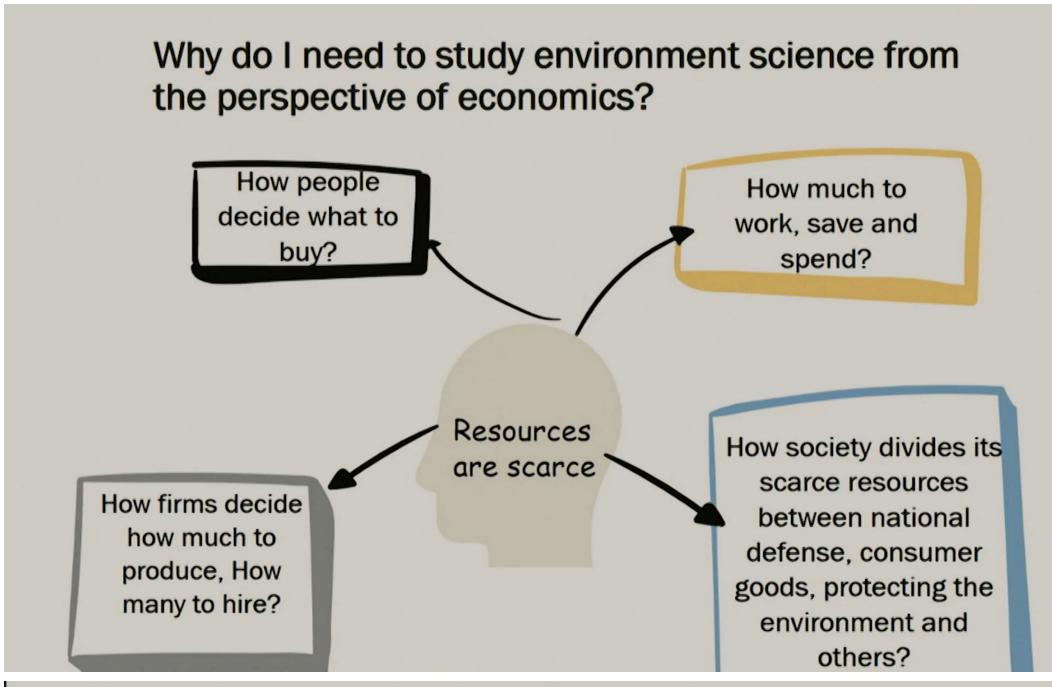


# Economics

28 April 2024 12:43



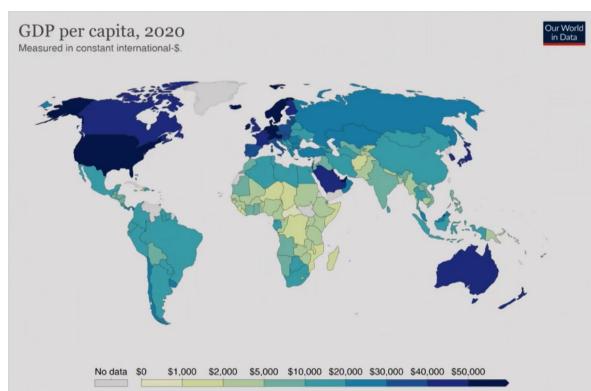
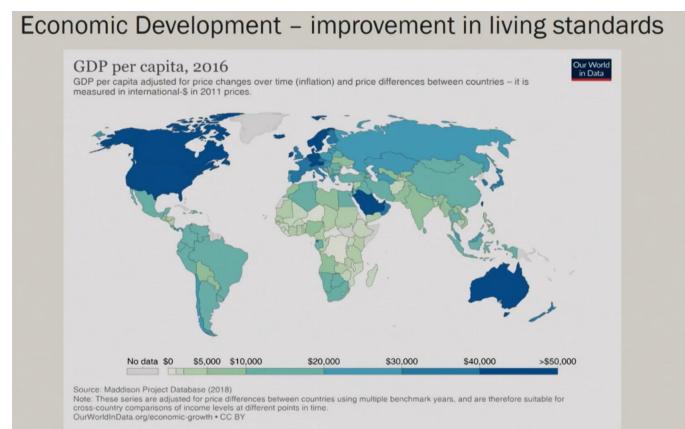
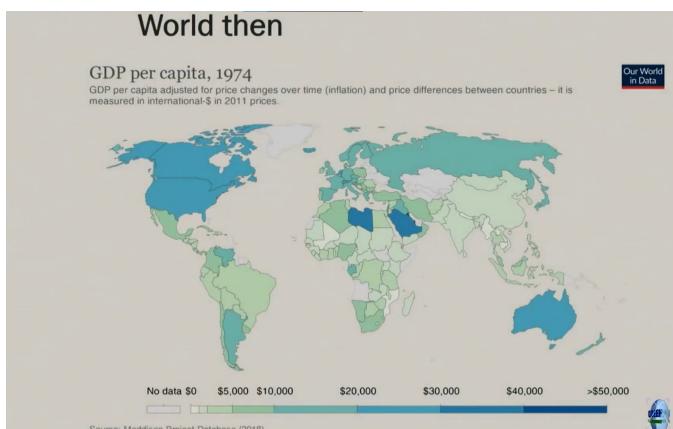
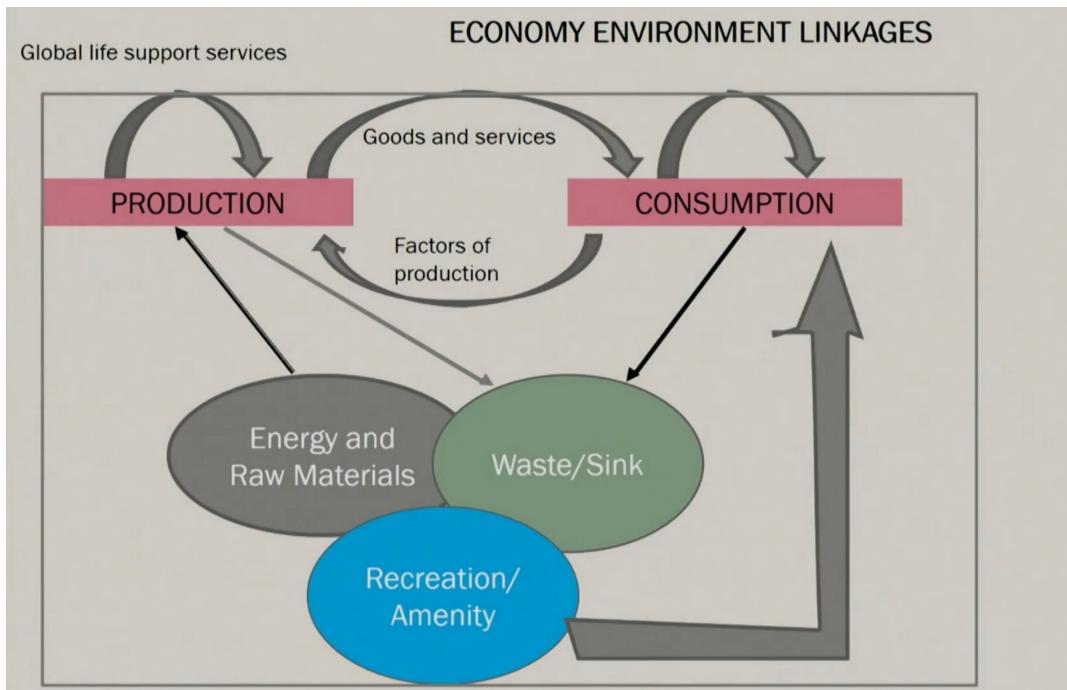
## Principles of economics relevant for environmental science

The principles of decision-making are:

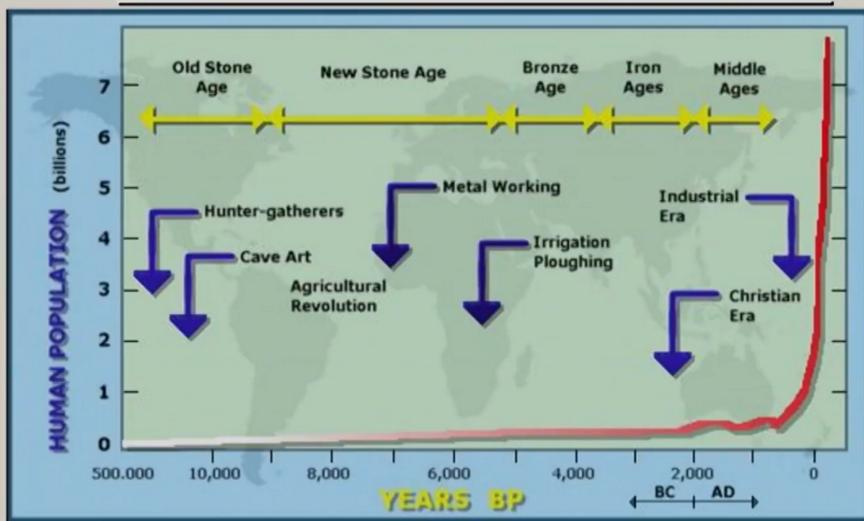
- People face tradeoffs.
- The cost of any action is measured in terms of foregone opportunities.
- Rational people make decisions by comparing marginal costs and marginal benefits.
- People respond to incentives.
- Trade can be mutually beneficial.
- Markets are usually a good way of coordinating trade.
- Govt can improve market outcomes if there is a market failure or the market outcome is inequitable.
- A country's standard of living depends on the ability to produce goods and services

## Structure of modules

- Module 1: Overview of the links between Human activities, economy and environment
- Module 2: Underlying reasons why environment problems (pollution) exist?
- Module 3: Local and Transboundary Pollution
- Module 4: Policy Instruments to Control Pollution



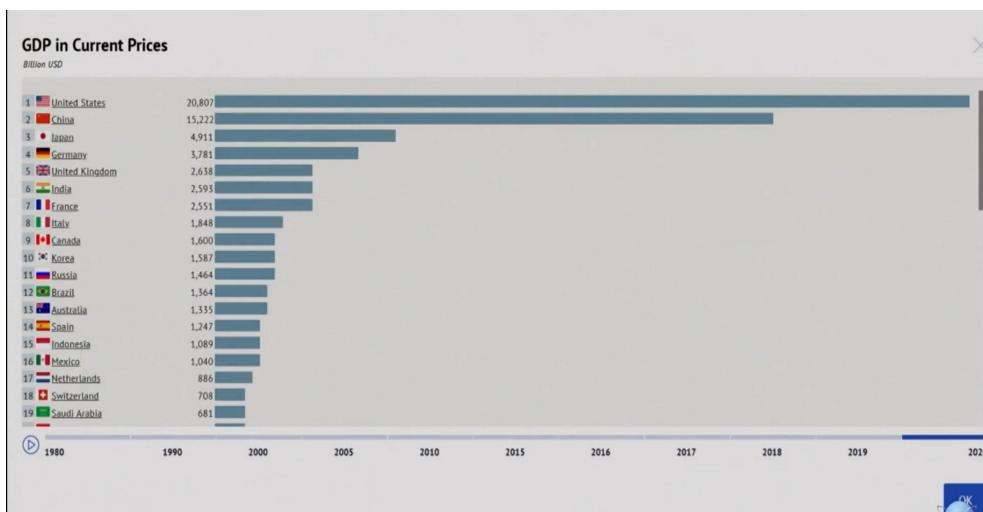
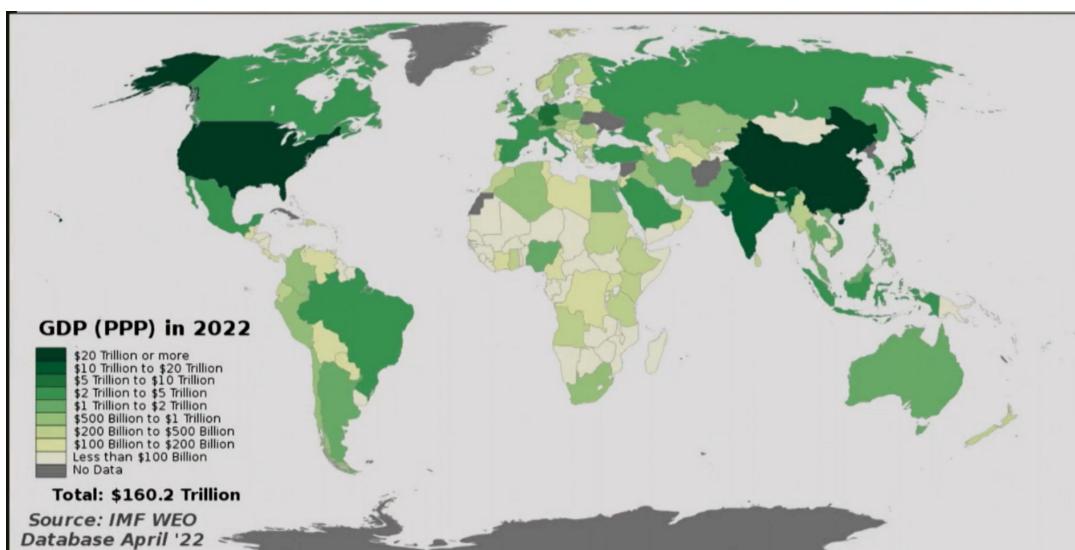
## How is population closely linked with cultural development?

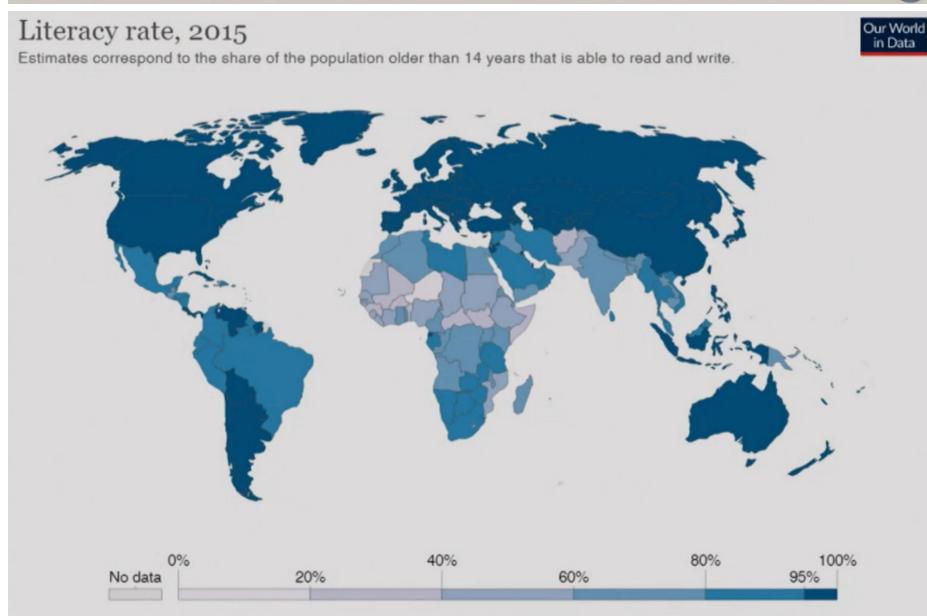
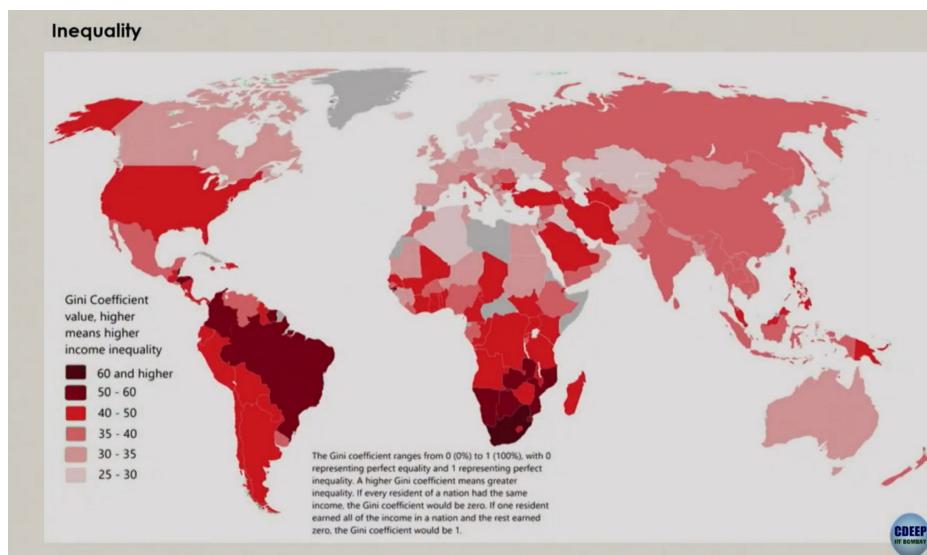
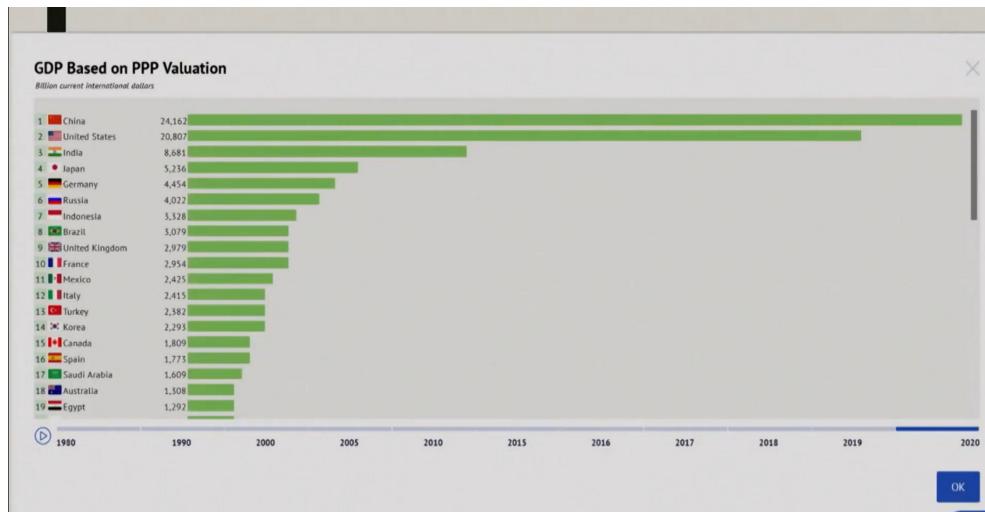


Source: Resilience.earth.lsauimich.edu

Humans are the large driving force on Earth.

Required only 40 years after 1950 for the population to double from 2.5 billion to 5 billion





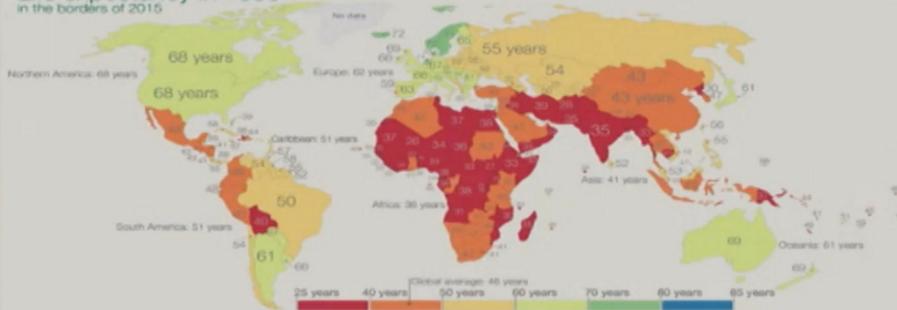
# Life expectancy in 1800, 1950, and 2015

OurWorld  
in Data

## Life expectancy in 1800 in the borders of 2015



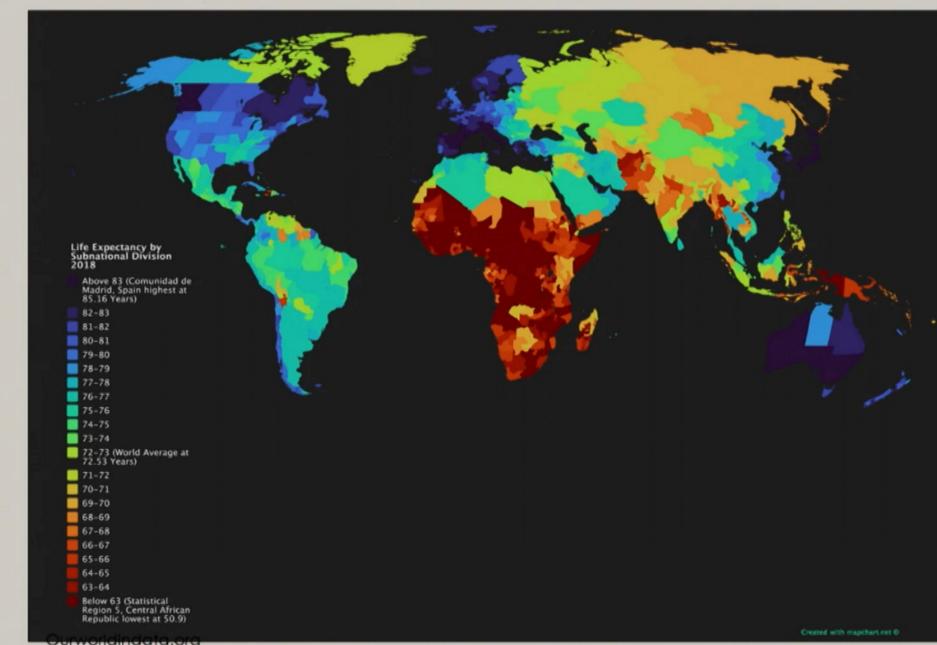
## Life expectancy in 1950 in the borders of 2015

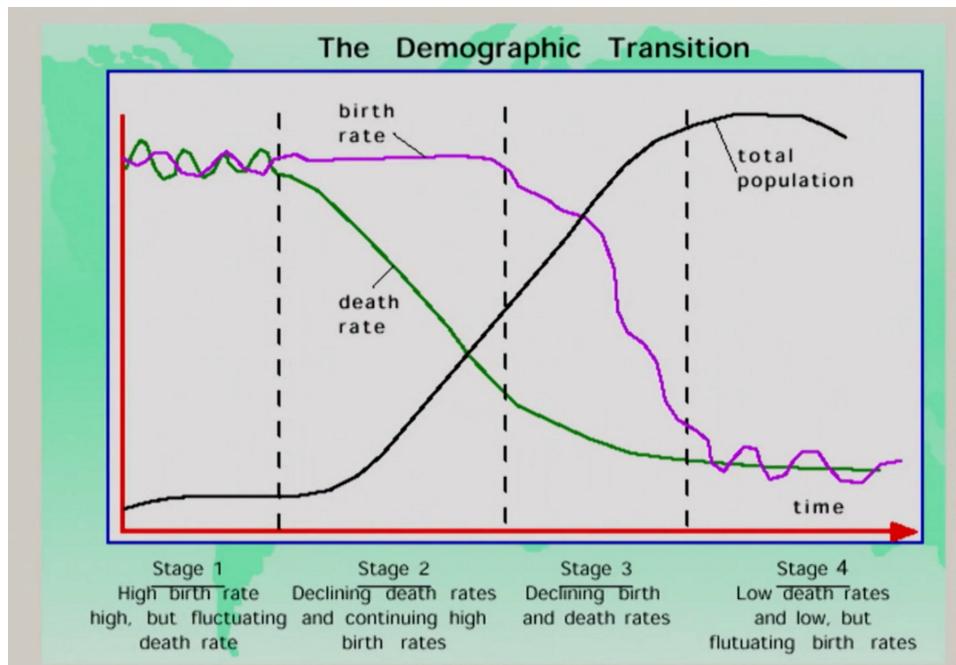


## Life expectancy in 2015

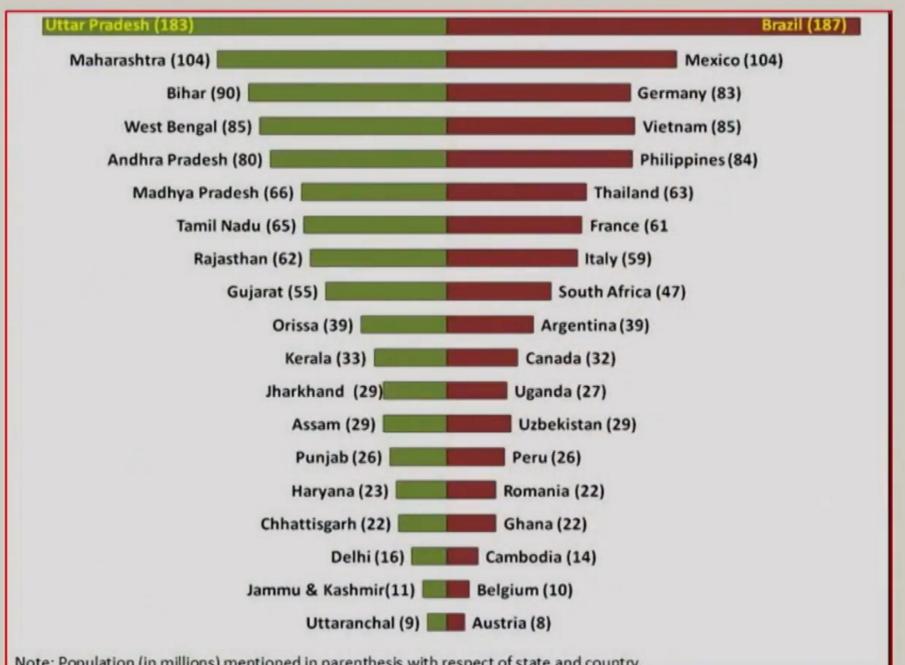


# Life Expectancy

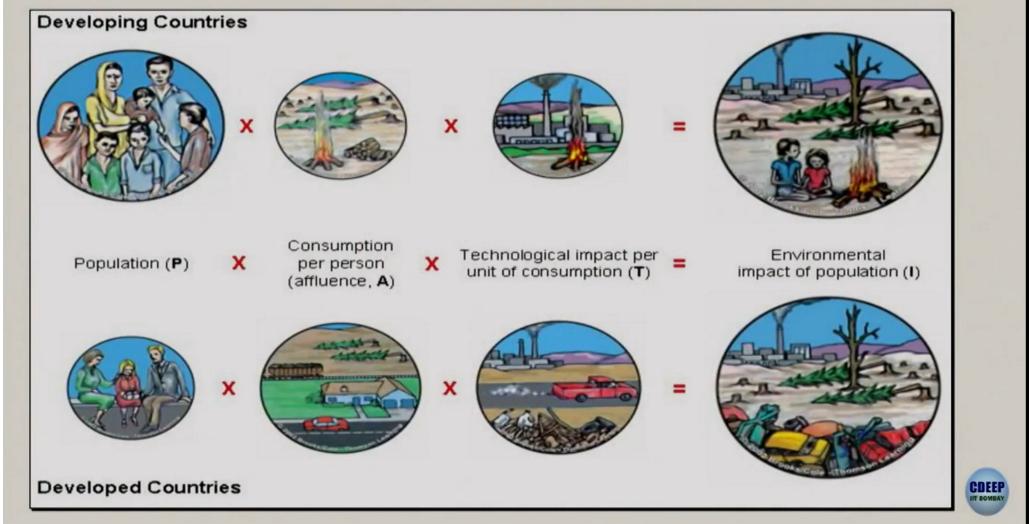




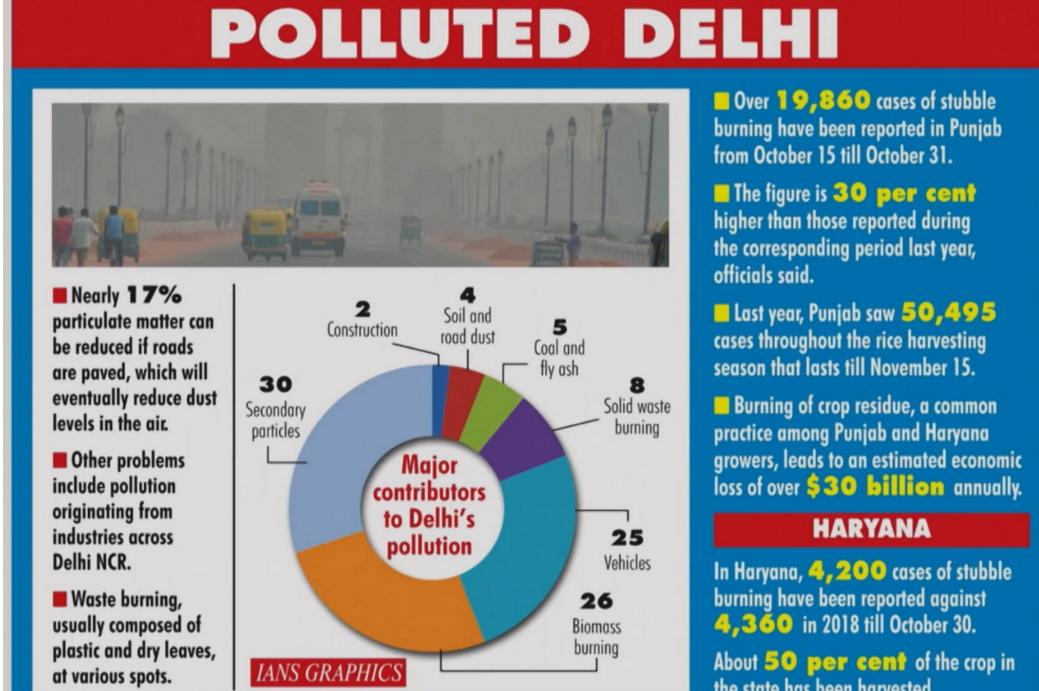
### Comparison of population in Indian states with that of different countries



# Environmental Impact



## POLLUTED DELHI



## Bellandur Lake, Bangalore



The toxic foam and fire in Bellandur, the largest of the 262 of the Lakes and tanks in the state. It receives 40% of the city sewage. Reasons: debris, effluents dumped in the lake, methane build up on the surface of the lake , froth due to chemical deposits from detergents and cleaners

## The tallest mountain dump in Ghazipur,



Mumbai and Delhi generate about 11,000 and 8,700 tonnes per day of solid waste, respectively, according to CPCB estimates



## RIVER POLLUTION



the world's largest, fully habituated river island Majuli is situated in the middle of Brahmaputra, with the Kaziranga National Park touching Jorhat and Nagaon.

Source: Down to Earth

Maharashtra has the highest number of polluted river stretches (53), followed by Assam (44), Madhya Pradesh (22), Kerala (21), Gujarat (20), Odisha (19), and West Bengal and Karnataka (17).



## E-waste – the mounting threat



Mustafabad in northeast Delhi – one of India's largest electronic graveyards

Electronic or e-waste covers the three broad categories of electronic goods—white (think refrigerators, washing machines and air-conditioners); grey (desktop computers, laptops, cellphones and printers); and brown (television sets, cameras and recorders)

### Air pollution costs the economy

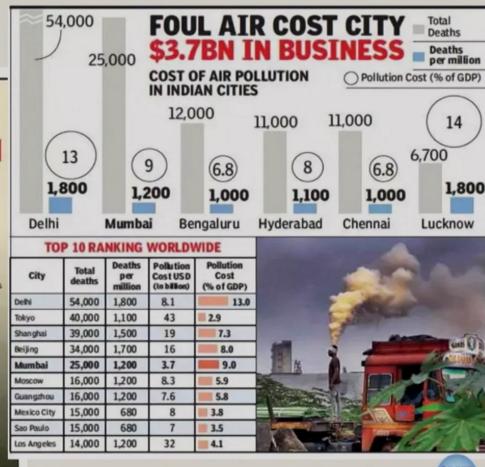
#### DELHI CHOCKE

PM2.5 in the air claimed  
**54,000** deaths in Delhi last year, despite a lockdown

There were  
**1,800** deaths per million in the capital last year

File photo

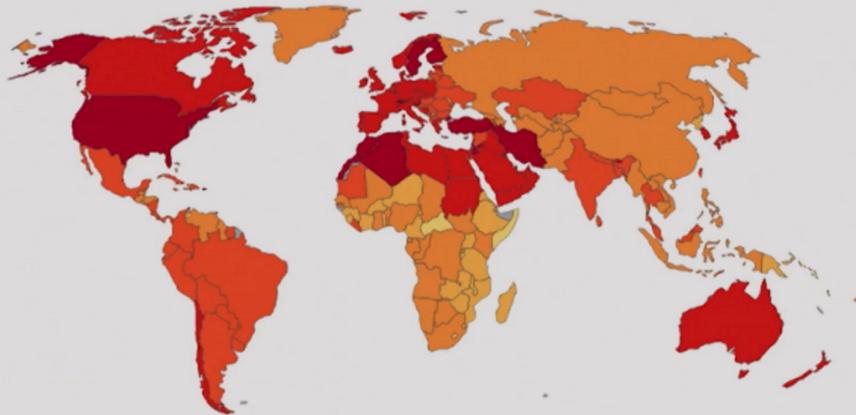
#### HOW OTHER CITIES FARED



### Expected years of living with disability or disease burden, 2016

Average number of years with disability an individual born in the respective year can expect to experience. This is calculated as the difference between total and healthy life expectancy.

Our World in Data

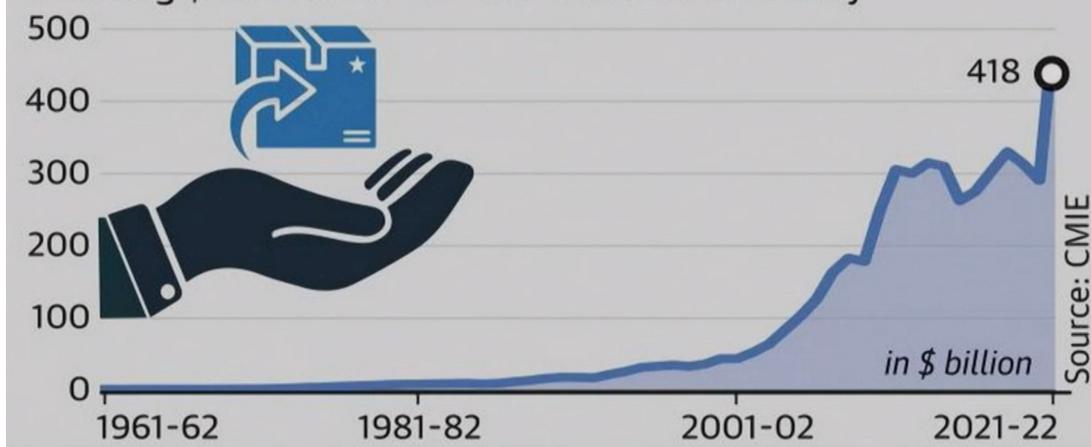


## How has the Indian GDP fared over the years?

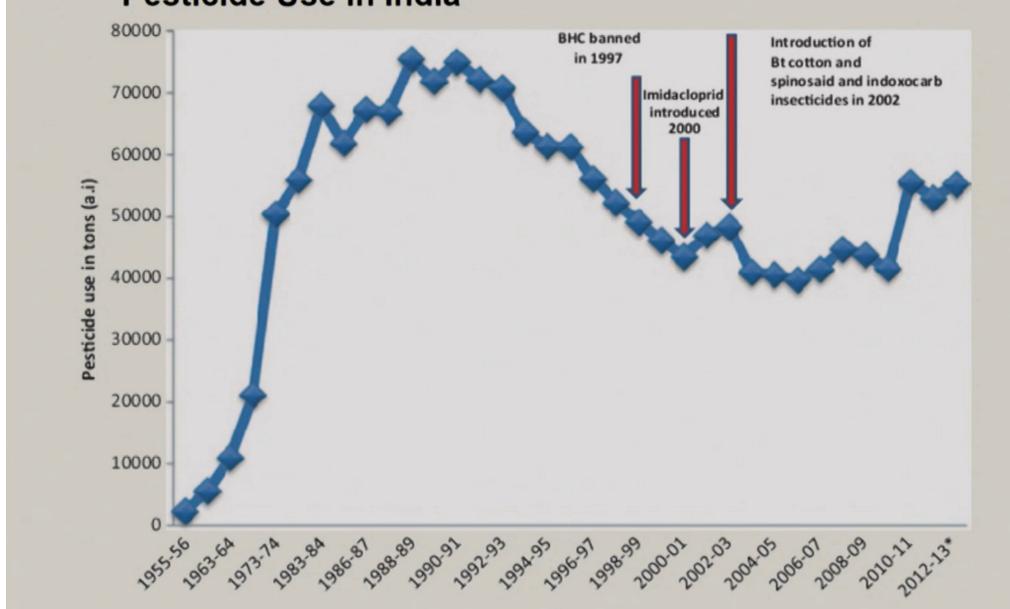


## Record-high surge in exports

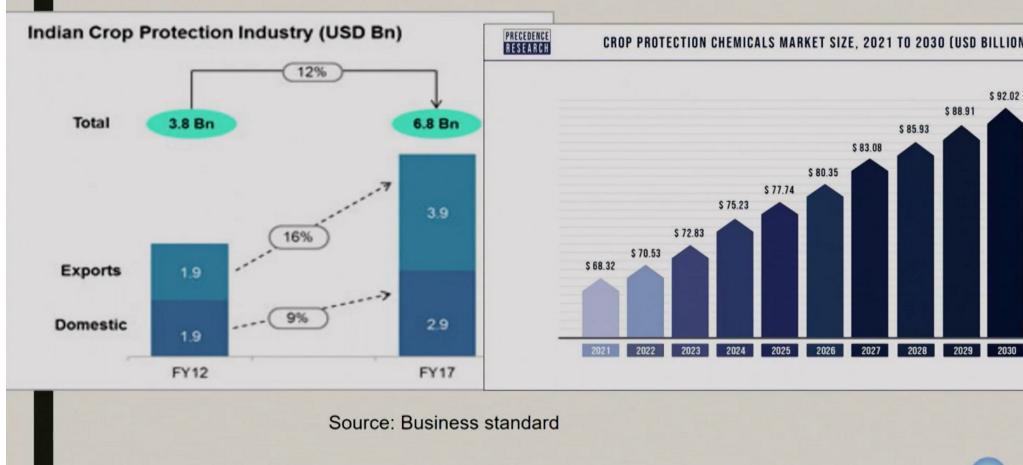
India's exports spurred to \$418 billion in the 2021-22 fiscal, crossing \$400 billion for the first time in history



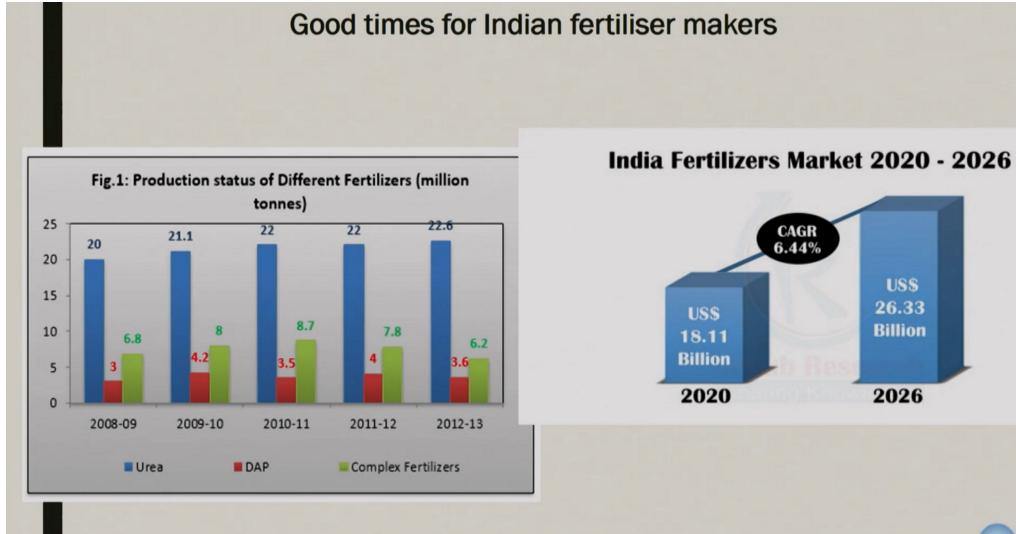
## Pesticide Use in India



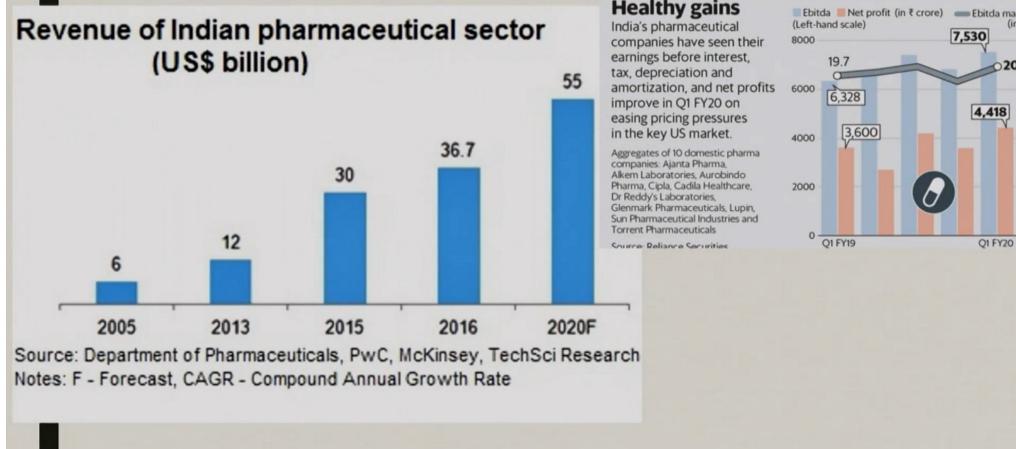
## India Development Inc...



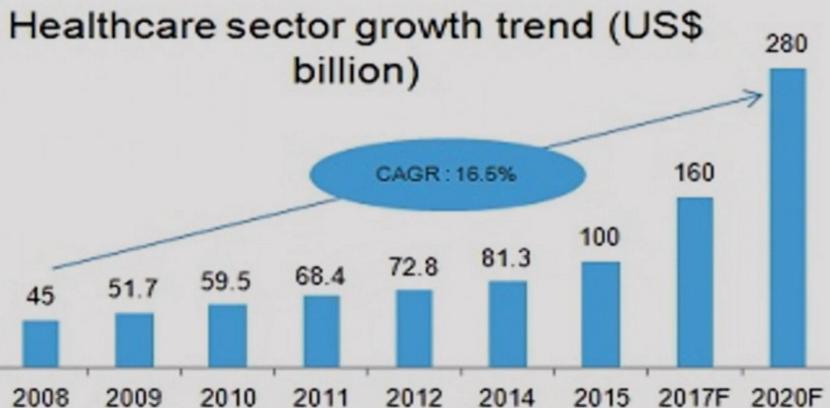
## Good times for Indian fertiliser makers



## India's booming health story



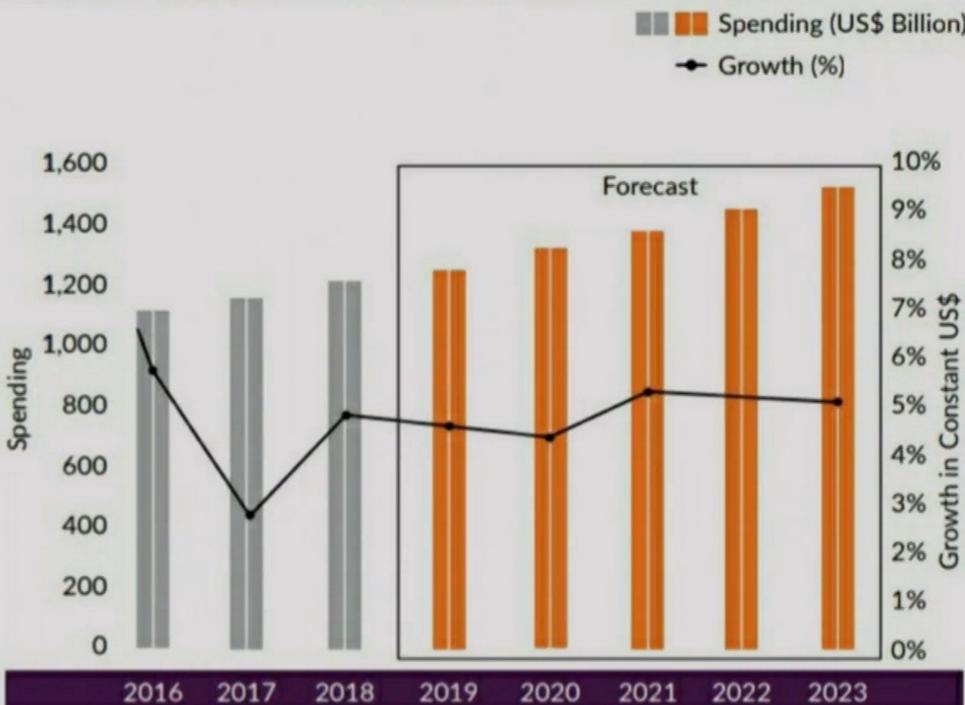
Increasing health conscious citizens



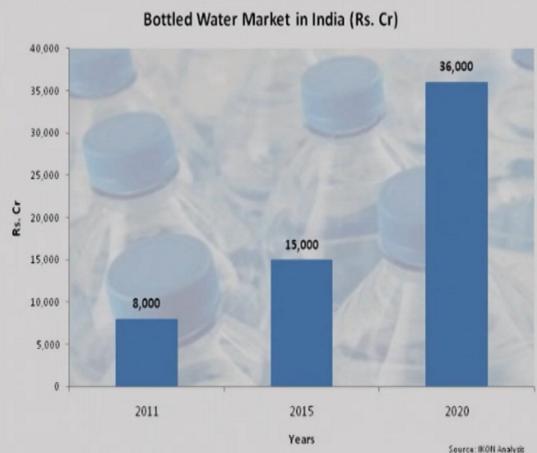
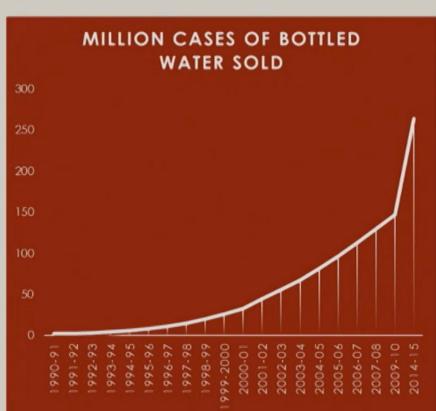
Source: Frost & Sullivan, LSI Financial Services, Deloitte, TechSci Research

Notes: E - Estimate, F - Forecast, CAGR - Compound Annual Growth Rate

**Chart 1 Global medicine spending and growth, 2016-23<sup>1</sup>**

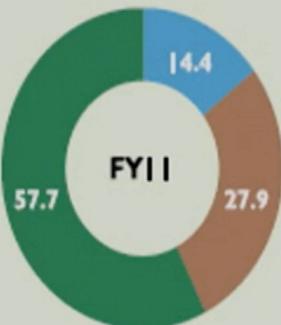
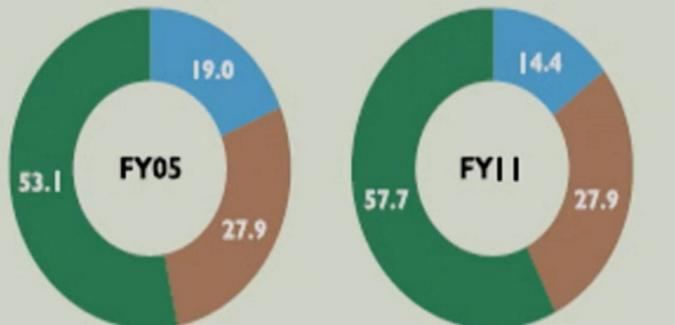


## Water – driving growth

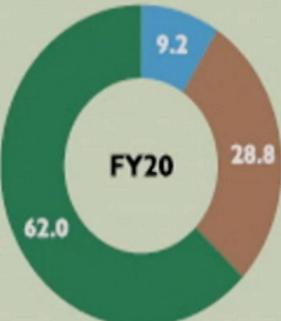
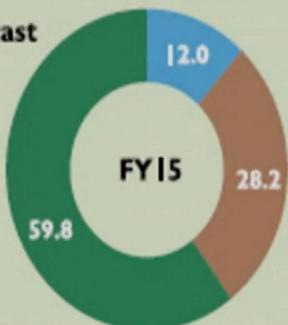


- Growing at 40 percent, 5000 crores business
- More than 200 brands, 80 percent local brands
- Market shares: Bisleri – 40%
- Kinley – 25%, Aquafina – 10%

**Chart I.5: Rising share of services sector in India's GDP**



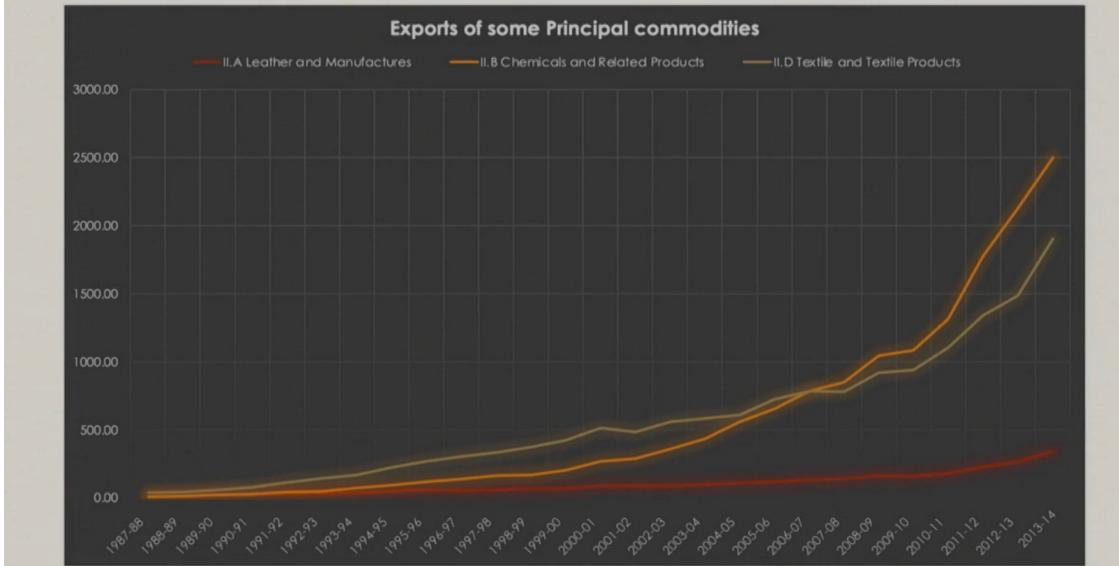
Forecast



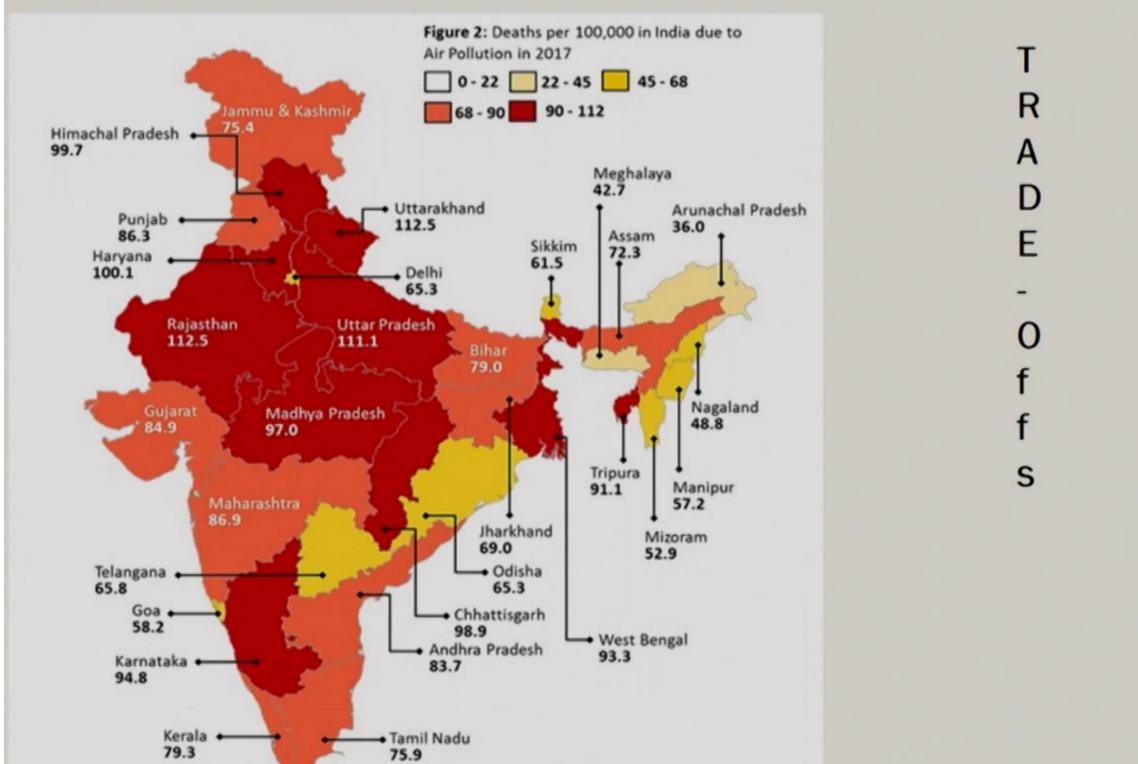
█ Agriculture  
█ Industry  
█ Services

All figures are at factor cost constant prices

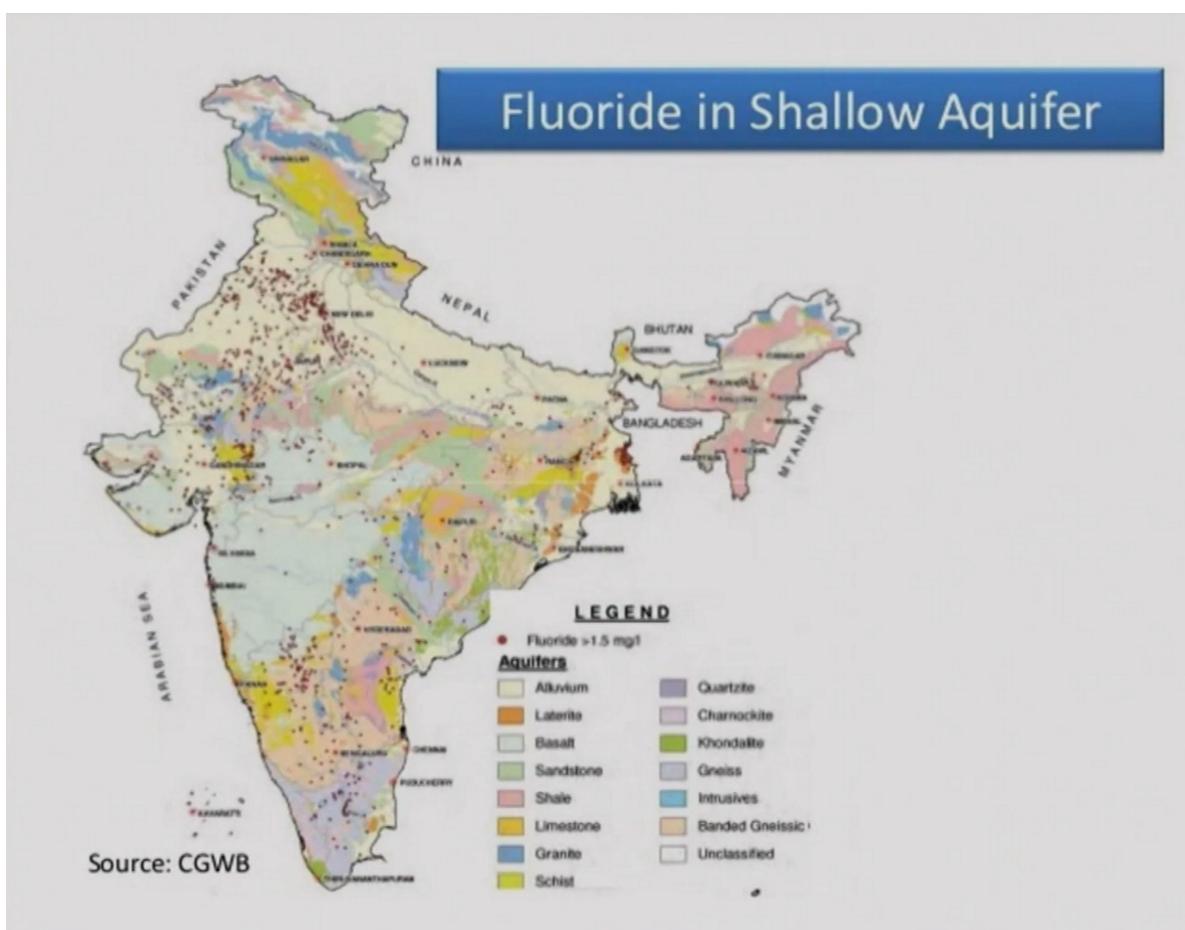
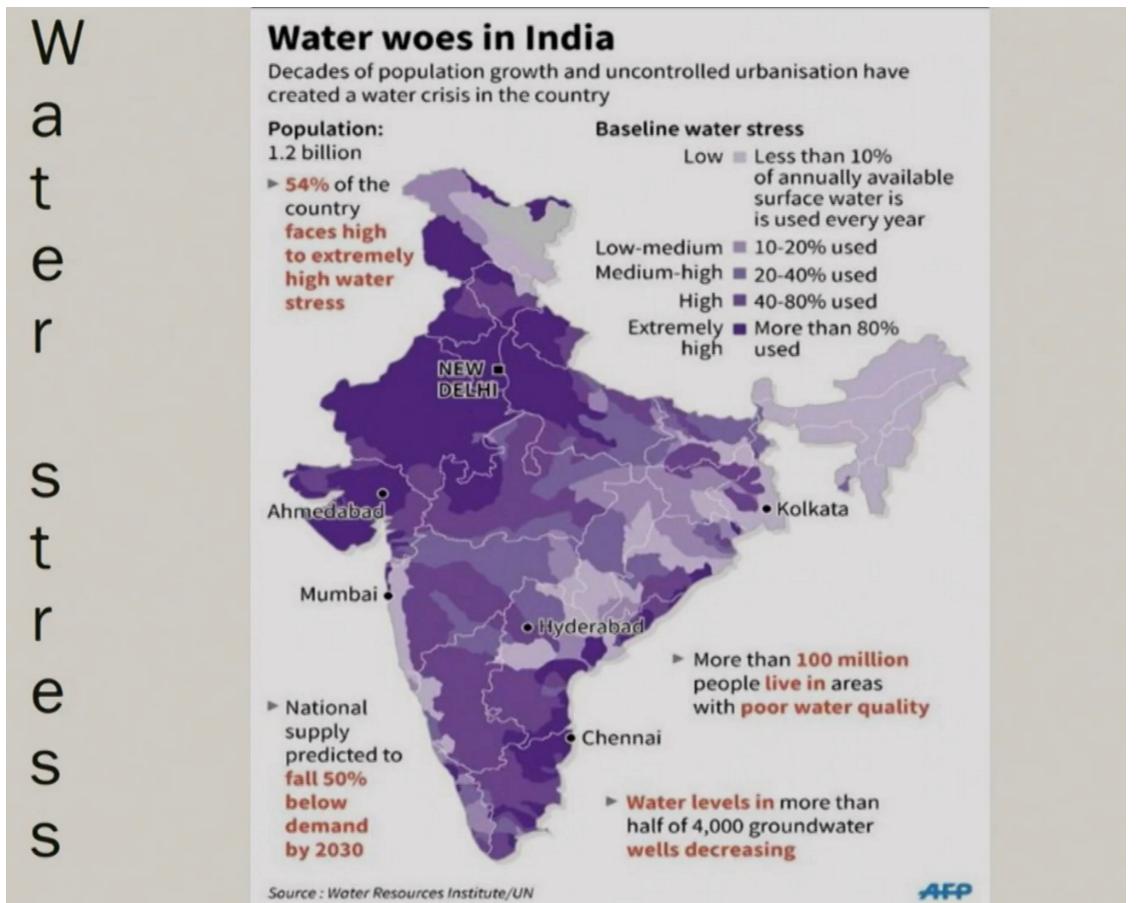
# India's booming exports

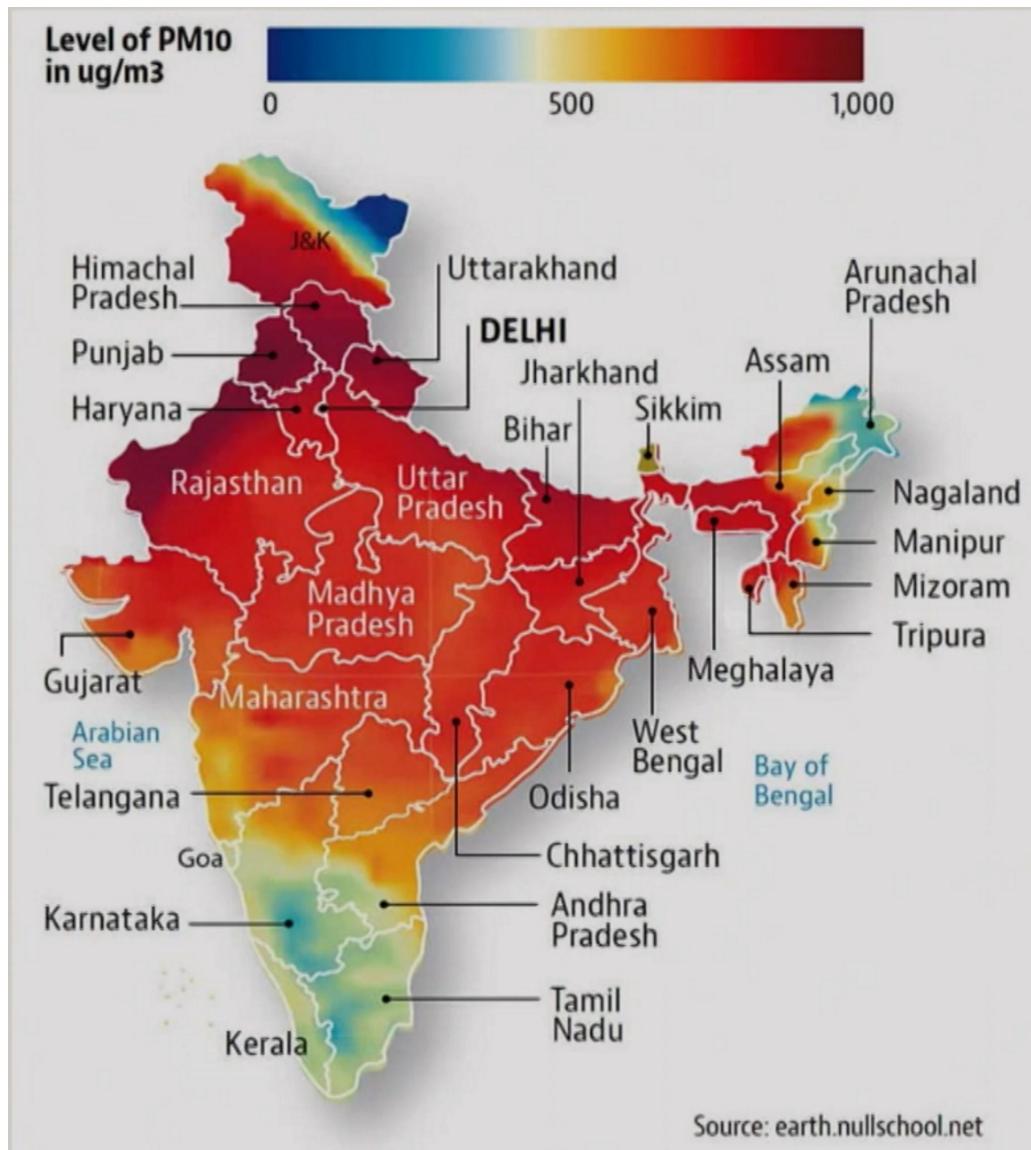


## Deaths due to air pollution



# Water Stresses





## Water - the real story

DEATHS DUE TO BAD WATER	
<b>8,324</b>	Total number of deaths in 4 years at 1 every 4 hours
2,167	No. of deaths in 2014 at 1 every 4 hours
2,244	Deaths in 2015 at 1 every 4 hours
2,501	Deaths in 2016 at 1 every 3 hours
1,412	Deaths in 2017 at 1 every 5 hours (up to September)

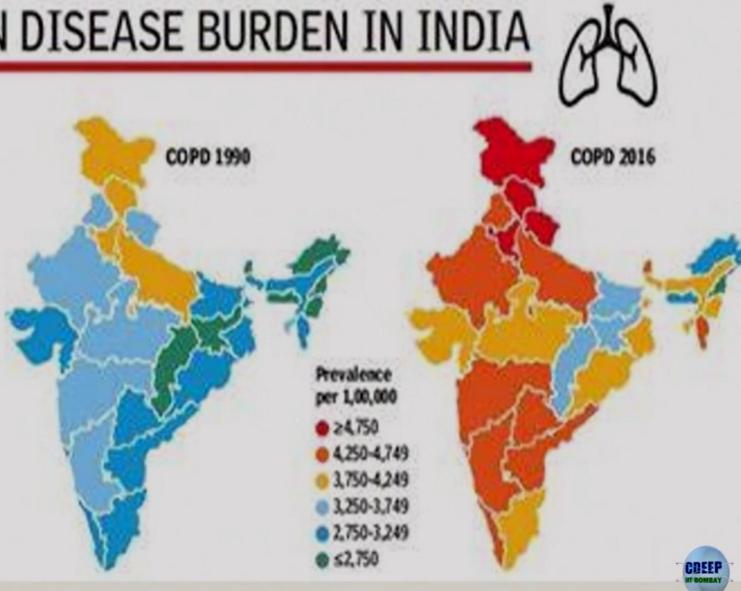
Source: Central Bureau of Health Intelligence & ministry of health



## COPD SECOND IN DISEASE BURDEN IN INDIA

Chronic respiratory diseases, including chronic obstructive pulmonary disease (COPD) and asthma, were responsible for 10.9% of the total deaths in India in 2016 compared with 9.6% in 1990.

- COPD is one of the leading non-communicable causes of death globally, as well as in India
- After ischaemic heart disease, COPD was the second leading cause of disease burden in India, contributing 8.7% of the total deaths
- The number of COPD cases in India increased from 28.1 million in 1990 to 55.3 million in 2016 while the number of COPD deaths went from 624,000 in 1990 to 848,000 in 2016



## So the Crux of the story is that

- There is a trade-off between the Economy and Environment
- Increasing populations contribute to the accelerated degradation of resources.
- Earth's carrying capacity is limited.
- Growing populations in the LDC have led to land, water, and wood shortages in rural areas and sanitation and water in urban areas.
- Relying solely on economic indicators as a source of well-being is incorrect.
- Trade-offs need to be considered in decision making
- The potential for new technologies, improved environmental governance, and behavioural changes may alleviate the resource strain.