AUSTRALIAN CENTRE FOR EDUCATION & TRAINING

ACET-Global: the importance of education and the environment

Australian expertise

25+ university collaborations

15+ years of business experience

20K+ people trained globally

15+ years of lecturing globally

Corporate Social Responsibility

Global Peace Project

Global Sanitation and Sustainability Project

Global Road Safety Project

Global Entrepreneurship Project

Global Climate Action Project

Global Water Management Project

Global Air Quality Project

Acknowledgement of Traditional Custodians

We acknowledge the Traditional Custodians of the land on which we work and live, and recognise their continuing connection to land, water and community. We pay respect to Elders past, present and emerging.

About us

Speaker profile - Miranda

- Business Relations Officer
- International Relations and Sociology
  - Environmental policy, management, and communication
- Sport/Camping/Cooking/Travel

About us

Speaker profile - Daniella

- CSR Project Supervisor and Business Relations Officer
- Environmental Science
- Community engagement and education
- Dance/Art/Camping

Presentation Roadmap

Global Air Quality Project (GAQP)

- What is the problem? How severe is it?
- What is the impact? Why act on it? Why learn about it?
- What are the solutions? What actions can be taken by organisations, governments, and individuals?

What is the Problem?

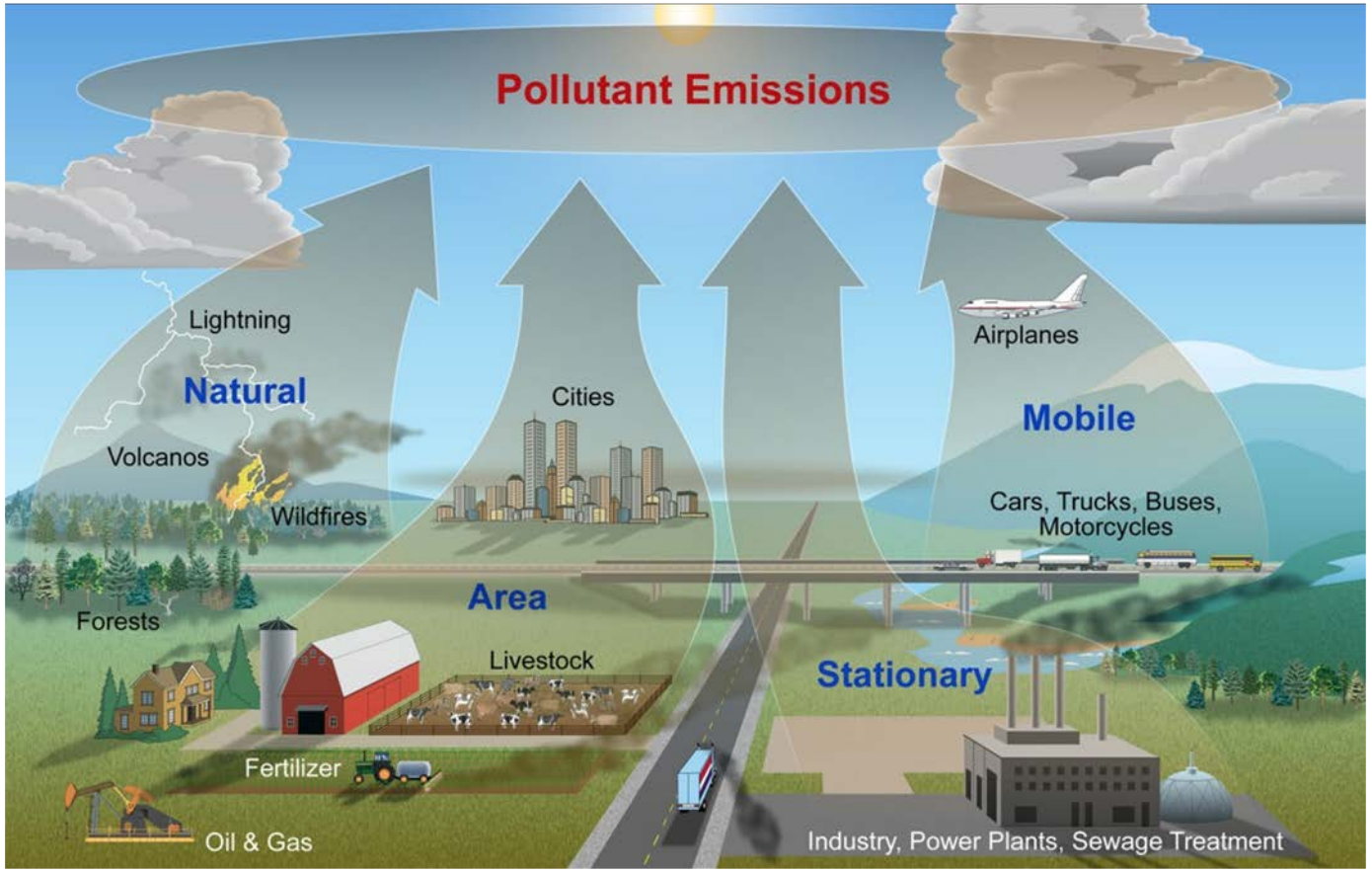
Air pollution refers to unwanted gaseous and particulate emissions into the climate

Types:

- **Ambient** (outdoor)
- **Household** (indoor)

Sources:

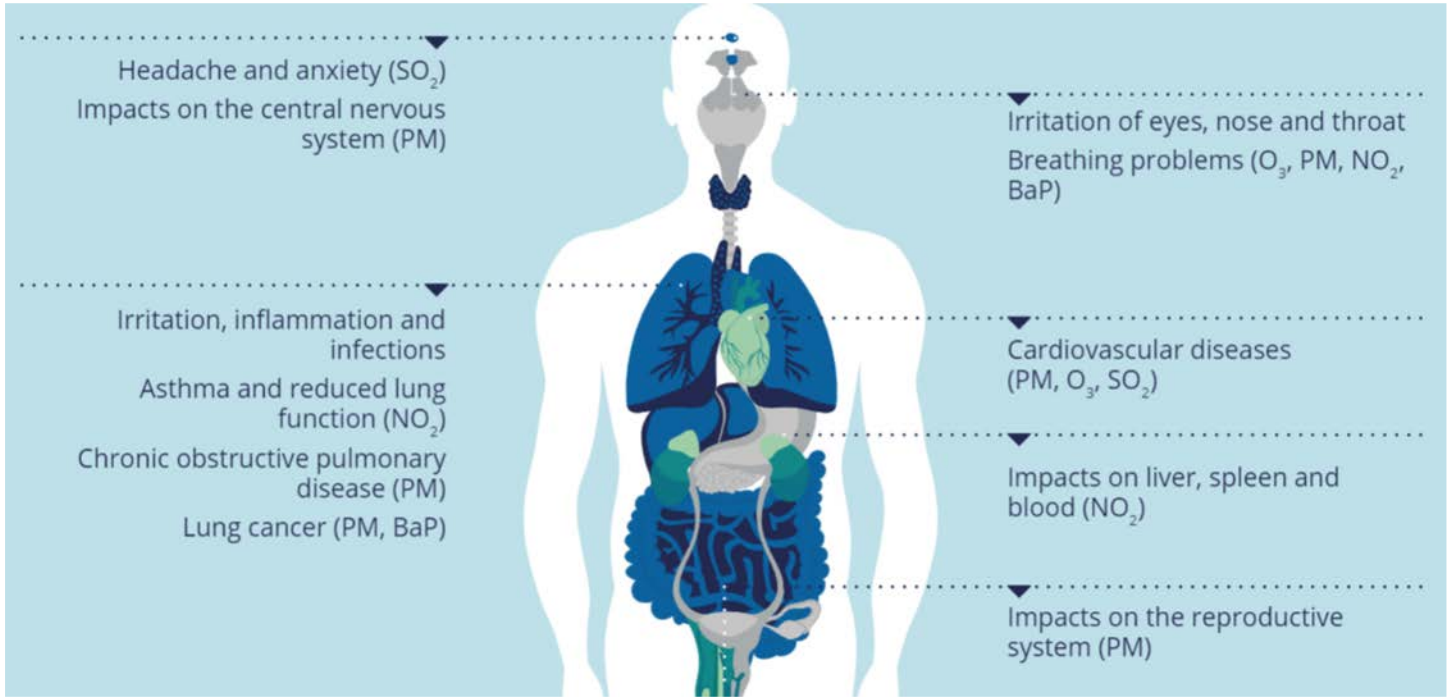
- **Anthropogenic**: human caused
- **Biogenic** and **geogenic**: natural living and non-living causes



What are the Impacts?

Health Implications

- Respiratory illnesses (Asthma)
- Cardiovascular disease
- Cancer
- Neurological diseases
- Range of vector borne diseases
- Heart attack
- Stroke

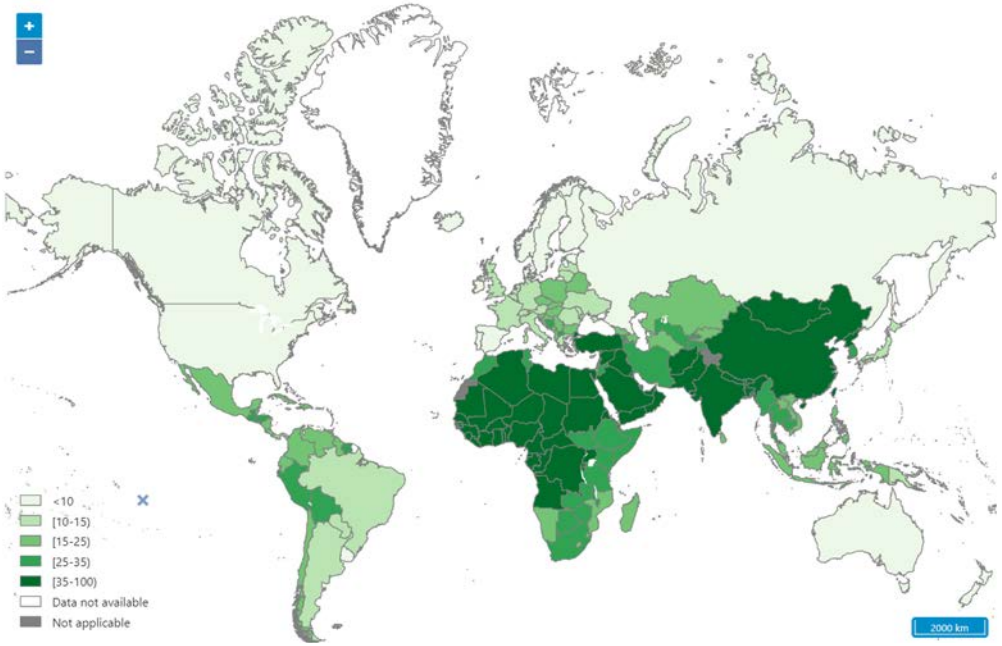


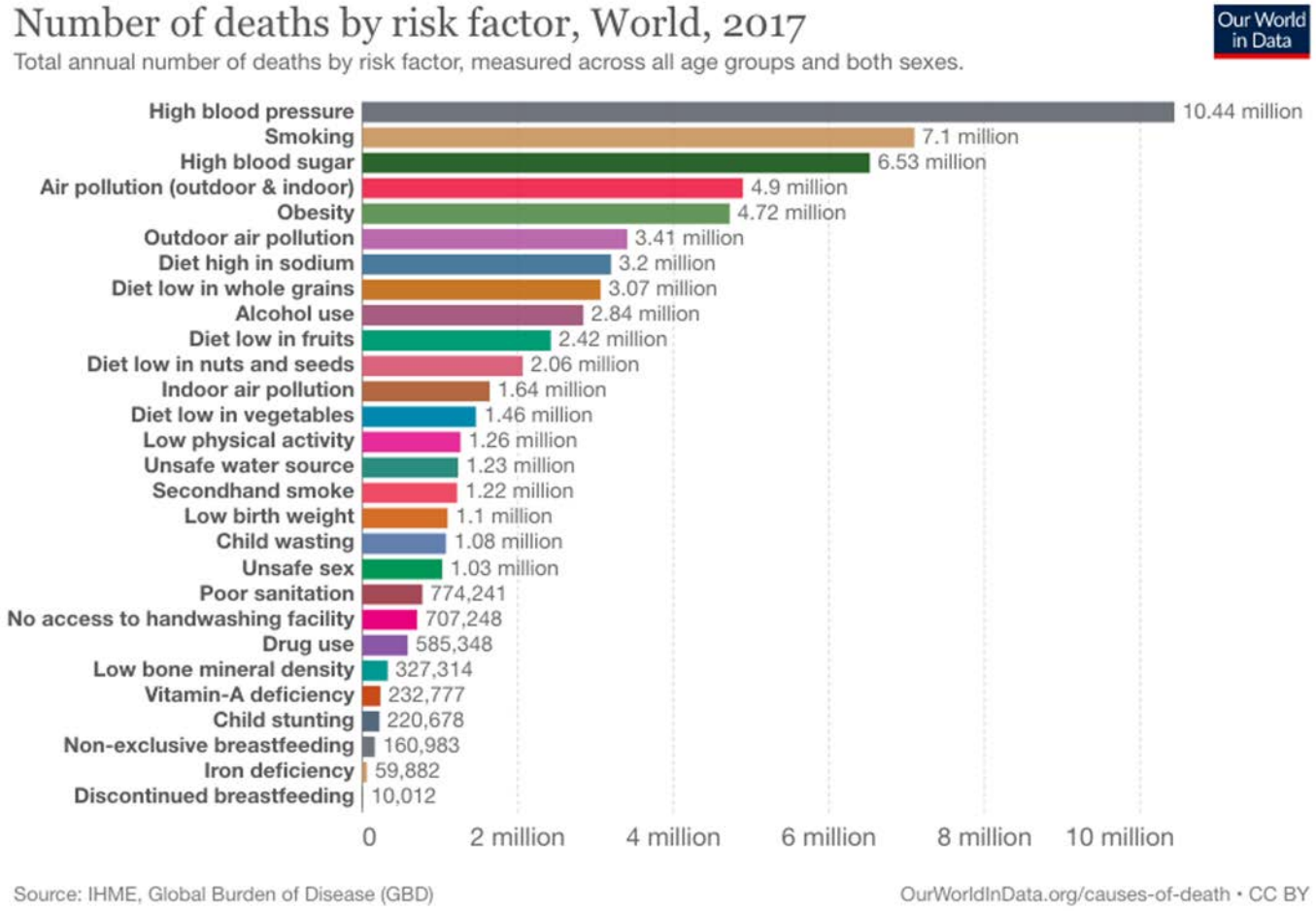
(Health Effects Institute 2020)

What are the Impacts?

Societal impacts

- Causes approximately **7 million deaths** per year
- Fourth leading cause of premature death
- Leading environmental cause of death
- Disproportionately affects people in LMICs



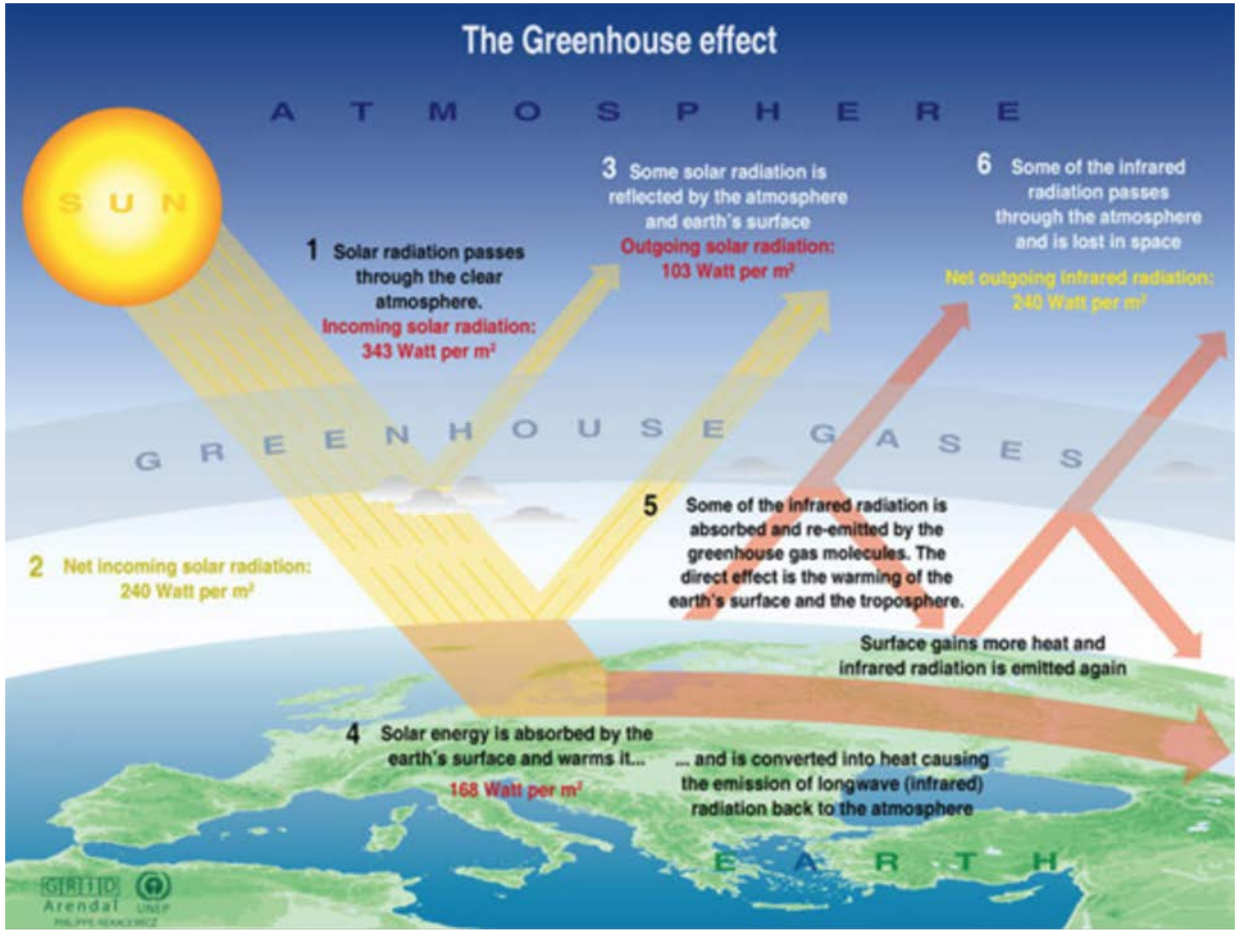


Global concentration of fine particulate matter (PM2.5). (WHO, 2022)

What are the Impacts?

Environmental impacts

- Global warming
- Ozone layer depletion
- Acid rain
    - Damage to crops and agriculture
    - Harm to wildlife
    - Haze
    - Eutrophication



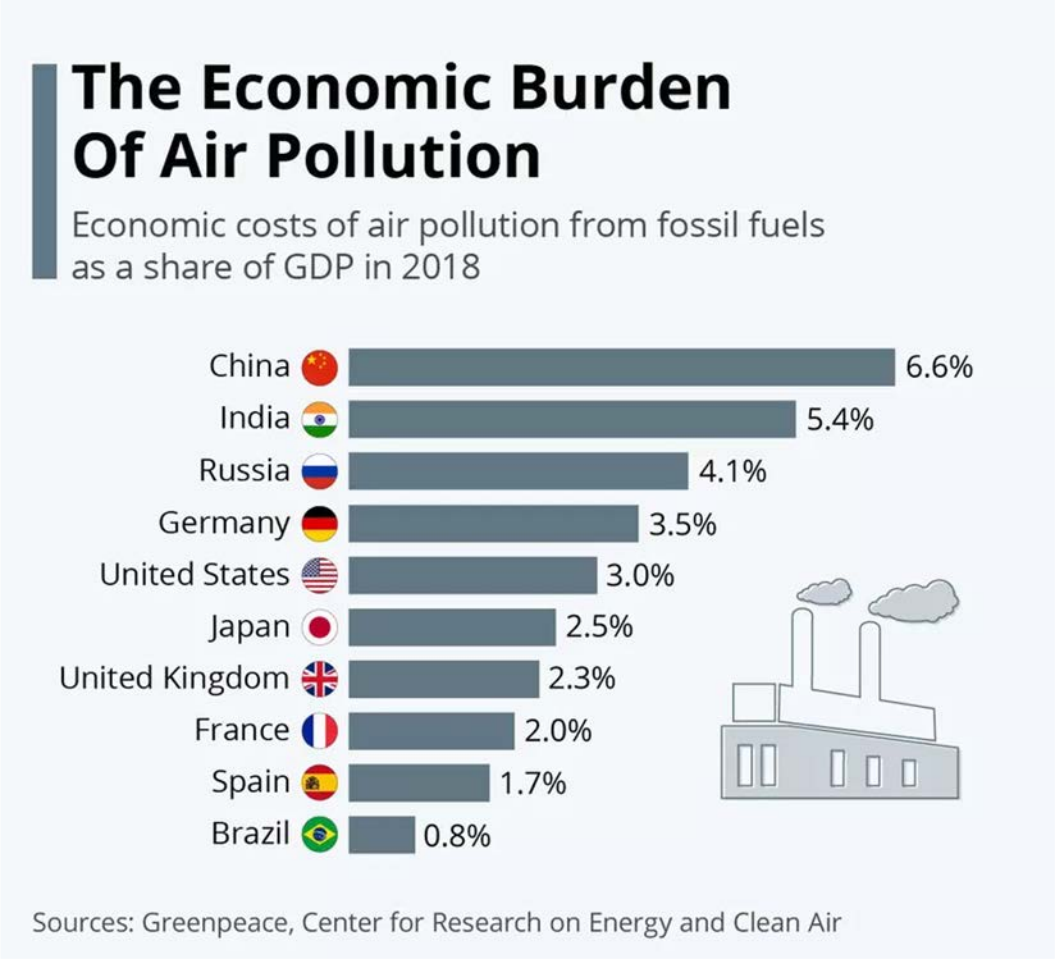
The greenhouse effect in the Earth's atmosphere (Osselin 2013)

What are the Impacts?

Economic impacts of air pollution:

OECD 2016 report, estimated that by 2060 global air pollution-related costs will reach:

- USD 176 billion in healthcare
- 3.7 billion annual lost working days
- USD 18-25 trillion annual welfare costs associated with the premature deaths
- USD 2.2 trillion annual welfare costs associated with pain and suffering from illness
- Economic costs of 1% of global GDP from market impacts



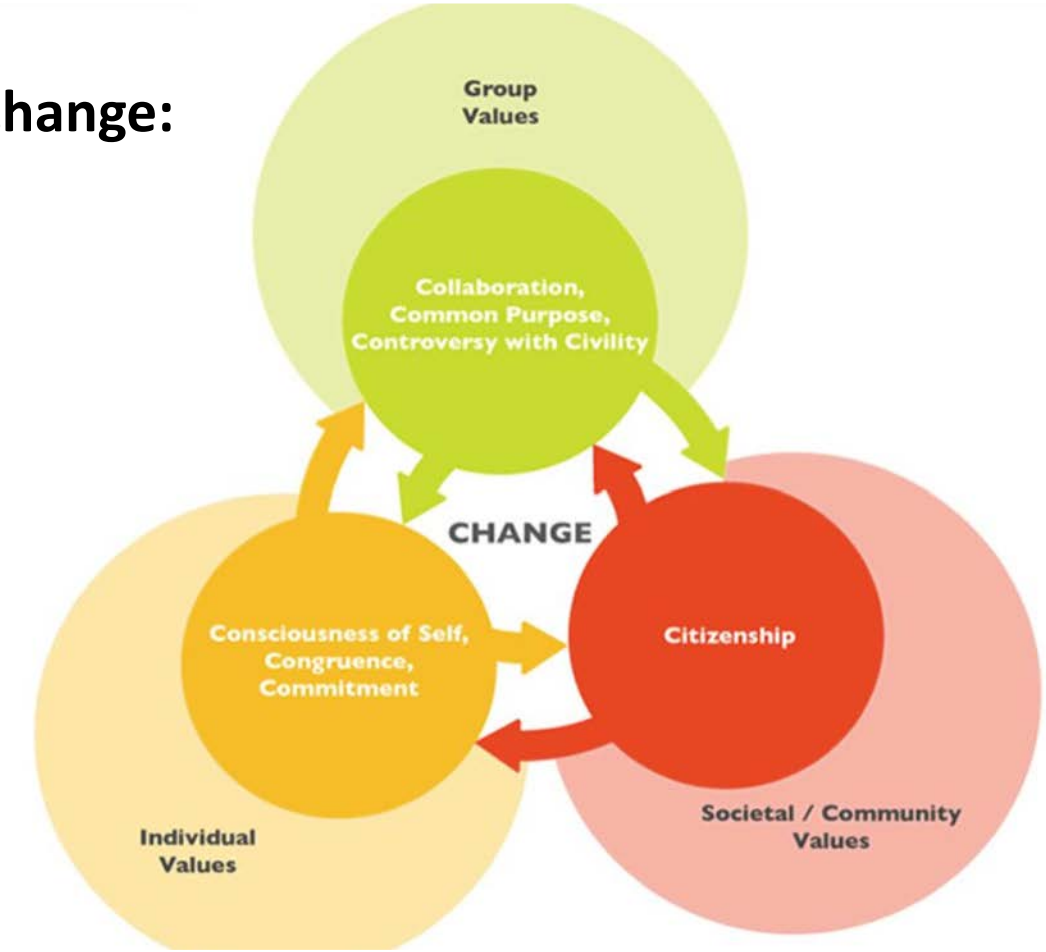
What are the Solutions?

Challenges to action

Economic	➔ Cost of renewables ➔ Costs of electric vehicles ➔ Economic activity
Policy	➔ Reliant on coal ➔ Priority setting ➔ Appropriate policy ➔ No standard method to gathering data
Social	➔ Shifting blame ➔ Population increase ➔ Socioeconomic status

What are the Solutions?

Driving action through social change:



Higher Education Research Institute [HERI], '*The Social Change Model of Leadership Development*', 1996.

Industry Action on Air Pollution

Strategies for Business and Industry

Conduct	Implement	Consider	Encourage
Regular evaluations of the market costs of the ambient air pollution.	Quotas and establish targets to minimise ambient air pollution.	Sustainable alternatives to sourcing labour and materials.	Employees to take measures that promote air quality consciousness.

Government and Policy Action

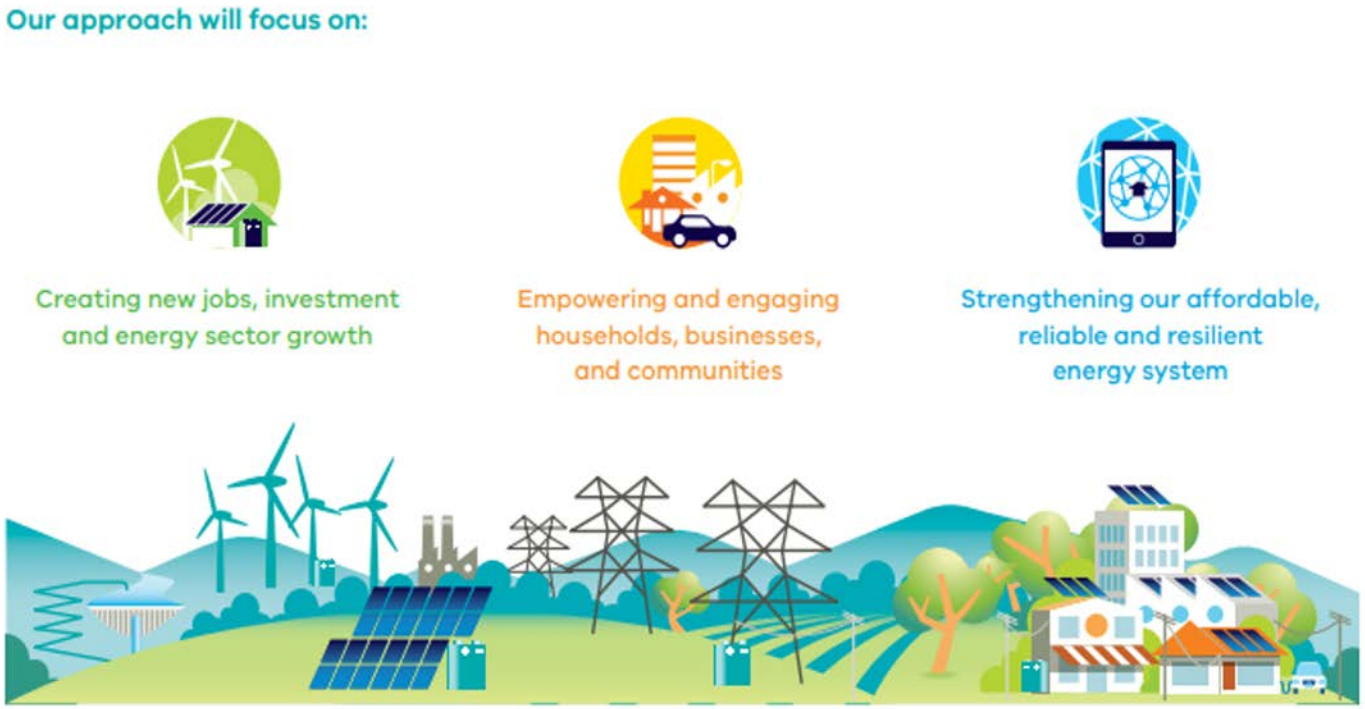
Transport	● Ban on ICE vehicles ● Greater transition to public transport ● Support electric vehicles uptake
Urban planning and land management	● Traffic management ○ Bike lanes ○ Public transport ● Increase green spaces ● Expand renewable energy sources
Technology	● Industrial upgrade ● Invest and incentivise green technology
Environmental Protection and Regulation	● Ecological restoration and recovery projects ● Emissions trading schemes ● Reforestation
International commitments	● Emissions reduction targets ○ 2015 Paris Climate Agreement ○ Net-zero target 2050

("Solutions", WHO, 2020)

Government and Policy Action - Case Study

Victoria's Renewable Energy Action Plan

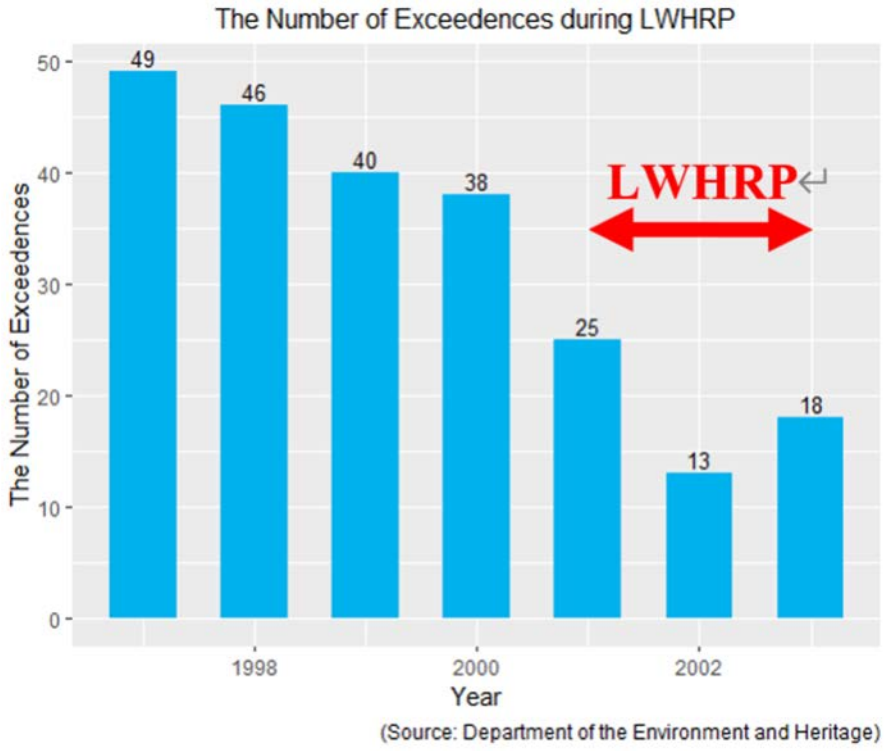
- Launched in 2017, pledged $146 million in funding to increase renewable energy generation to 40% by 2025.
- Emphasis on expanding wind power
- Estimated to create 11,000 new jobs
- The pledge is backed by $1.6 billion funding in the 2020–21 Victorian Budget.

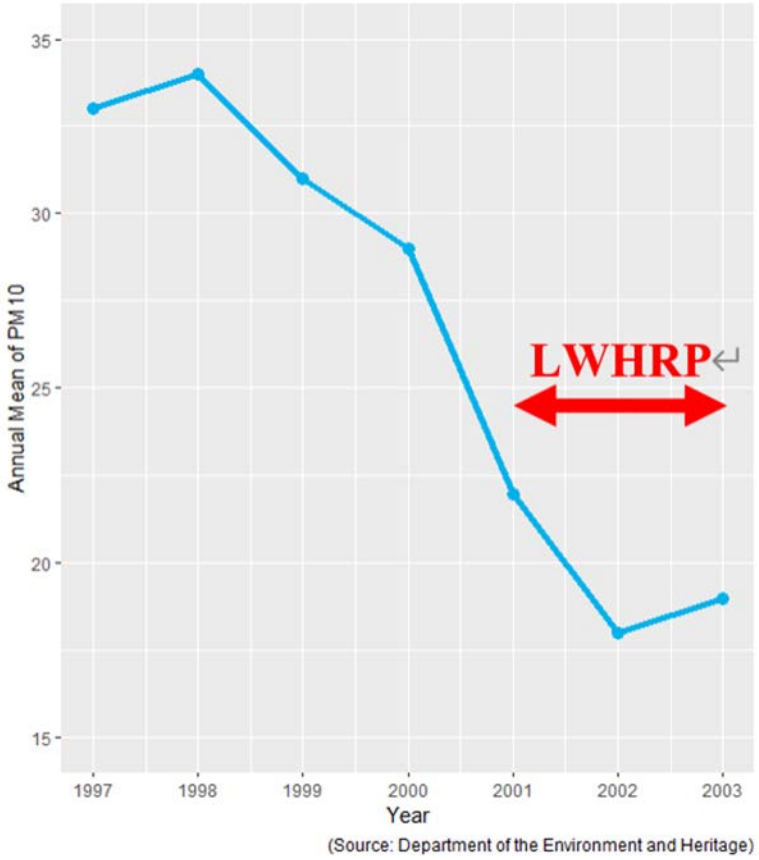


Government and Policy Action - Case Study

Launceston Wood heater Replacement Program (LWHRP) from 2001 to 2003 in Tasmania

- Heater prevalence dropped from 66% to 30%
- 2,000 wood heaters removed

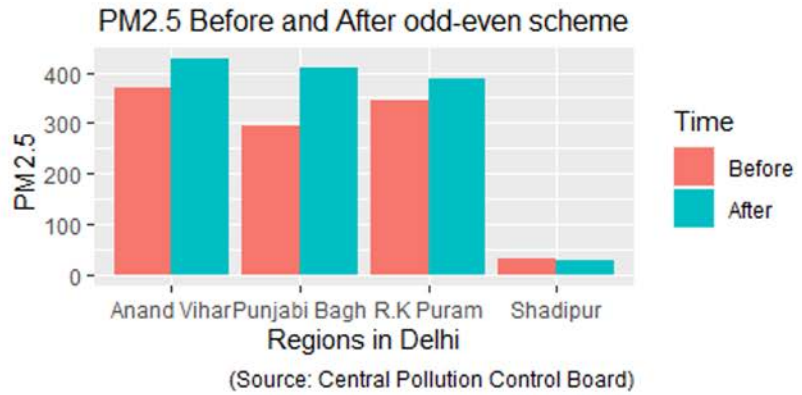


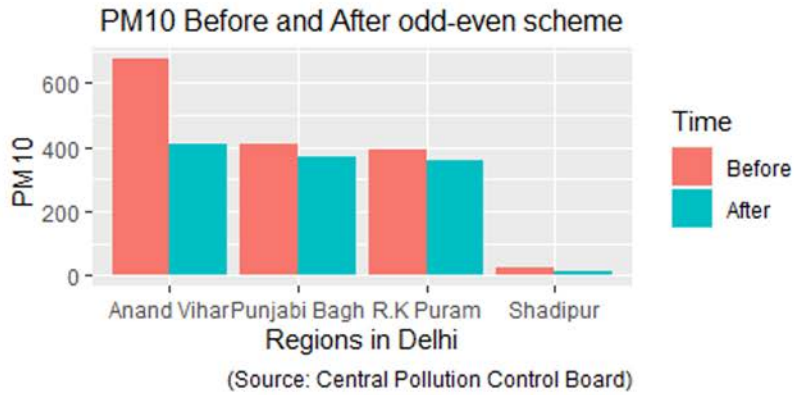


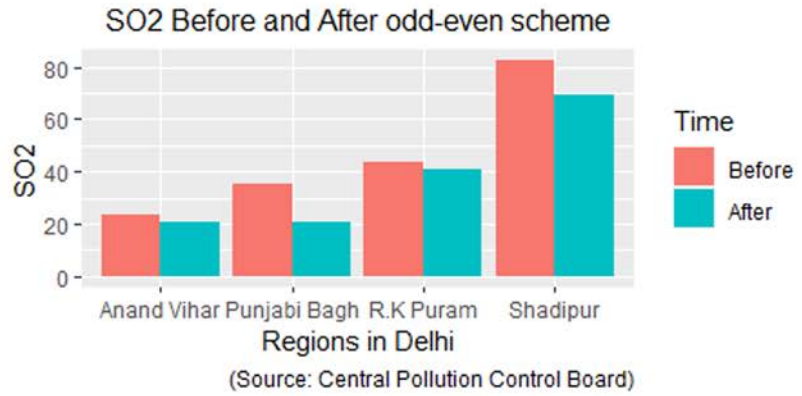
Government and Policy Action - Case Study

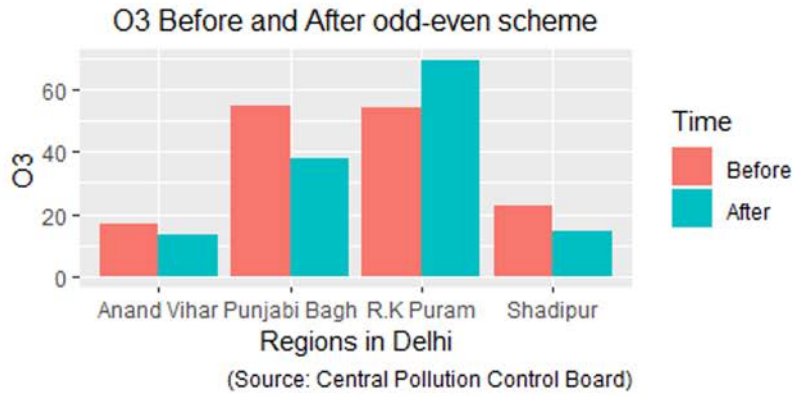
Odd-Even Scheme in Delhi, India 2016

- Achievement: PM10 ↓ O3 ↓ SO2 ↓









Government and Policy Action - Case Study

International Commitments - Paris Climate Agreement 2015

- International treaty signed by 196 countries
  - "Aim to reduce global warming by 2 degrees compared to pre-industrial levels"
  - Nationally Determined Contributions (NDC)
  - Five-yearly reviews
  - Non-binding nature

- Outcomes of the agreement:
  - Global recognition
  - Debated impact on the environment

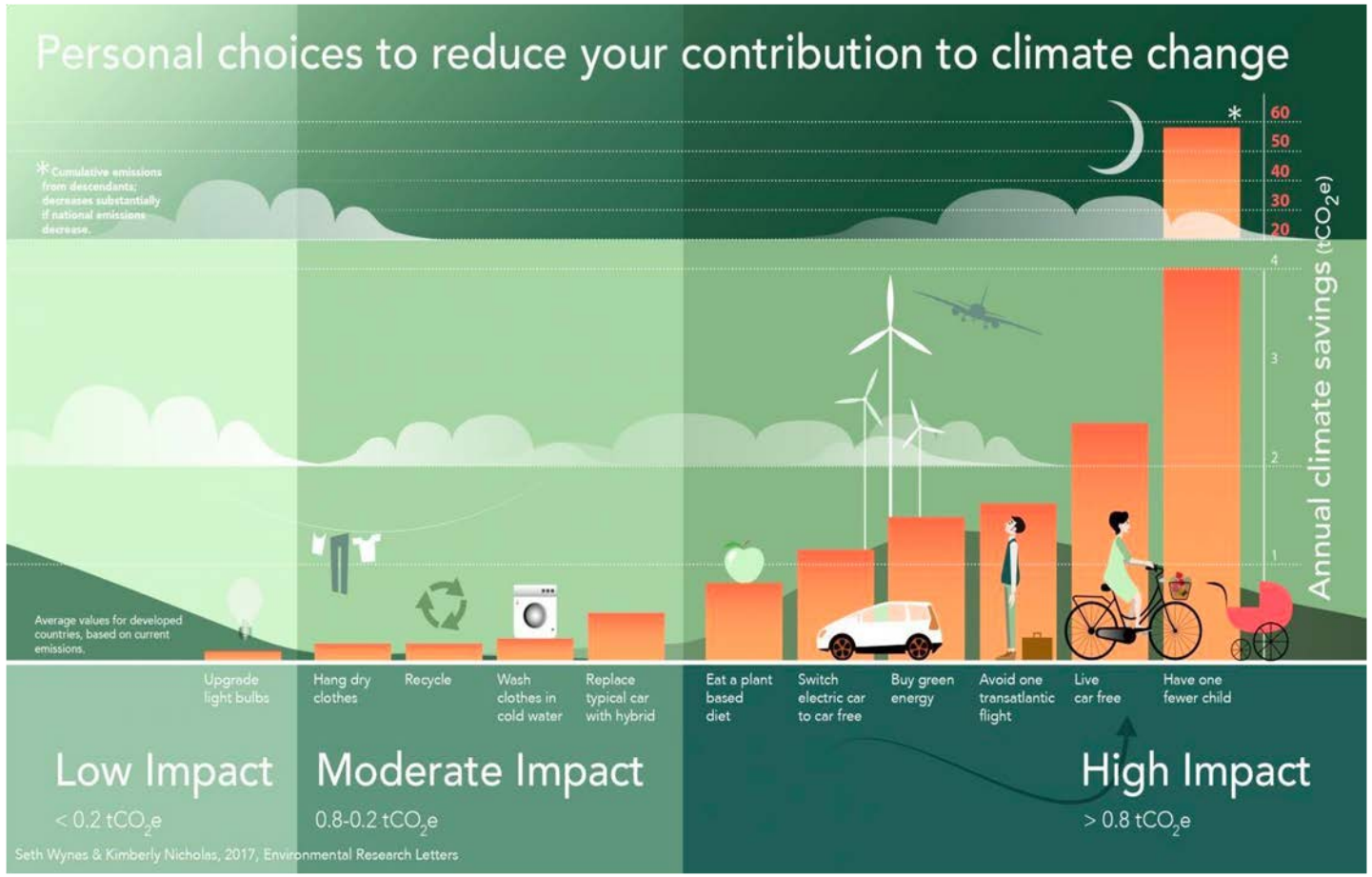
Individual Action

Reducing household air pollution

- Avoid toxic household products(VOCs)
- Proper use of wood heating
- Indoor plants

Reducing ambient air pollution

- Optimising your travel style
  - Public transport
  - Carpool
  - Electric vehicles
  - Walking and cycling
- Reducing your carbon footprint
  - Energy saving techniques
  - Reusable items
  - Diet change



(Environmental Research Letters, 2017)

Where to go from here

- Eco- anxiety
- Power of individual action
- Resources
- Education

https://www.ecoanxiety.com/
https://www.psychologyforasafeclimate.org/
https://www.acf.org.au/take_care


Global Peace Project


Global Sanitation and Sustainability Project


Global Road Safety Project


Global Entrepreneurship Project


Global Climate Action Project


Global Water Management Project


Global Air Quality Project

THANK YOU

Any Questions?

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Seth Wynes and Kimberly Nicholas, Environmental Research Letters, 2017

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