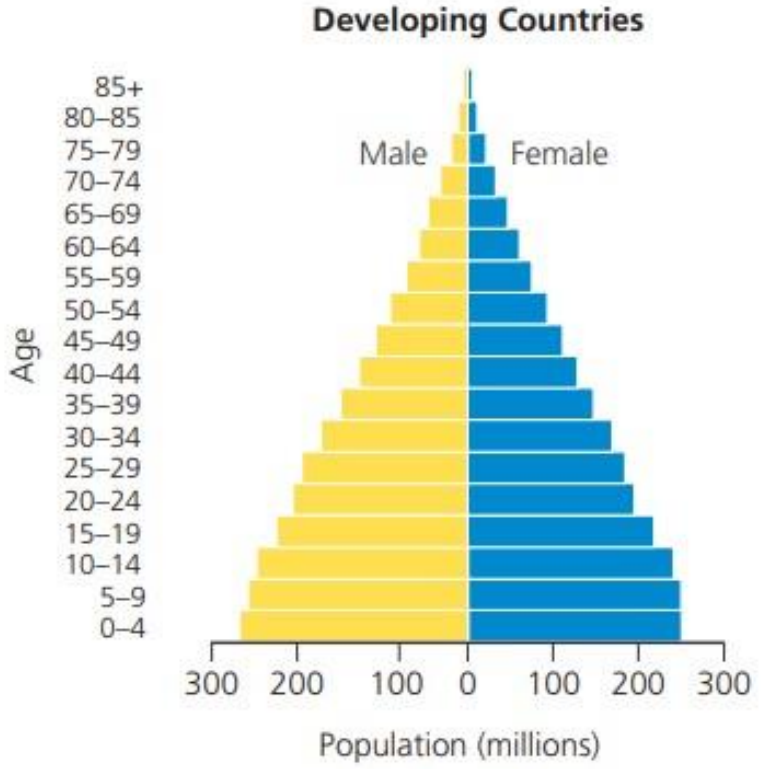
**The use of Age Structure Population: It helps in gauging the needs of the economy and helps tackle challenges arising due to changing demographics:** Demographic Dividend can only be exploited with commitment levels of skill formation, education, and new employment opportunities

# Important Population Statistics

Nearly 28% of the people on the planet were under 15 years old in 2008. ***These 1.9 billion young people are now in their reproductive years.***




***In developing countries, the percentage is even higher: 30% on average (41% in Africa) compared with 17% in developed countries (20% in the United States and 16% in Europe).***



# Impact of Population Decline

Countries faced with a rapidly declining population in the future include Japan, Russia, Germany, Bulgaria, the Czech Republic, Hungary, Poland, Ukraine, Greece, Italy, and Spain

## Some Problems with Rapid Population Decline

Can threaten economic growth

Labor shortages

Less government revenues with fewer workers

Less entrepreneurship and new business formation

Less likelihood for new technology development

Increasing public deficits to fund higher pension and health-care costs

Pensions may be cut and retirement age increased

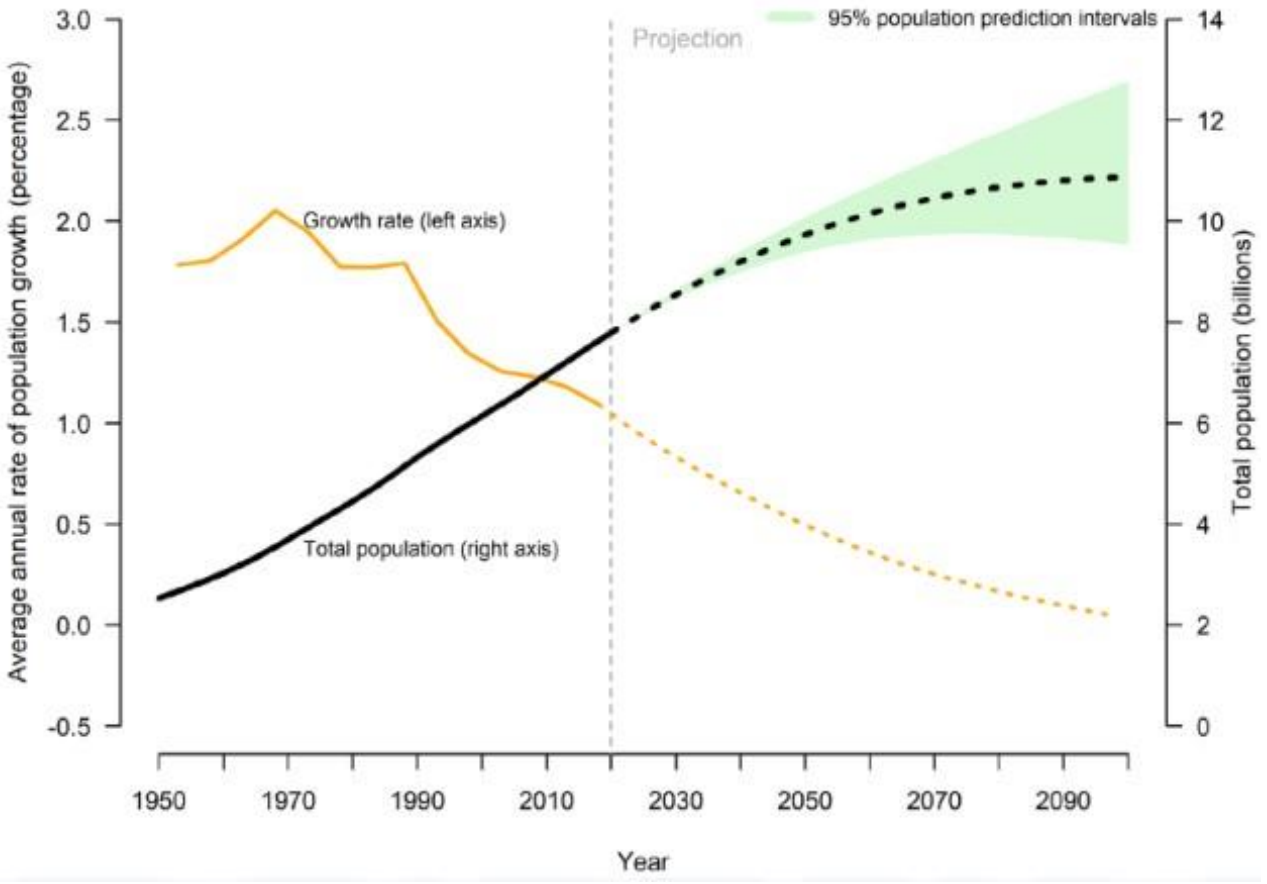


# Human Population Growth

Population size and annual growth rate for the world

**The world's population continues to grow, albeit at a slower pace than at any time since 1950**

**The world's population reached 7.7 billion in mid-2019, having added one billion people since 2007 and two billion since 1994.**



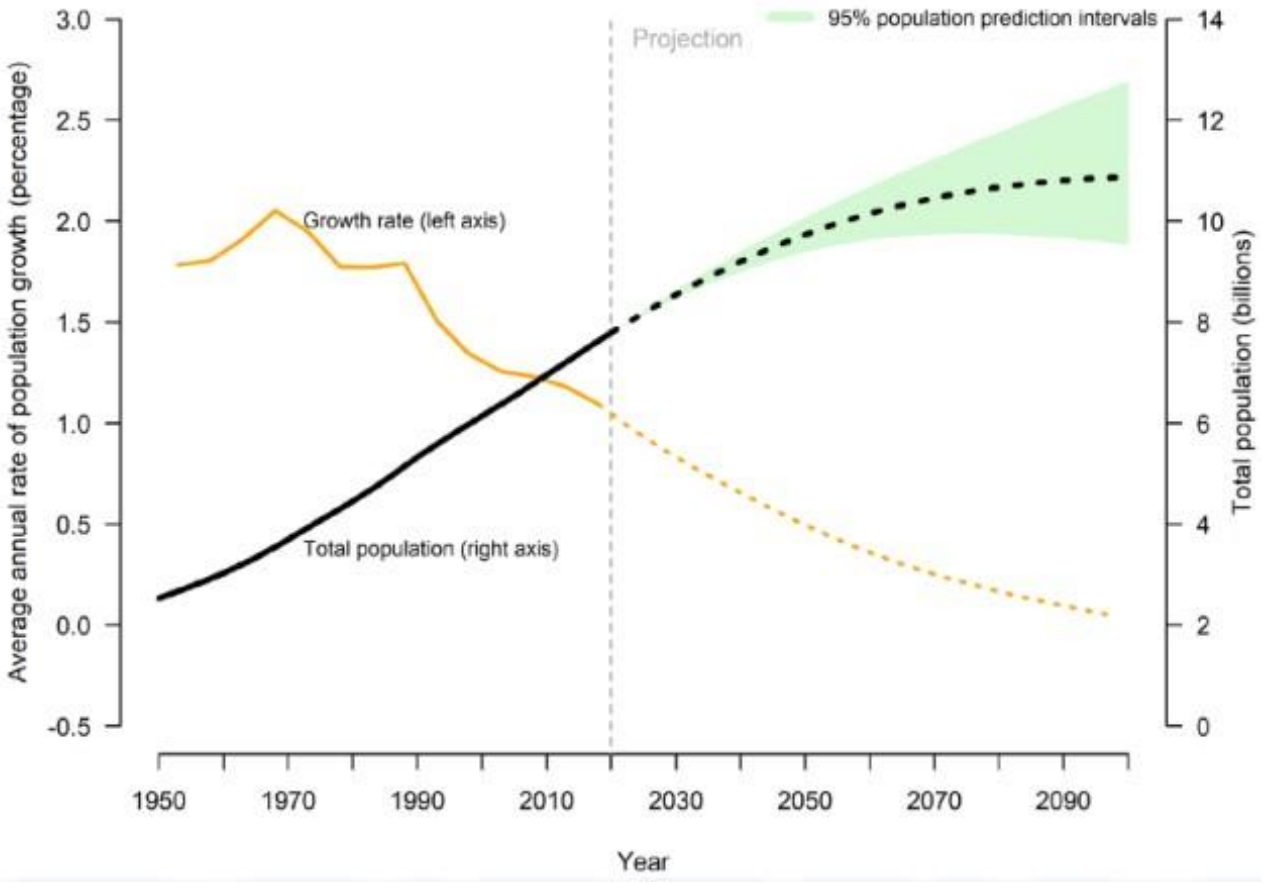

**The growth rate of the world's population peaked in 1965-1970, when it was increasing by 2.1 percent per year, on average. Since then, the pace of global population growth has slowed by half, falling below 1.1 percent per year in 2015-2020, and it is projected to continue to slow through the end of this century**

# Human Population Growth

Population size and annual growth rate for the world

***The global population is expected to reach 8.5 billion in 2030, 9.7 billion in 2050, and 10.9 billion in 2100.***

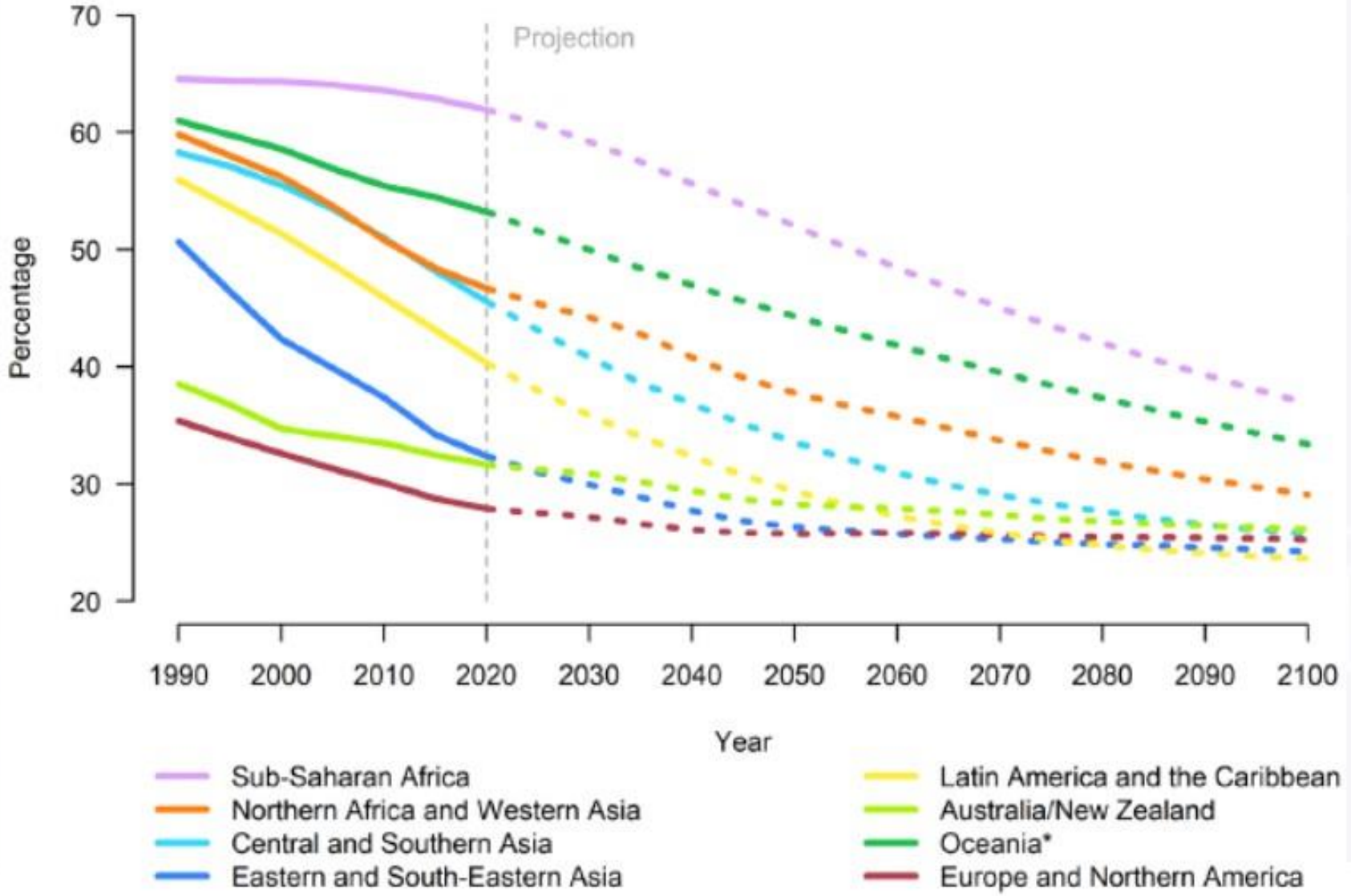
***This number is predicted in accordance with the medium variation projections.***




***It assumes a decline of fertility for countries where large families are still prevalent, a slight increase of fertility in several countries where women have fewer than two live births on average over a lifetime, and continued reductions in mortality at all ages.***

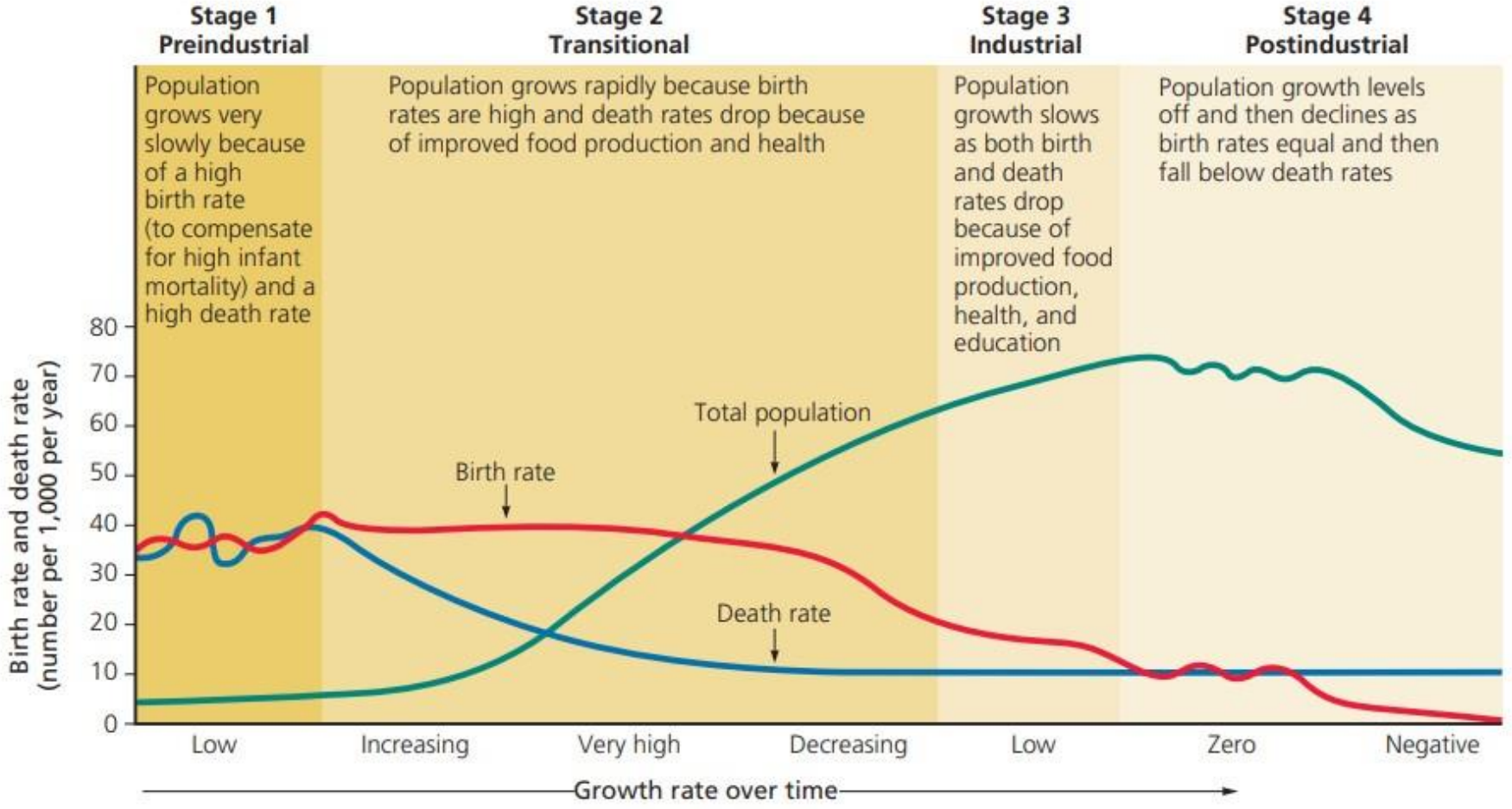
# Human Population Growth

The share of the population under age 25 is declining



# Human Population Growth

Demographers examining the birth and death rates of Western European countries that became industrialized during the 19th century developed a hypothesis of population change known as the **demographic transition:** **As countries become industrialized, first their death rates and then their birth rates decline.**



# Sustaining Human Societies

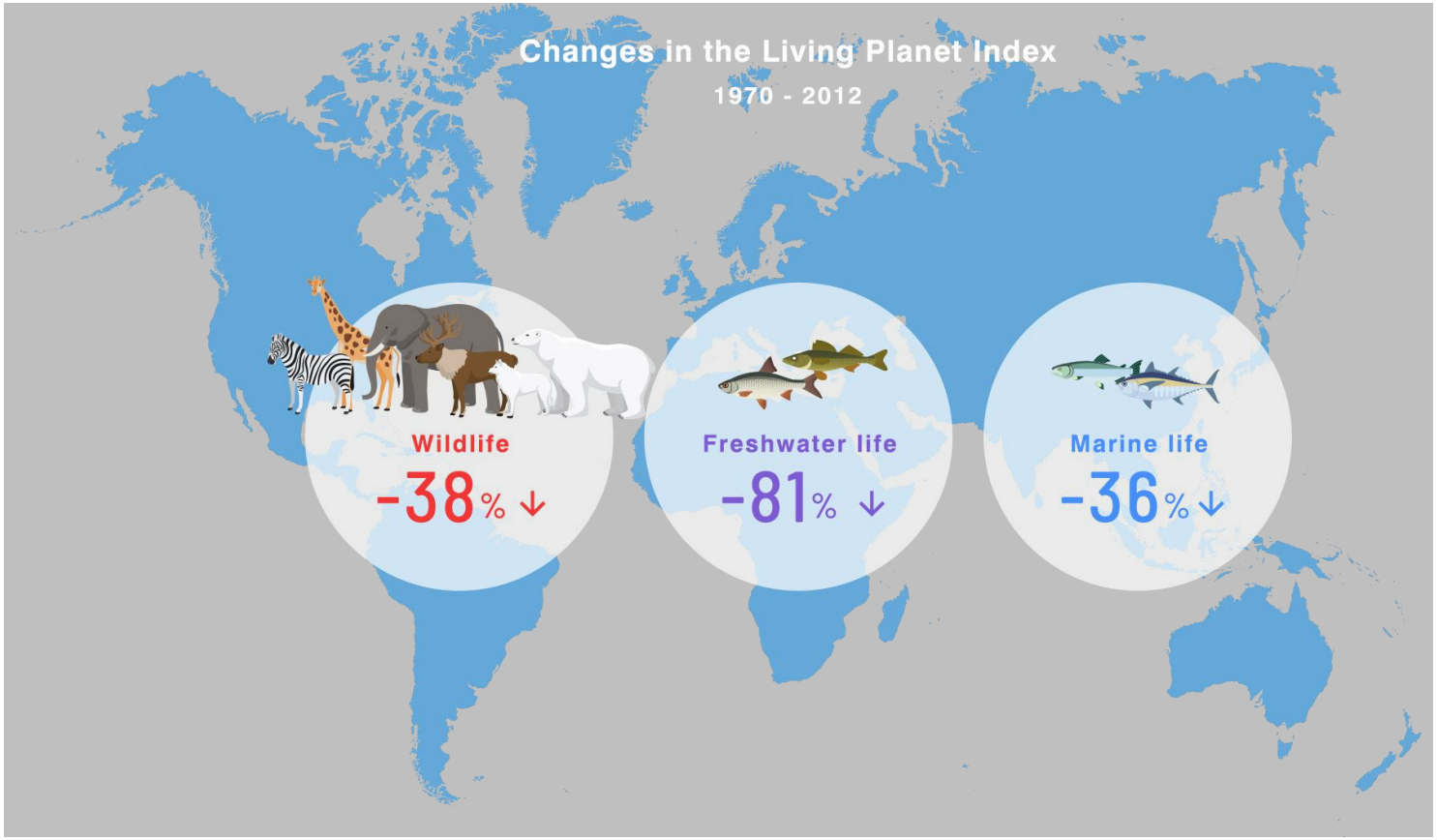
**A sustainable society is one in which** ***"the global environment and natural environment are properly preserved, and development is being carried out to meet the needs of the present generation without compromising those of future generations."***

Economic development and technological innovation have made people's lives materially rich and convenient. *On the other hand, this convenient life is degrading the global environment, the basis for our continued prosperous survival.*

**Industrial Revolution gives various problems:** rapid increase in greenhouse gas emissions, climate change, and environmental pollutants that contaminate water, air, and soil.

# Sustaining Human Societies

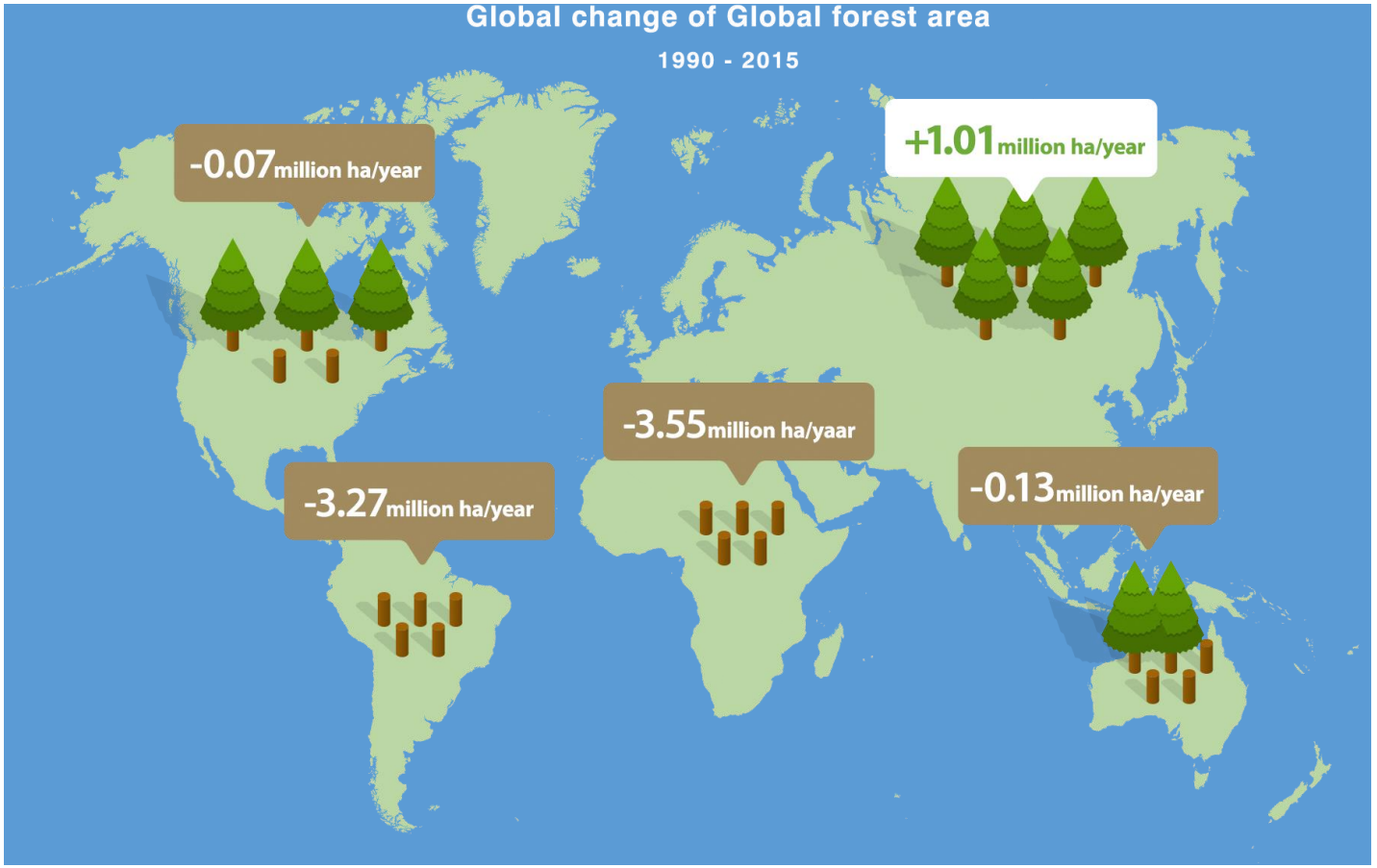
**Biodiversity is decreasing globally:** Compared to 1970, the Living Planet Index (LPI) decreased by 58% in 2012. Especially in the tropics, it has dropped by 60%, threatening biodiversity.




***The Living Planet Index indicates the richness of biodiversity on the earth. It shows the increase and decrease of species by one numerical value based on the data for more than 10,000 populations of about 3,700 vertebrate species in the world.***

# Sustaining Human Societies

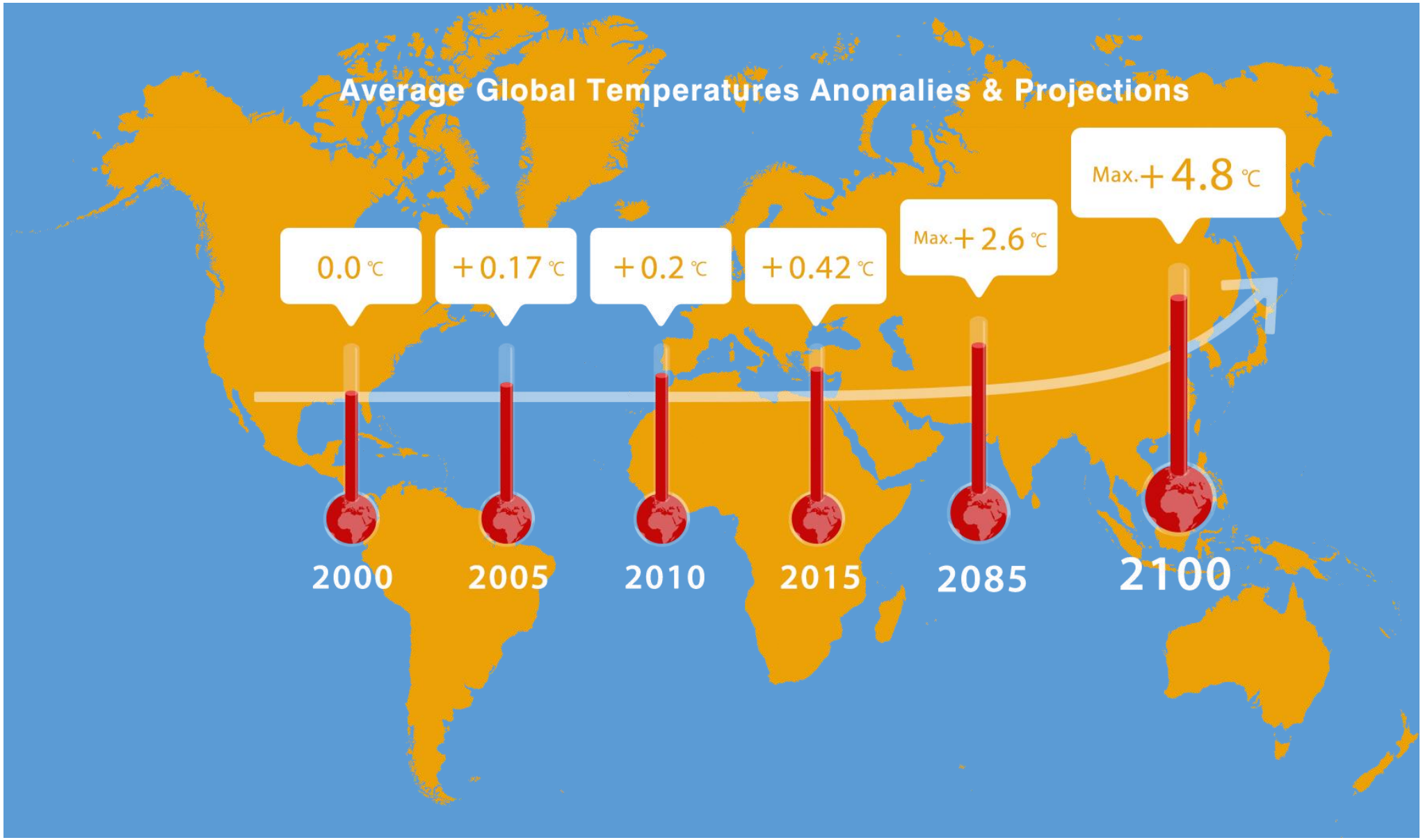
**Our forests are also decreasing:** The world's forest area is approximately 3,990 million hectares, covering 30.6% of the total land area (2015). However, the world's forests continue to decline, with 5.1 million hectares being lost each year (average net change from 1990 to 2015)




Please note the ***129 million hectares of forest area that was lost from 1990 to 2015 is equivalent to the land area of South Africa.***

# Sustaining Human Societies

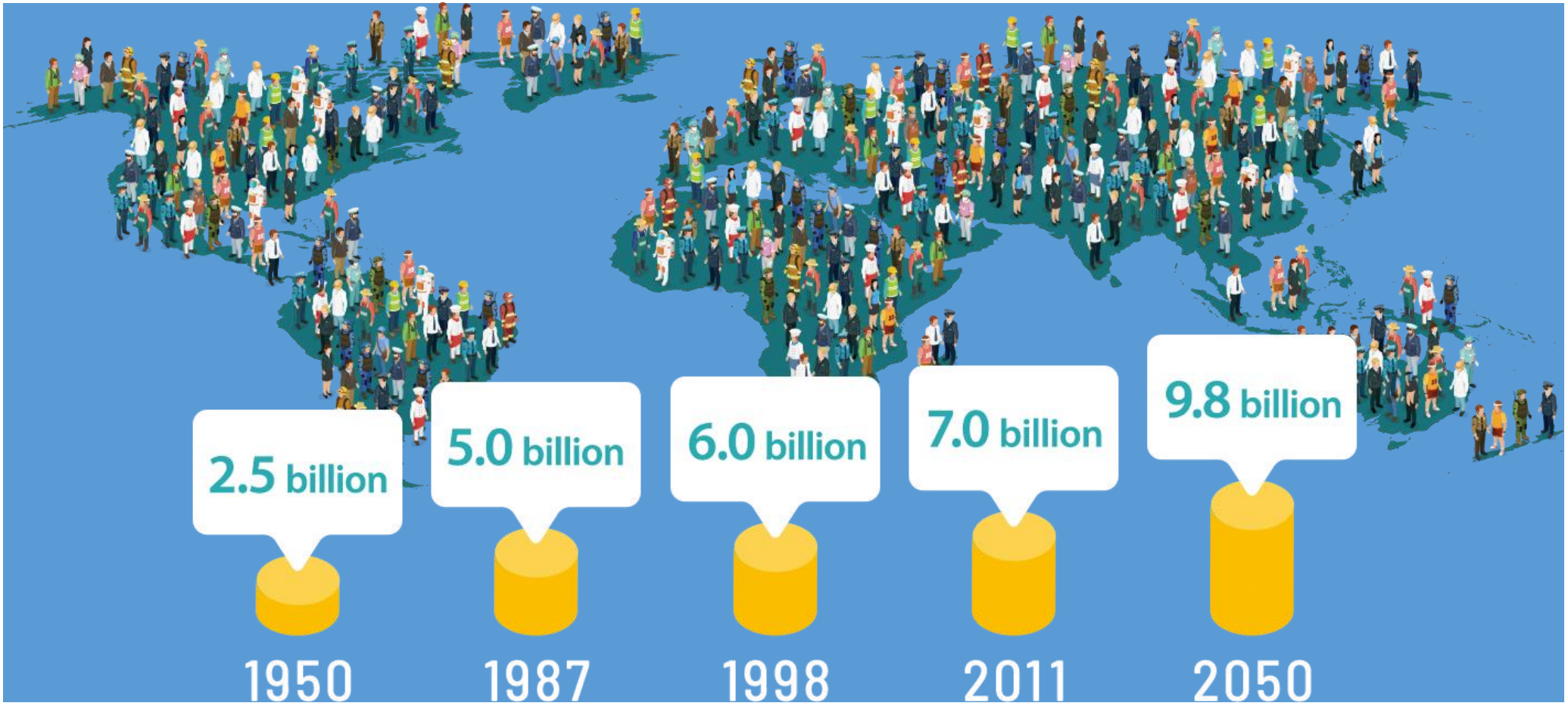
**The average temperature of the earth is rising.**



# Sustaining Human Societies

***Increased environmental impact due to human activities.***

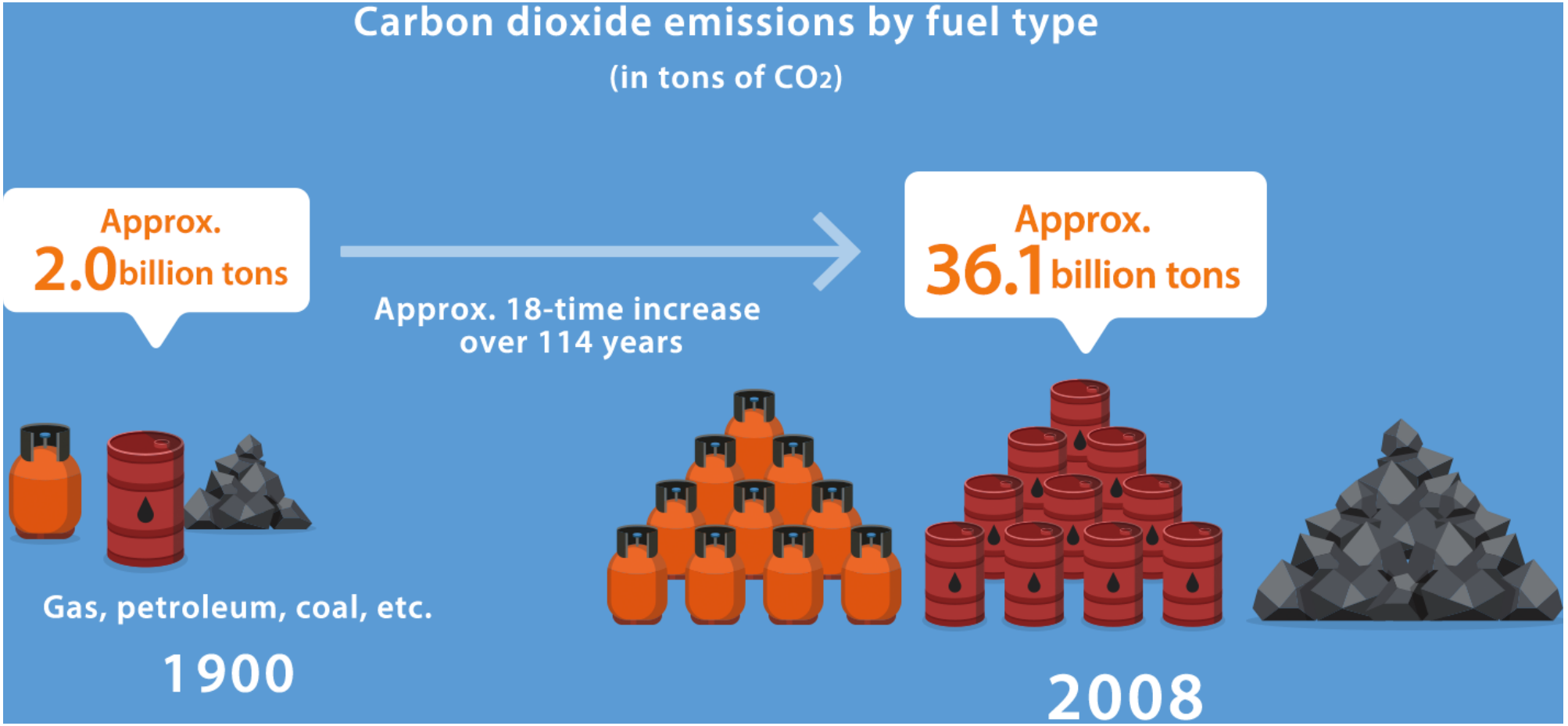
**Rapidly growing global population. A world population of approximately 9.8 billion by 2050.**



# Sustaining Human Societies

***Increased environmental impact due to human activities.***

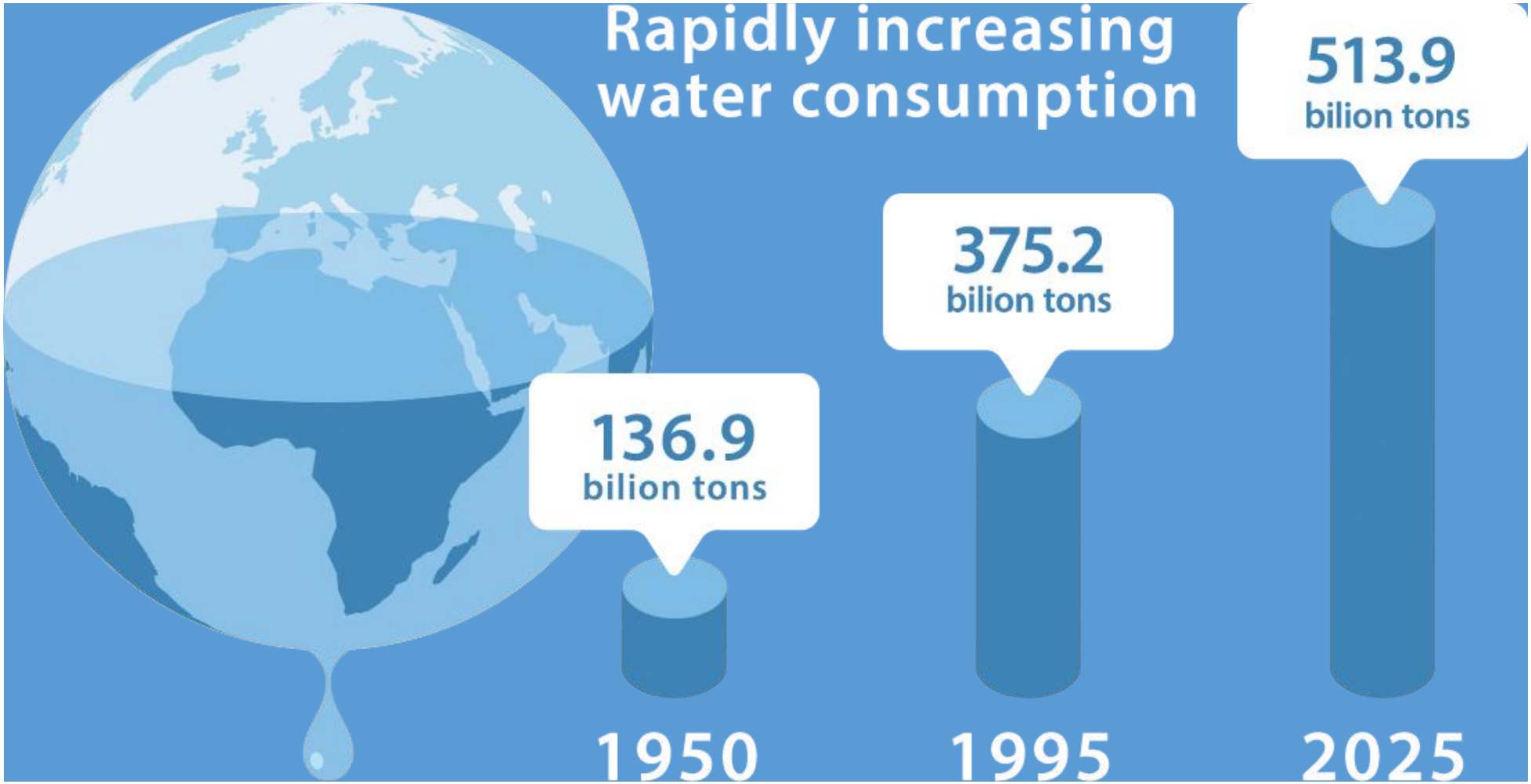
**Era of mass fossil fuel consumption**



# Sustaining Human Societies

***Increased environmental impact due to human activities.***

**Global population growth and water shortages**



# Sustaining Human Societies

## Sustainable Development Goals (SDGs)

## 17 Goals for Changing the World


The Sustainable Development Goals (SDGs) are universally **shared goals which were adopted at the UN Sustainable Development Summit in September 2015**. All UN member states agreed upon the **17 goals and the 169 Targets in order to solve some of the most pressing global issues and establish a sustainable society**.

# Sustaining Human Societies

## Sustainable Development Goals (SDGs)

# Sustaining Human Societies

## Sustainable Development Goals (SDGs)

1. **No Poverty**: End poverty in all its forms everywhere.
2. **Zero Hunger**: End hunger, along with achieving food security and improved nutrition, and promoting sustainable agriculture
3. **Good Health and Well-Being**: Ensure healthy lives and promote well-being for all at all ages.
4. **Quality Education**: Ensure inclusive, fair, and quality education for all, and promote lifelong learning.
5. **Gender Equality**: Achieve gender equality and empower all women and girls
6. **Clean Water and Sanitation**: Ensure access to water and sanitation and its sustainable management for all
7. **Affordable and Clean Energy:** Ensure access to affordable, reliable, sustainable, and modern energy
8. **Decent Work and Economic Growth:** Promote inclusive and sustainable economic growth, as well as productive full employment and decent work for all

# Sustaining Human Societies

## Sustainable Development Goals (SDGs)

**9. Industries, Innovation, and Infrastructure**: Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation
**10. Reduced Inequalities:** Reduce inequalities within and among countries
**11. Sustainable Cities and Communities**: Make cities inclusive, safe, resilient, and sustainable
**12. Responsible Consumption and Production**: Ensure sustainable consumption and production patterns
**13. Climate Action**: Take urgent action to combat climate change and its impacts
**14. Life Below Water:** Conserve the oceans, seas, and marine resources for sustainable development to use them in a sustainable way
**15. Life on Land:** Protect, restore, and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss
**16. Peace, Justice, and Strong Institutions**: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and establish effective, accountable, and inclusive systems at all levels

# Thank you