

# **POPULATION GEOGRAPHY**

## **UNIT II**

# Crude Birth Rate

## Definition

CRUDE BIRTH RATE is the number of resident live births for a specified geographic area during a specified period divided by the total population for that area and multiplied by 1,000. The number of live births is normally taken from a universal registration system for births; population counts from a census, and estimation through specialized demographic techniques.

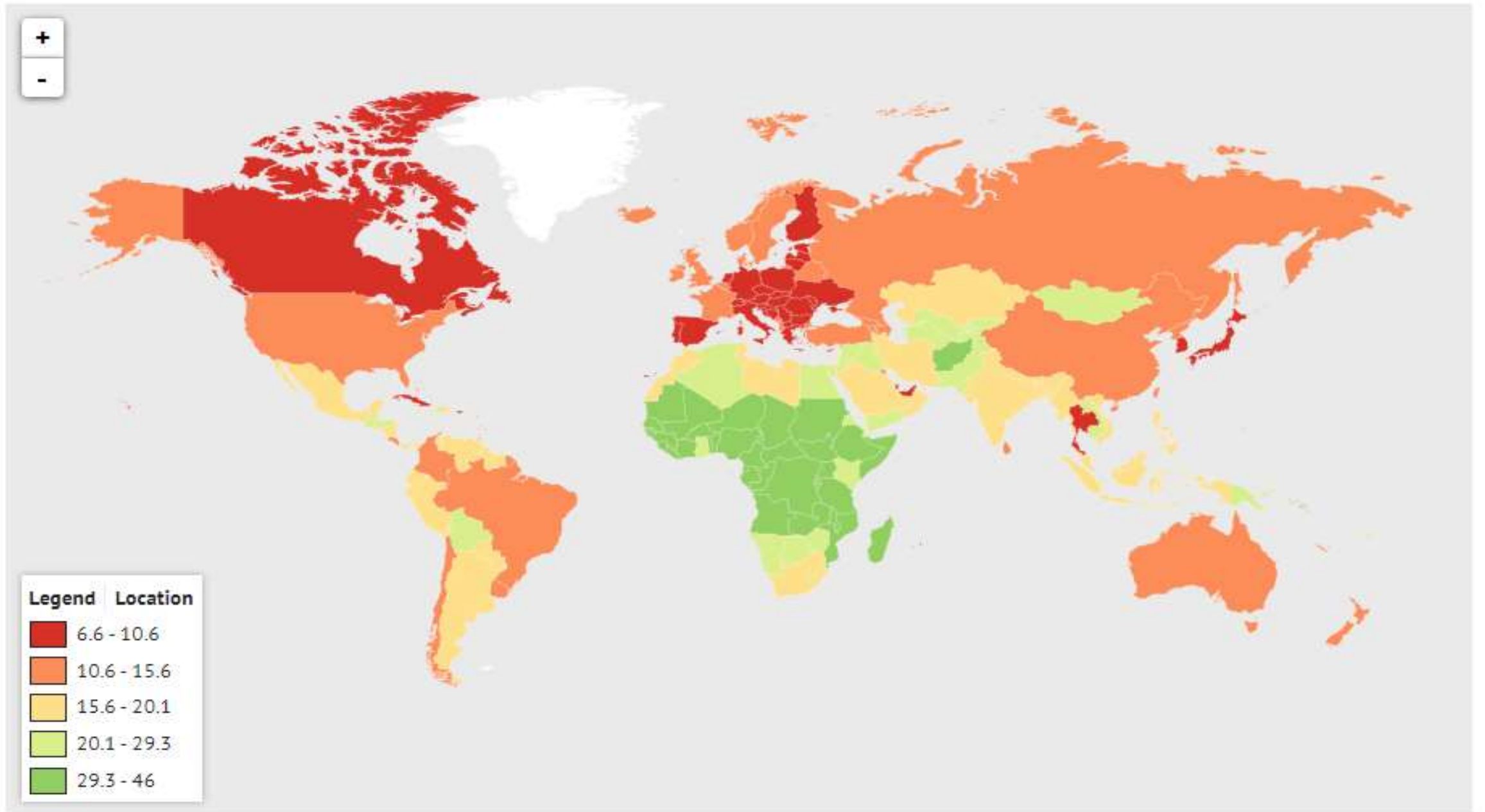
## Formula

$$\text{CBR} = (\text{Number of resident live births} / \text{Number of total population}) \times 1,000 .$$

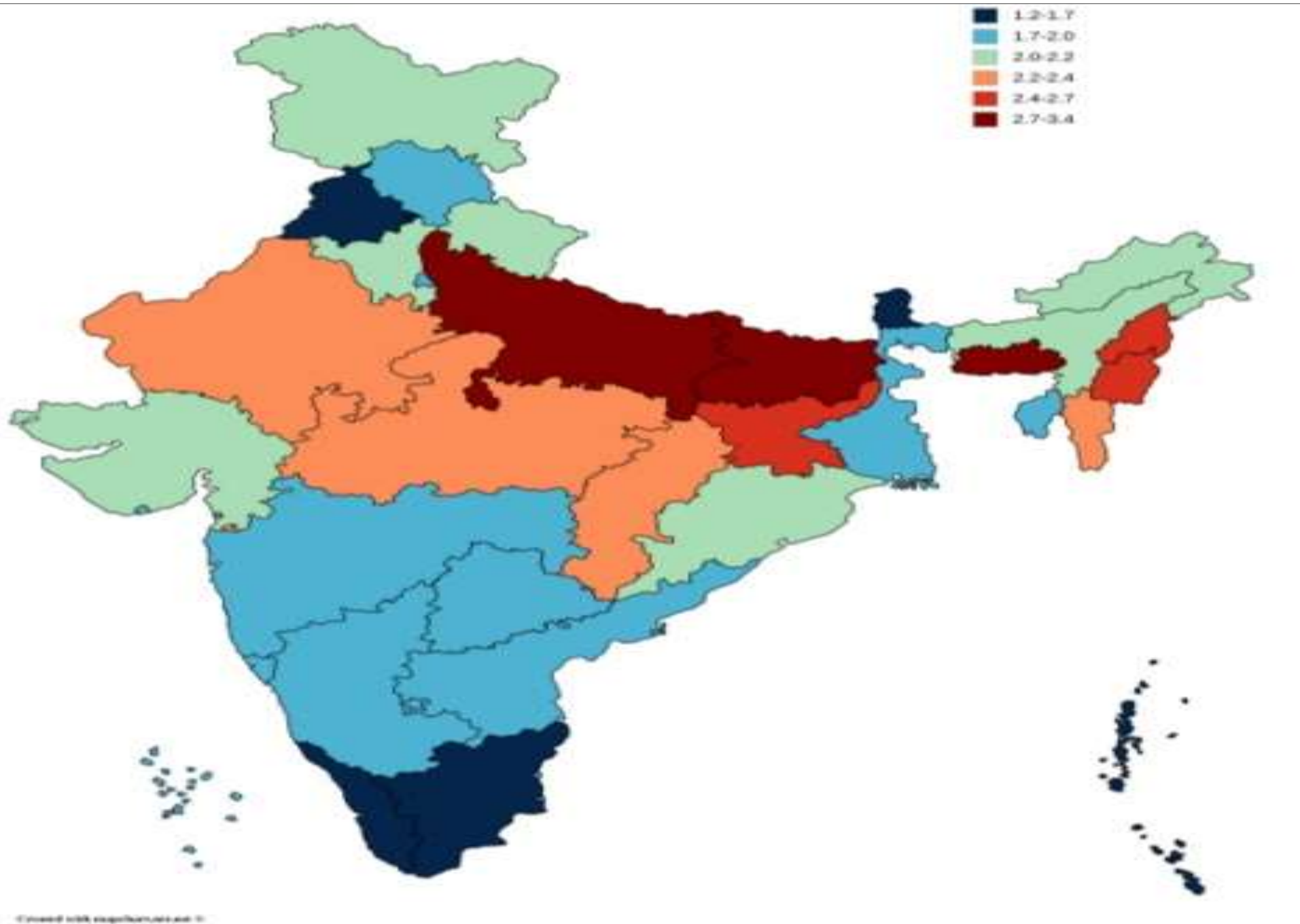
# Facts

- Slightly fewer than 4 million babies are born in the United States each year, and the details of how, when, and where they arrive are always shifting.
- Total fertility rate is an estimate of the average number of births a group of women have over their lifetime.
- Turkey has the highest percentage rate of babies born via cesarean section (50.4 per 100 live births), while Iceland has the lowest (15.2 per 100 live births).
- In 2012, over 61,000 babies were conceived in the United States with the help of in vitro fertilization (IVF).
- About 32 people out of every 1,000 is a twin. In the United States, the state with the highest percentages of twins are Connecticut, Massachusetts, and New Jersey. New Mexico has the lowest.
- Estimated 3,92,078 babies were born around the world on New Year's Day, according to UNICEF. Of this, an estimated 67,385 babies were born in India, the most globally. China comes in second with 46,299 births.

# World Crude Birth Rate (2020)



# India Crude Birth Rate Map(2017)



# **Causes**

## **1. Early and Universal Marriage:**

In India, marriage is a social compulsion. It is not only universal but takes place at an early age. About 80 percent girls are married during the most fertile period of 15 to 20 yrs. of age.

## **2. Preference for Male Child:**

Male child is a religious necessity among the Hindus. Son is eligible to perform certain religious rites e.g. last rites. Daughters can not perform these rites. So a couple without son is looked down upon in the society. So people take chances to be blessed with son. This increases birth rate.

## **3. Joint Family System:**

India is mainly an agricultural country. The social structure is dominated by the joint family system. An additional child born causes no immediate hardships to the parents. This factor is also responsible for high birth rate.

## **4. Climatic Factor:**

India is a tropical country, where girls attain puberty at an early age. They achieve motherhood in the age group of 12-15 yrs. Hence a woman in India delivers 6 to 7 children on an average. Where as a woman in Japan delivers 5 and in America 3 children.

# Consequence

- **Low life expectancy**

The countries with the lowest life expectancy worldwide include the Central African Republic, Lesotho, and Chad. As of 2018, people born in the Central African Republic could be expected to live only up to 53 years. This is 20 years shorter than the global life expectancy.

- **Low living standards**

It limits a person's ability to participate in the wider society, curtails their quality of life, and can have negative long-term consequences across a wide range of social and economic outcomes.

- **Low social status for women**

low-status jobs with little to no decision-making authority experience higher levels of negative life events, insecure housing tenure, more chronic stressors and reduced social support. Low employment rank is a strong predictor of depression.

- **Low educational levels.**

The education of the females has positive relation with fertility up to 5.3 years of schooling and negative relation thereafter. The replacement level of fertility is achieved when females are educated to the graduate level.

- **Health Problems**

It indicates that school-based health centers have a large, negative effect on teen birth rates: adding services equivalent to the average SBHC reduces the birth rate for girls 15 and under by 23% and reduces the 16-19 year old birth rate by 8%.

# **Remedy and Solutions**

## **1. Improved Educational Opportunities for Women**

The social empowerment of women, particularly through increased education, has been shown to decrease fertility rates. Increased education also contributes positively to other factors that decrease fertility rates, such as higher use of contraception, better childhood health and women's participation in the workforce.

## **2. Lower Child Mortality**

Historically, high child mortality — including infant deaths and deaths by early childhood illnesses — kept population growth low and fertility rates high. As child mortality rates have declined (dramatically in some countries) fertility rates have fallen.

## **3. Better Access to Contraception and Family Planning Advice**

For some areas of the world, the sharpest declines in fertility rates have come from the introduction of safe, reliable access to contraception. This may include confidential access if local cultural norms or family members impede a woman's right to access birth control. The increased availability of sexual health education and family planning resources has also impacted fertility rates.

## **4. Increasing Societal Prosperity**

U.S. News and World Report notes that high-income countries have experienced a steeper decline in fertility than low-income countries, but it's unclear whether confounding factors, such as increased educational opportunities, are responsible for this correlation.



# CRUDE DEATH RATE

## Definition of Crude Death Rate

- It indicates the number of deaths in a particular year per thousand of population
- Also known as Crude Mortality Rate
- The crude death rate is the number of deaths occurring among the population of a given geographical area during a given year, per 1000 mid-year total population of the given geographical area during the same year.
- Defined as “crude” because does not account for the age and sex composition of a population.

## Formula:

- $$\text{CDR} = \frac{D}{P} * 1000$$

*Number of deaths during the year*  
—————\* 1000  
*population of the area at the midpoint of the year*

Where,

D = number of deaths in a year

P = estimated mid-year population for the year

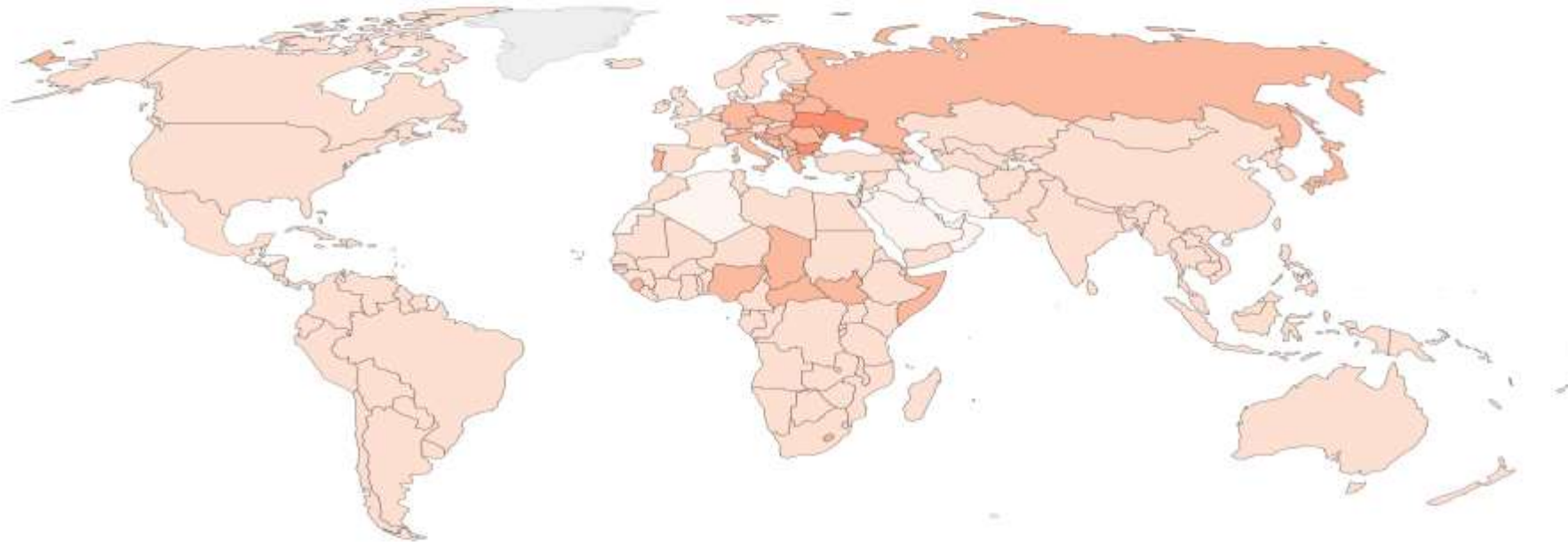
# Facts

- Crude death rate is a very general indicator\ index of the health and status of a geographic area or a population.
- Crude death rate is not appropriate for comparison of different population or areas due to the significant impact of age in mortality data and different age-distributions among populations.
- Age-adjusted mortality rates should be used for comparative analysis.
- Bulgaria is having the highest crude death rate in the world.
- CDR in Bulgaria measures 15.52 deaths per thousand population that accounts for 1.09 % of the worlds crude death rate.
  
- Highest mortality rate in Bulgaria is due to diseases of the cardiovascular system, non-infectious diseases and cancer.
  
- Qatar records the lowest mortality rate in the world of 1.244 deaths per 1000 people.

# Crude Death Rate - World Map (2019)

Crude death rate: the share of the population that dies per year, 2019

Our World  
in Data



Source: United Nations – Population Division (2019 Revision)

CC BY

# Crude Death Rate - India Map (2015)

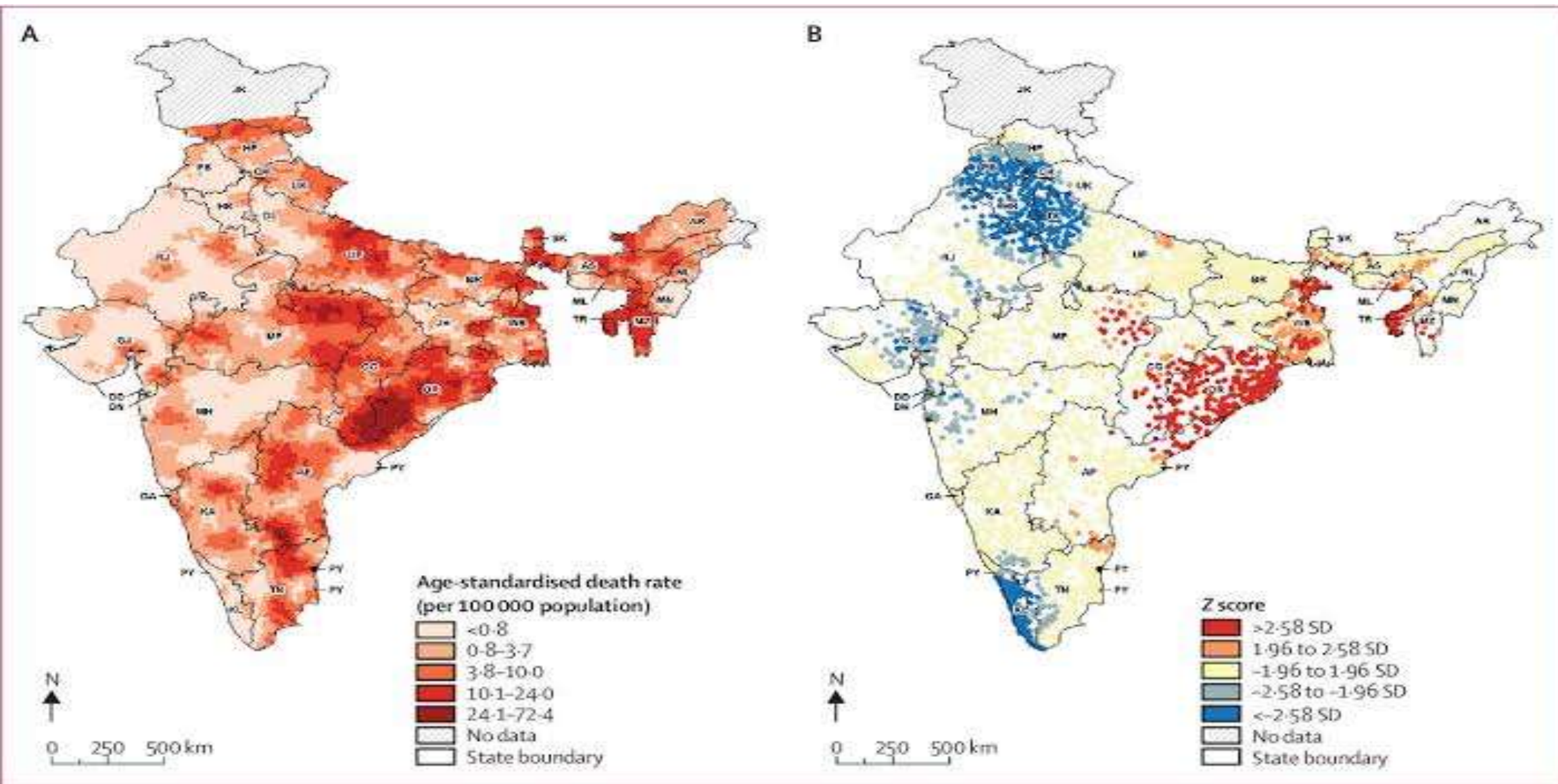


Figure 1: Geographical variation in age-standardised death rates, and high-mortality and low-mortality clusters from acute abdominal conditions in Indians

# Causes of Crude Death Rate

- Life style factors such as abuse of alcohol and tobacco.
- Work related dangers - Such as in Industries like Chemical And manufacturing.
- Exposure to events outside individual control such as natural Disasters, war, etc..
- Socio-economic status - between rich and poor.
- Sudden diseases spread all over the world - The death rate will increase immensely.
- Based on the age the crude death rate has been increased.

# **Consequences of Crude Death Rate**

- Sudden decrease in population when there is continuous death occurs.
- When crude death rate is decreased and the birth rate increases it will imbalance the life cycle and affect the collected population data.

## **Remedies and Solutions**

- Improved medical facilities
- Food security \ improved food supply
- Improved quality of life
- Reduce infant mortality
- Lifestyle diseases – reduce incidence to diseases by healthy lifestyle.
- Increasing prenatal & postnatal care
- Vaccination

**POPULATION GROWTH AND  
ASSOCIATED ISSUES IN  
DEVELOPED AND DEVELOPING COUNTRIES**

# **The Effects of Overpopulation on Water Resources and Water Security**

Water is one of the most integral and important aspects of daily life for every human being, for example, food, clothing, and almost everything else humans interact with involves water. Therefore, water and water security is going to be a crucial focus for governments in the next few decades, especially since the population is expected to reach approximately 9.7 billion by the year 2050, and 11.2 billion by 2100 (United Nations DESA). Similar to oil and other fossil fuels, water is a finite resource, and the knowledge for world leaders to be able to manage a limited resource with a growing population will be critical for to have in order to maintain or grow their nations' prosperity. On the other hand, if current water resources are not properly regulated, an eventual increase in world population will become problematic for many regions and countries. Overpopulation will strain current water resources to their limits, cause an increase in water pollution, and lead to an increase in civil and international conflicts over existing water supplies.



# The Biggest Impacts:

- **The use of resources and the impact of environmental issues are not equal around the globe.**
- **People in developed countries require substantially more resources to maintain their lifestyles compared with people in developing countries.**
- **For example, the United States, which contains 5 percent of the world's population, currently produces a full 25 percent of CO<sub>2</sub> emissions.**

## Land Degradation:

- **There are many examples of human failure to use land resources sustainably.**
- **Deforestation occurs when humans clear forests to use the land either for agriculture or for habitation.**
- **Consequently, forest cover dwindles significantly, leading to soil erosion and extinction of plant species.**



## Air Pollution:

- **One of the biggest environmental impacts of human activities is air quality.**
- **The transportation sector contributes heavily to air pollution because most forms of transportation, including cars, planes and ocean vessels, use fossil fuels.**
- **When burned, fossil fuels release carbon dioxide and other greenhouse gases into the environment.**



## Water Contamination:

- **Human intervention in the environment also jeopardizes the supply and flow of clean drinking water.**
- **Activities like waste disposal from residential, commercial and industrial areas, oil spills and runoff from agriculture all contaminate bodies of water.**
- **The direct deposit of pollutants into lakes, rivers, seas and streams and indirect runoff of hazardous substances during the rainy seasons both impact water sources.**





## Climate Change:

- **Human activities in the environment interfere with the planet's natural balance, making the Earth's climate less stable and predictable.**
- **Climate change brings abnormal occurrences such as unprecedented flooding; increased numbers of storms, hurricanes and typhoons; fiercer brush fires; and most notably tsunamis, which are uncommon in the Earth's recent history.**



## Arid Environment:

- **Lack of water prevents a desert from supporting much plant and animal life, although some species thrive in this environment**
- **Human populations on the edges of the desert strain the water supply, which affects the already sparse flora and fauna.**



## Desertification:

- **Desertification is the process in which once usable land becomes inhospitable and loses its ability to sustain life, essentially becoming unusable.**
- **Desertification is growing due to misuse of land resources, such as over-farming and over-grazing.**



## Human Activity:

- **Though droughts trigger desertification, human activity is the largest cause, reports the United Nations.**
- **Over-cultivation, poorly drained irrigation systems, mismanagement of available water, digging for fossil fuels and introduction of invasive species are only some of the environmental problems in desert biomes created by humans.**



# Deforestation:

- The cleaning of trees, transforming a forest into cleared land.
- It impacts the environment by removing a lot of trees, destroying animals homes and environments.
- We do it to make useful products for everyday life like paper, burning wood and other useful products made from wood.



## Overgrazing:

- The vegetation is damaged and the ground becomes liable or at risk to get erosion.
- It impacts the environment by destroying the soil and damages plants, trees and increases the chances of getting erosion.
- We do it so we can let livestock to graze to use later as food supply.





## Agricultural problems

- If farmers use fertilizers, chemical fertilizers and pesticides and insecticides then it may contaminate the soil and could also lose its soil fertility.
- It may also lead to soil erosion.
- Planting the same crop over and over can strip vital minerals out of the soil.



# Mining risk:

- It is the process of obtaining coal.
- Underground mining requires digging out large areas, increasing the risk for sinkholes and caverns.
- It contaminates the water, the soil, increases erosion, massive sinkholes and deforestation.



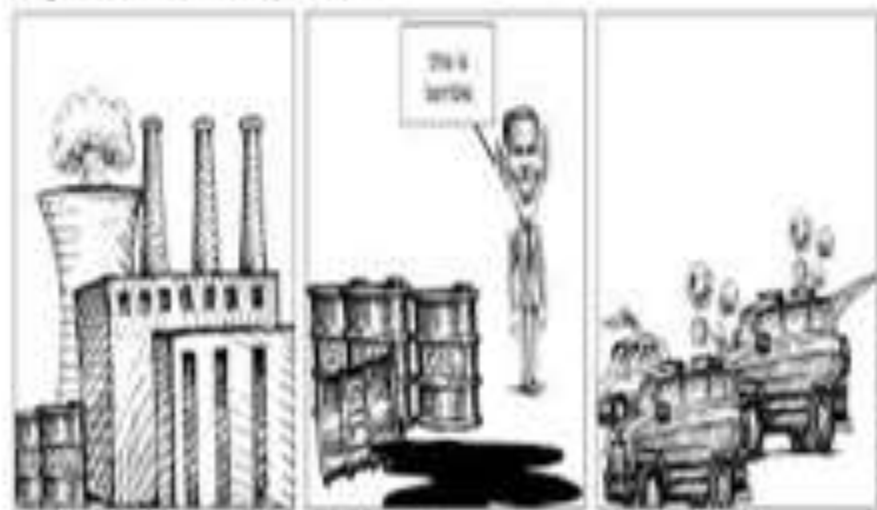


## Urbanization problem:

- It can reduce the beauty of nature.
- Rapid development can also lead to very high levels of erosion and sedimentation in river channels.



Rapid Urbanization by Kier Vu



## **FARMING IMPACT:**

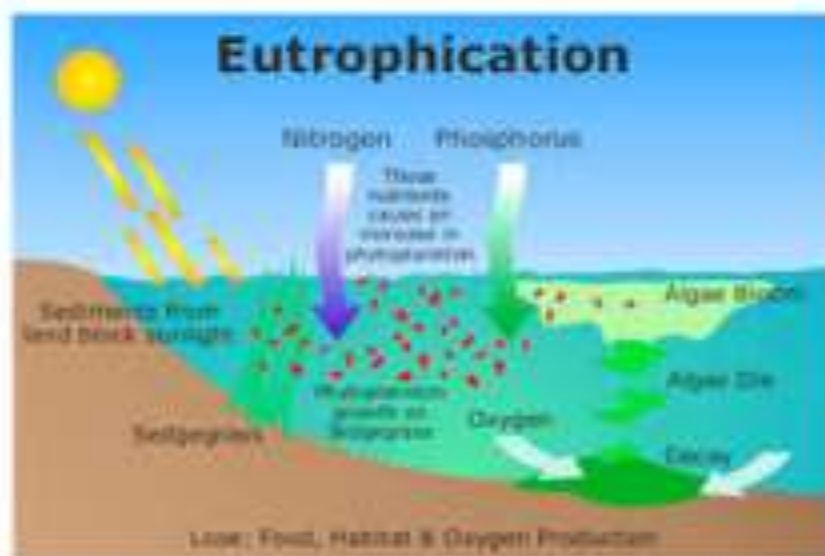
- as the global population increases more food is needed.
- Such measure may be met through more intensive farming or through deforestation to create new farm lands.
- Agriculture is responsible for about 80 percent of deforestation worldwide.
- The agricultural runoff of excess fertilizer is one of the main causes of eutrophication , which depletes water from oxygen and result in significant negative impacts for marine life.





## EUTROPHICATION:

- It is caused due to the agricultural runoff.
- The presence of excessive nutrients in the bodies of water , such as large pockets like the dead zone of the gulf of mexico.
- Eutrophication causes the dense growth of plant life that consumes oxygen resulting in the death o the aquatic animals.
- Other major source of eutrophication are industry and sewage disposal both are related to population growth.



## Loss of fresh water:

- Only 2.5 % of the water resources are fresh water , and just a small fraction of that is available as unpolluted drinking water.
- one of the byproducts of population growth has been stress on freshwater supplies.
- according to one report around 15 percent of the world's population lived in water stressed regions in 2016 the amount has been projected to reach 50 percent by 2030.





## Impacts of atmosphere:

### Global warming:

- Human population growth and climate change have grown hand and hand as the use of fossil fuels has exploded to support industrialized societies.
- More people means more demand for oil, gas, coal and other fuel mined or drilled below the earth's surface when burned, spew enough carbon dioxide  $\text{CO}_2$  into the atmosphere to trap warm air inside like a greenhouse.
- Most of the fossil fuel consumption comes from developed countries.



# Air pollution:

- **Air pollution** includes greenhouse gases. One of these is carbon dioxide, a common part of the exhaust from cars and trucks.
- Greenhouse gases cause global warming by trapping heat from the Sun in the Earth's **atmosphere**.
- Scientists predict that much more warming will likely happen during the next century.
- "Burning fossil fuels releases gases and chemicals into the **air**." And in an especially destructive feedback loop, **air pollution** not only contributes to climate change but is also exacerbated by it.





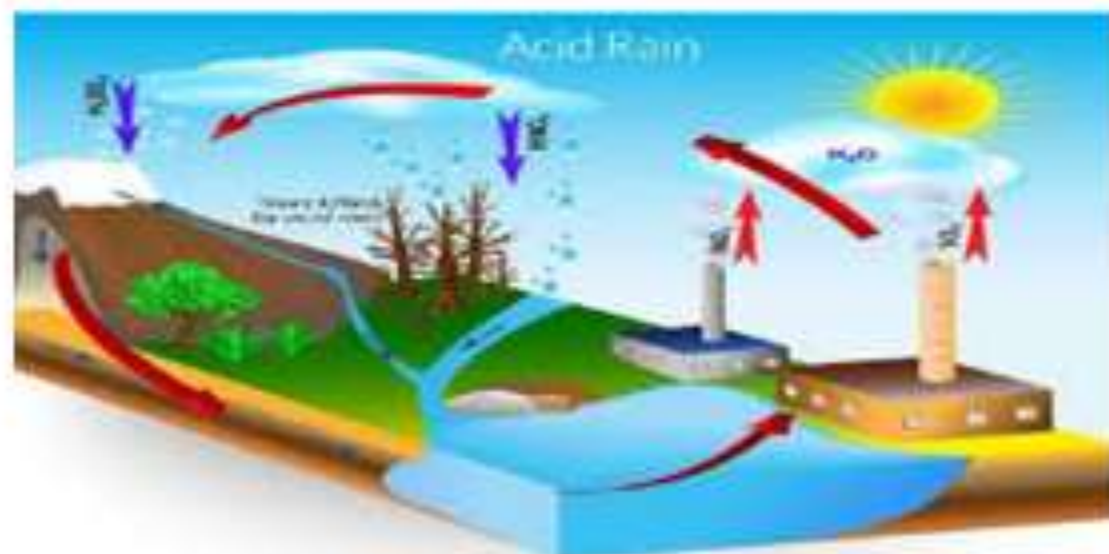
# Water pollution:

- In the **atmosphere**, **water** particles mix with carbon dioxide sulphur dioxide and nitrogen oxides, this forms a weak acid.
- When it rains the **water** is **polluted** with these gases, this is called acid rain.
- When acid rain pollutes marine habitats such as rivers and lakes, **aquatic** life is harmed
- The result is that **water** bodies also get contaminated and this affects animals and **water** organisms.



# Acid rain:

- The ecological **effects of acid rain** are most clearly seen in aquatic environments, such as streams, lakes, and marshes where it can be harmful to fish and other wildlife.
- As it flows through the soil, **acidic rain** water can leach aluminum from soil clay particles and then flow into streams and lakes.
- the pollutants that cause **acid rain**—sulfur dioxide ( $\text{SO}_2$ ) and nitrogen oxides ( $\text{NO}_x$ )—**do** damage **human** health.
- These gases interact in the atmosphere to form fine sulfate and nitrate particles that can be transported long distances by winds and inhaled deep into people's lungs.



## Release of (co2)carbon dioxide:

- Extra **carbon dioxide** in the **atmosphere** increases the greenhouse effect. More thermal energy is trapped by the **atmosphere**, causing the planet to become warmer than it would be naturally.
- This **increase** in the Earth's temperature is called global warming .





# Climate change:

- impacts from climate change are happening now. These impacts extend well beyond an increase in temperature, affecting ecosystems and communities in the United States and around the world.
- Things that we depend upon and value — water, energy, transportation, wildlife, agriculture, ecosystems, and human health — are experiencing the effects of a changing climate.



# **REFERENCES**

## ANNUAL NUMBER OF DEATHS BY WORLD REGION

<https://ourworldindata.org/grapher/annual-number-of-deaths-by-world-region>

[https://ourworldindata.org/grapher/births-and-deaths-projected-to-2100?country=~OWID\\_WRL](https://ourworldindata.org/grapher/births-and-deaths-projected-to-2100?country=~OWID_WRL)

## DEPOPULATION

[https://www.youtube.com/watch?v=xhGZ-dnCf\\_4](https://www.youtube.com/watch?v=xhGZ-dnCf_4) (Serbia)

<https://www.youtube.com/watch?v=ItnY3o-iJu4> (Japan)

## DEPOPULATION IN HISTORY

<https://www.youtube.com/watch?v=YBCKiAg0zIc>

## TOP 10 MOST POPULOUS COUNTRIES IN THE WORLD (2007)

<https://myfunkytravel.com/most-populated-countries.html>

## TOP 10 MOST POPULOUS COUNTRIES IN THE WORLD (2050)

<https://www.internetworldstats.com/stats8.htm>

## POPULATION GROWTH TO BE IN DEVELOPING WORLD

<https://www.consultancy.uk/news/2191/97-percent-of-population-growth-to-be-in-developing-world>



# POPULATION BY AGE BRACKET WITH UN PROJECTIONS, INDIA

<https://ourworldindata.org/indias-population-growth-will-come-to-an-end>

## AGE SPECIFIC DEATH RATE

<https://www-doh.state.us>

<https://www.dyingmatters.org>

<https://www.bmj.com>

<https://www.mapsofindia.com/my-india/society/why-does-india-have-the-highest-child-mortality-rate-in-the-world>

<https://blog.forumias.com/answeredinfant-mortality-rates-in-india-are-still-one-of-the-highest-in-the-world-with-significant-regional-variations-elaborate/>

[https://www.researchgate.net/figure/Forecasts-of-age-specific-death-rates-for-India\\_fig8\\_233909727](https://www.researchgate.net/figure/Forecasts-of-age-specific-death-rates-for-India_fig8_233909727)

[https://en.wikipedia.org/wiki/Infant\\_mortality](https://en.wikipedia.org/wiki/Infant_mortality)

<http://news.bbc.co.uk/2/hi/8652074.stm>

[https://www.ined.fr/en/everything\\_about\\_population/graphs-maps/interpreted-graphs/age-risk-mortality/](https://www.ined.fr/en/everything_about_population/graphs-maps/interpreted-graphs/age-risk-mortality/)

## CRUDE BIRTH RATE

<https://www.economicdiscussion.net/articles/10-causes-of-high-birth-rate-in-india-explained/2243>

<https://stats.oecd.org/glossary/detail.asp?ID=490>

<https://sciencing.com/calculate-crude-birth-rate-4567314.html>

<https://www.volusonclub.net/empowered-womens-health/4-contributing-factors-to-declining-fertility-rates-a-global-overview/>

## CRUDE DEATH RATE

<https://www-doh.state.nj.us/doh-shad/view/sharedstatic/CrudeDeathRate.pdf>

<https://knoema.com/atlas/topics/Demographics/Mortality/Crude-death-rate>

<https://stats.oecd.org/glossary/detail.asp>

<https://ec.europa.eu/eurostat/statistics>

## NET REPRODUCTION RATE

<http://www.appstate.edu> › ~neufeldhs › bio1102 › lectures

<https://www.slideshare.net>

**THANK YOU**