

Air Pollution & Public Health

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Air pollution is caused by a combination of gaseous and particulate pollutants such as carbon dioxide, methane, and nitrogen dioxide emitted from point sources such as factories and motor vehicles that burn fuel.

Some gaseous emissions are visible to the eye and sometimes may even diffuse into the atmosphere and become invisible.

Particulate pollution, on the other hand, such as soot and black carbon, is always visible.

*Phase 2 lecture, 2020 - 2021
academic year, spring semester
03rd June 2021, Ankara - TURKIYE*

AIR POLLUTION

- *Climate change is projected to harm human health by increasing ground-level ozone and/or particulate matter air pollution in some locations. Ground-level ozone (a key component of smog) is associated with many health problems, such as diminished lung function, increased hospital admissions and emergency room visits for asthma, and increases in premature deaths.*

https://www.cdc.gov/climateandhealth/effects/air_pollution.htm 03.06.2021

AIR POLLUTION

- *Factors that affect ozone formation include heat, concentrations of precursor chemicals, and methane emissions. Particulate matter concentrations are affected by wildfire emissions and air stagnation episodes, among other factors. By increasing these different factors, climate change is projected to lead to increased concentrations of ozone and particulate matter in some regions. Increases in global temperatures could cause associated increases in premature deaths related to worsened ozone and particle pollution.*

https://www.cdc.gov/climateandhealth/effects/air_pollution.htm 03.06.2021

AIR POLLUTION

- *Estimates that assume no change in regulatory controls or population characteristics have ranged from 1,000 to 4,300 additional premature deaths nationally per year by 2050 from combined ozone and particle health effects. Less certainty exists about the responses of airborne particles to climate change than the response of ozone. Health-related costs of the current effects of ozone air pollution exceeding national standards have been estimated at \$6.5 billion (in 2008 U.S. dollars) nationwide, based on a U.S. assessment of health impacts from ozone levels during 2000–2002.*

https://www.cdc.gov/climateandhealth/effects/air_pollution.htm 03.06.2021

BACKGROUND

When we burn fossil fuels, such as coal and gas, we release carbon dioxide (CO₂). CO₂ builds up in the atmosphere and causes Earth's temperature to rise, much like a blanket traps in heat. This extra trapped heat disrupts many of the interconnected systems in our environment.

Climate change might also affect human health by making our air less healthy to breathe. Higher temperatures

https://www.cdc.gov/climateandhealth/pubs/AIR-QUALITY-Final_508.pdf 03.06.2021

THE CLIMATE-HEALTH CONNECTION

Decreased air quality introduces a number of health risks and concerns:

- According to the National Climate Assessment, climate change will affect human health by increasing ground-level ozone and/or particulate matter air pollution in some locations. Ground-level ozone (a key component of smog) is associated with many health problems, including diminished lung function, increased hospital admissions and emergency department visits for asthma, and increases in premature deaths.
- More and larger wildfires linked to climate change could also significantly reduce air quality and affect people's health in a number of ways. Smoke exposure increases acute (or sudden onset) respiratory illness, respiratory and cardiovascular hospitalizations, and medical visits for lung illnesses. The frequency of wildfires is expected to increase as drought conditions become more prevalent.
- Exposure to allergens causes health problems for many people. When sensitive individuals are simultaneously exposed to allergens and air pollutants, allergic reactions often become more severe. The increase in air pollutants makes the effects of increased allergens associated with climate change even worse. People with existing pollen allergies may have increased risk for acute respiratory effects.



https://www.cdc.gov/climateandhealth/pubs/AIR-QUALITY-Final_508.pdf 03.06.2021

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First WHO Global
Conference on Air
Pollution and Health,
30 October –
1 November 2018

**Improving air quality,
combatting climate
change – saving lives**

Conference summary
report: **CLEAN AIR
FOR HEALTH:**
Geneva Action Agenda

Air pollution kills 7 million people each year. Around the world, 9 out of 10 people breathe air that has been polluted by traffic emissions, industry, agriculture and **waste incineration**. About 3 billion people continue to use smoky, polluting stoves and fuels inside their homes for cooking and heating.

This week, government leaders, intergovernmental organizations, scientists and advocates gathered at WHO's headquarters in Geneva for the first Global Conference on Air Pollution and Health. The conference aims to raise awareness of this growing public health challenge and exchange information and tools on the health risks of **air pollution** and solutions to tackle this problem.



**“Air pollution causes 1
in 9 deaths. It is the
biggest environmental
health crisis we face.”**

BREATHELIFE
Clean air. Healthy future.



World Health
Organization



CLIMATE &
CLEAN AIR
COALITION
TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS

AIR POLLUTION – THE SILENT KILLER



Every year, around
7 MILLION DEATHS
are due to exposure
from both outdoor
and household air
pollution.

Air pollution is a major environmental risk to health. By reducing air pollution levels, countries can reduce:



Stroke



Heart
disease



Lung cancer, and
both chronic and acute
respiratory diseases,
including asthma

REGIONAL ESTIMATES ACCORDING TO WHO REGIONAL GROUPINGS:



CLEAN AIR FOR HEALTH

#AirPollution



World Health
Organization

#BanLeadPaint

FACT: LEAD IS TOXIC

It is harmful to everyone and

DAMAGES:



BRAIN



KIDNEYS



LIVER



BLOOD



REPRODUCTIVE
SYSTEM

Young children

are most vulnerable. Their nervous systems are still developing and they absorb **4-5 times more than adults**, which can cause:

- intellectual disability
- underperforming at school
- behavioural issues



In adults

lead exposure increases the risk of:

- ischaemic heart disease
- stroke



In pregnant women

lead exposure damages many organs but also affects:

- the developing foetus



There is no safe level of lead exposure



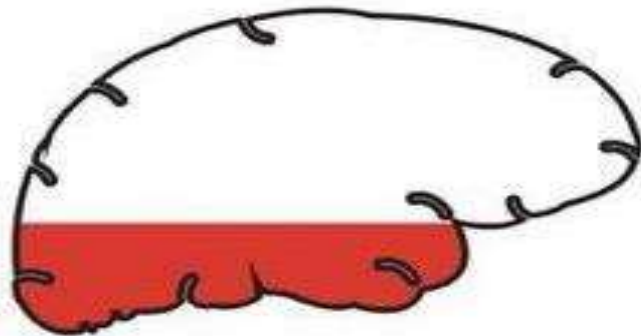
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THE **INVISIBLE KILLER**

Air pollution may not always be visible, but it can be deadly.



34%
OF DEATHS FROM
STROKE

BREATHELIFE.

Clean Air. Healthy Future.



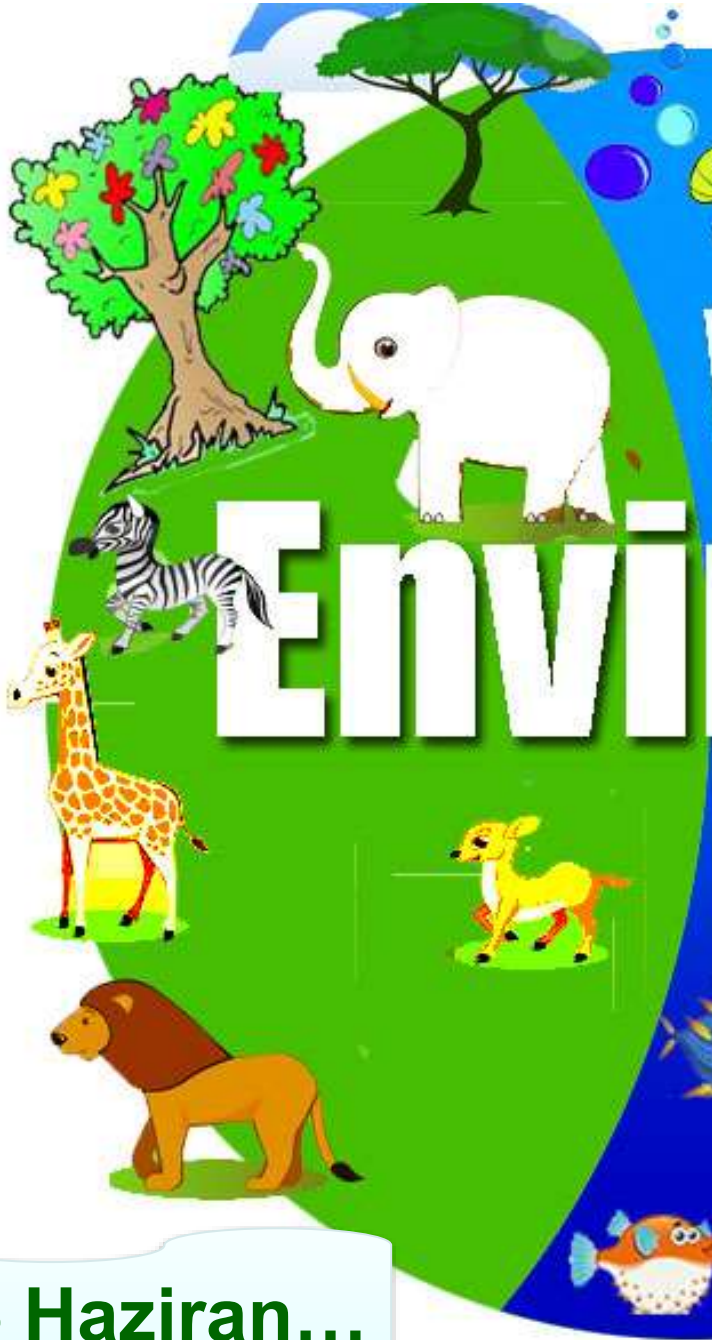
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CLIMATE &
CLEAN AIR
COALITION
TO REDUCE GREENHOUSE
GAS EMISSIONS AND
IMPROVE AIR QUALITY



World Environment Day



5 Haziran...

3.06.2021

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AIR POLLUTION'S YEARLY HIT LIST:

**2.2 million deaths due to stroke.
Let's stop this invisible killer.**



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CLEAN AIR
COALITION
TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS

UN 
environment

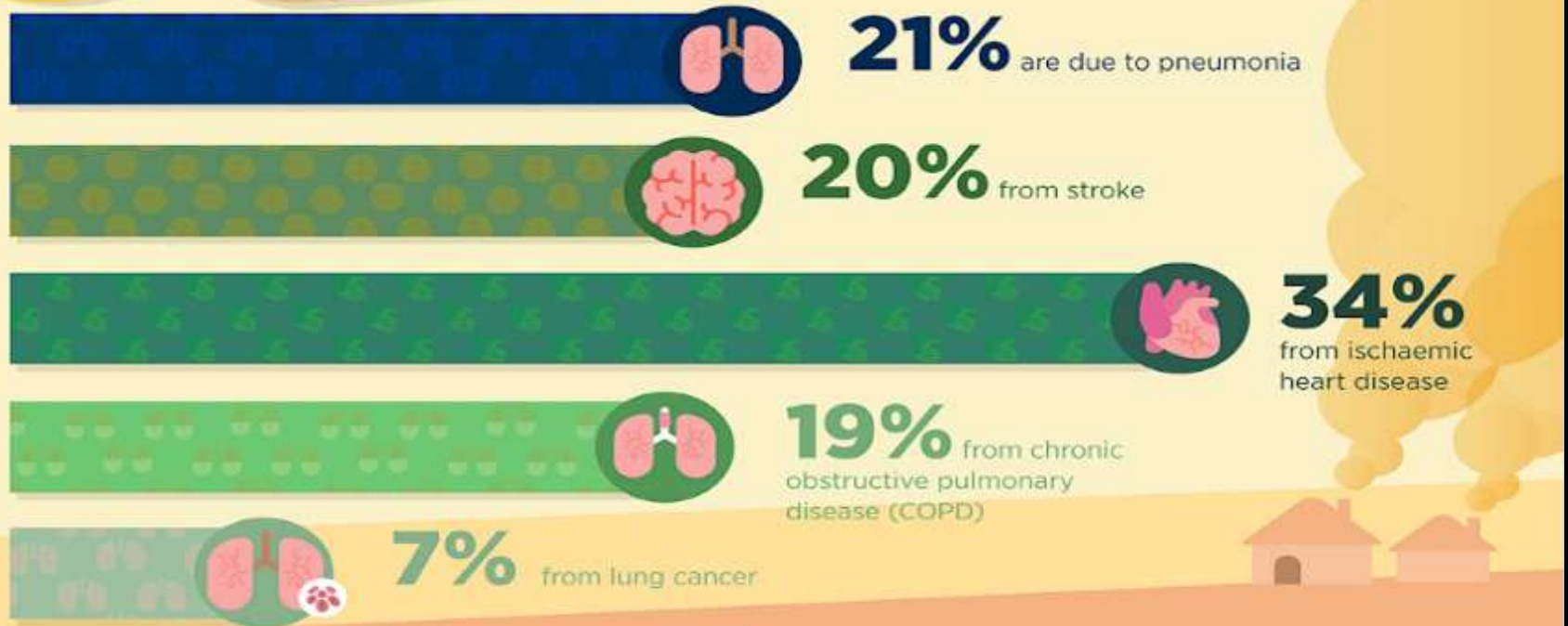
AIR POLLUTION AFFECTS NEARLY ALL OF US

An estimated **6.5 million** deaths were associated with air pollution in 2012. This is **11.6% of all global deaths.**

DEATHS LINKED TO OUTDOOR AND HOUSEHOLD AIR POLLUTION



7 million people die prematurely every year from air pollution – both household and outdoor.
Among these deaths:



CLEAN AIR FOR HEALTH

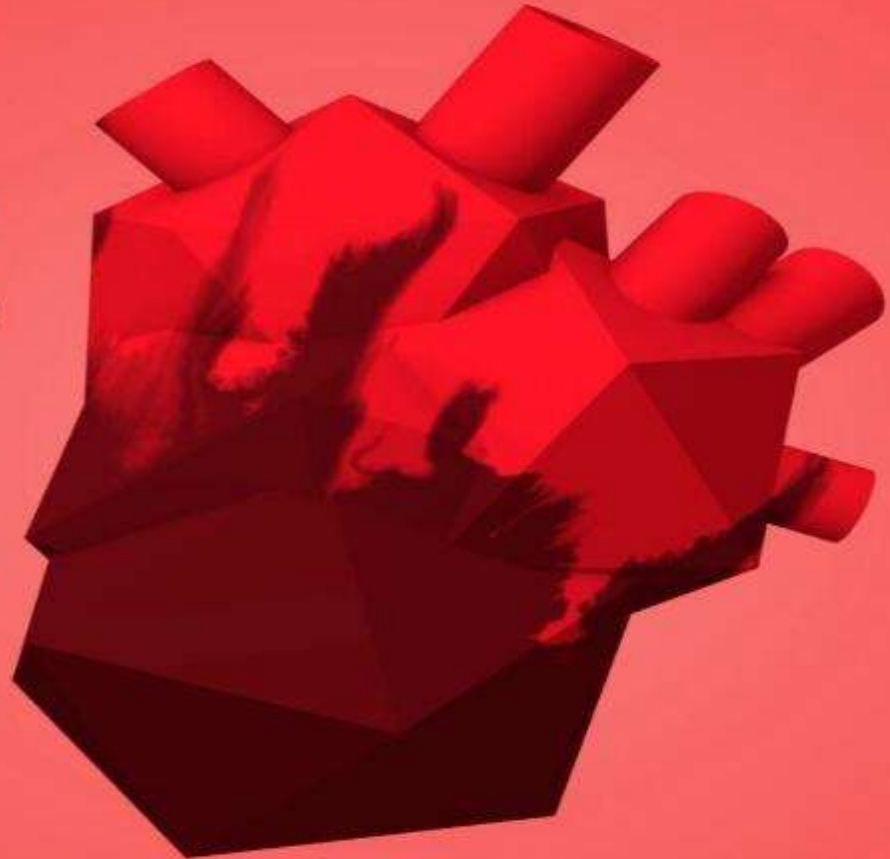
#AirPollution



AIR POLLUTION'S
YEARLY HIT LIST:

**2 million
deaths due to
heart disease.**

**Let's stop
this invisible
killer.**



BREATHELIFE
Clean air. Healthy future.



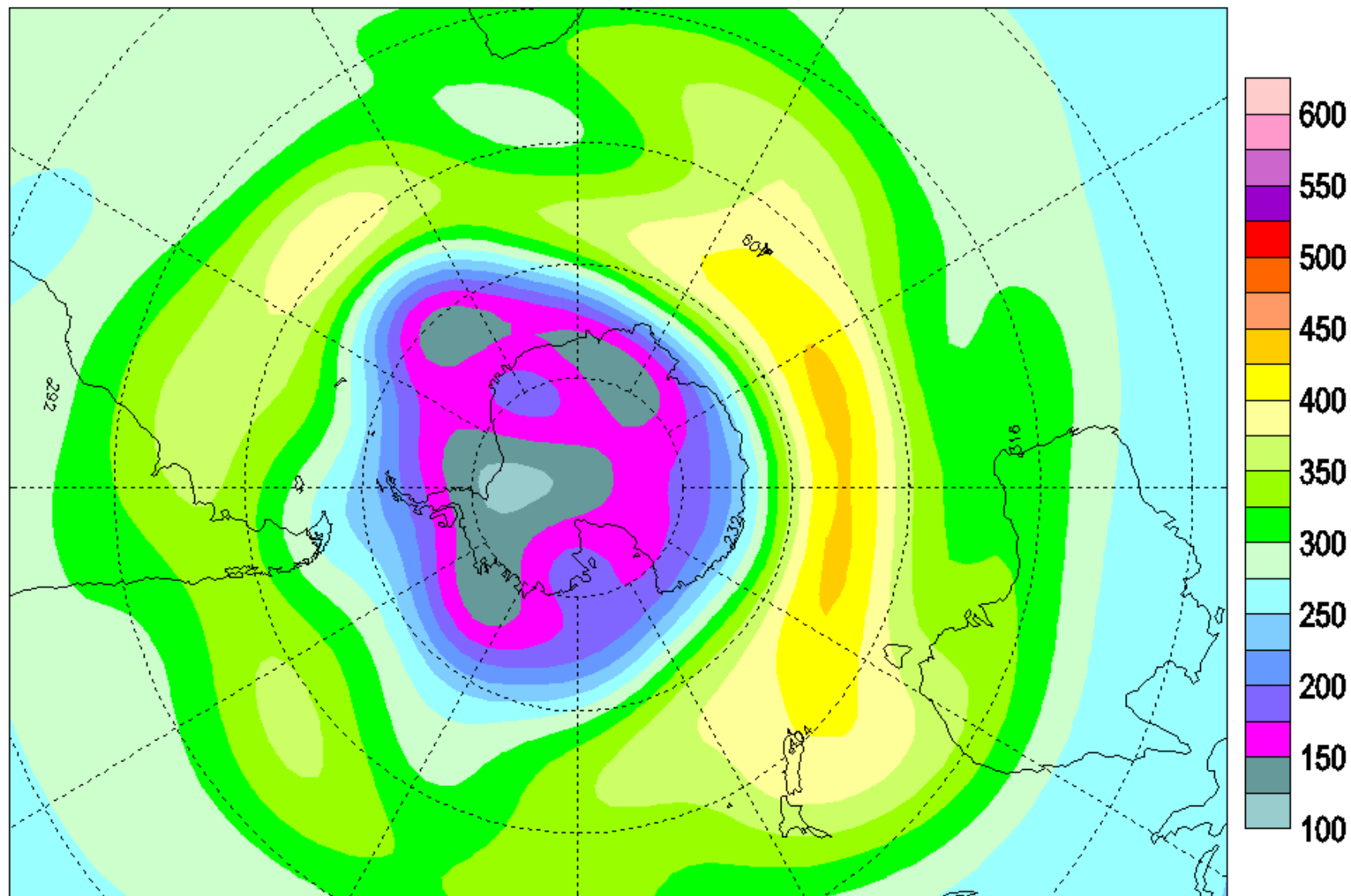
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Organization



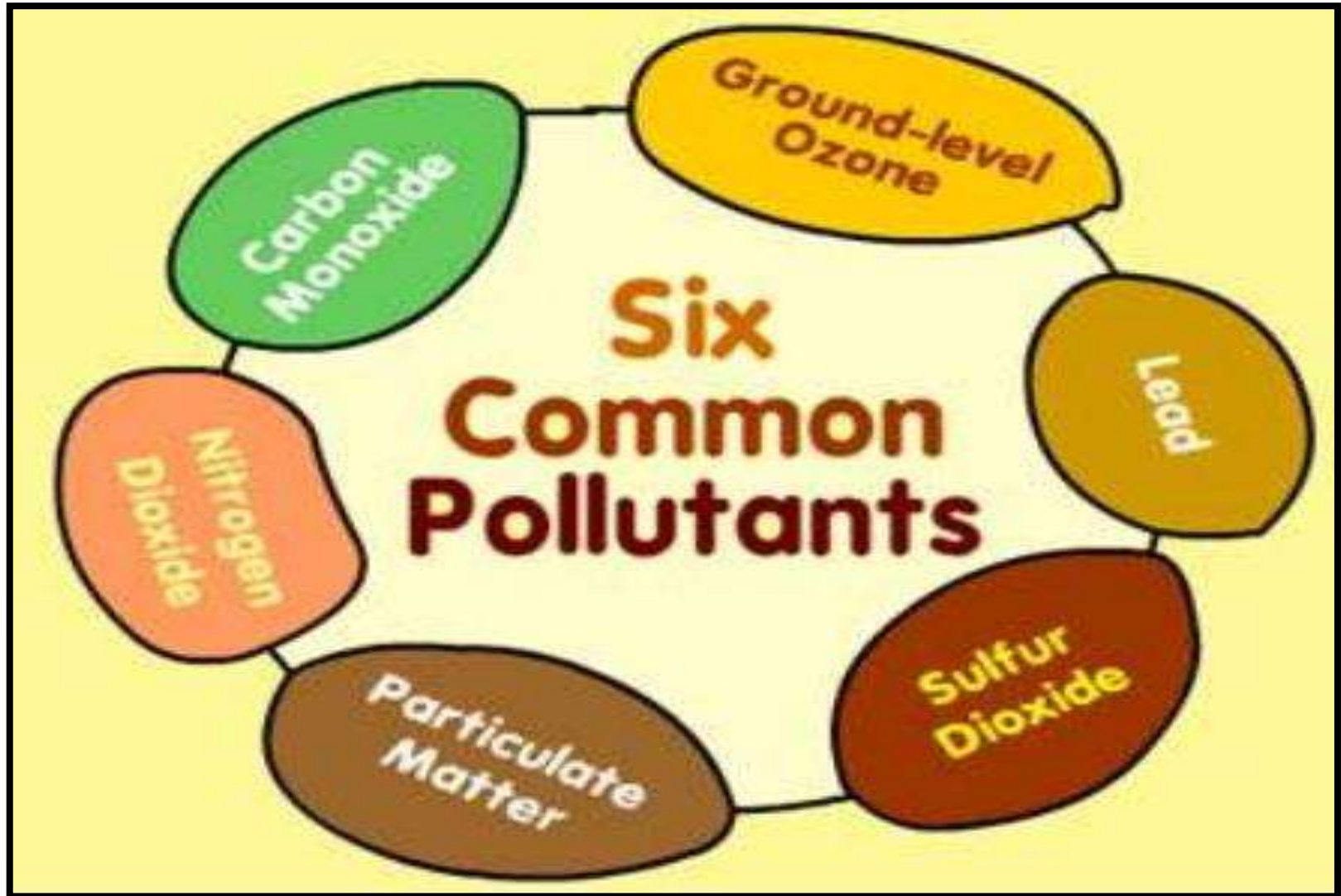
CLIMATE &
CLEAN AIR
COALITION
TO BRIDGE SHORT-TERM
CLIMATE POLICY GAPS

UN 
environment

Total ozone (DU) / Ozone total (UD), 2003/09/16



Sources of pollution



No chance to survive!



AIR POLLUTION ISSUE GLOBALLY

**Over 80% of the world's cities
have air pollution levels over
the WHO guideline for safe air**



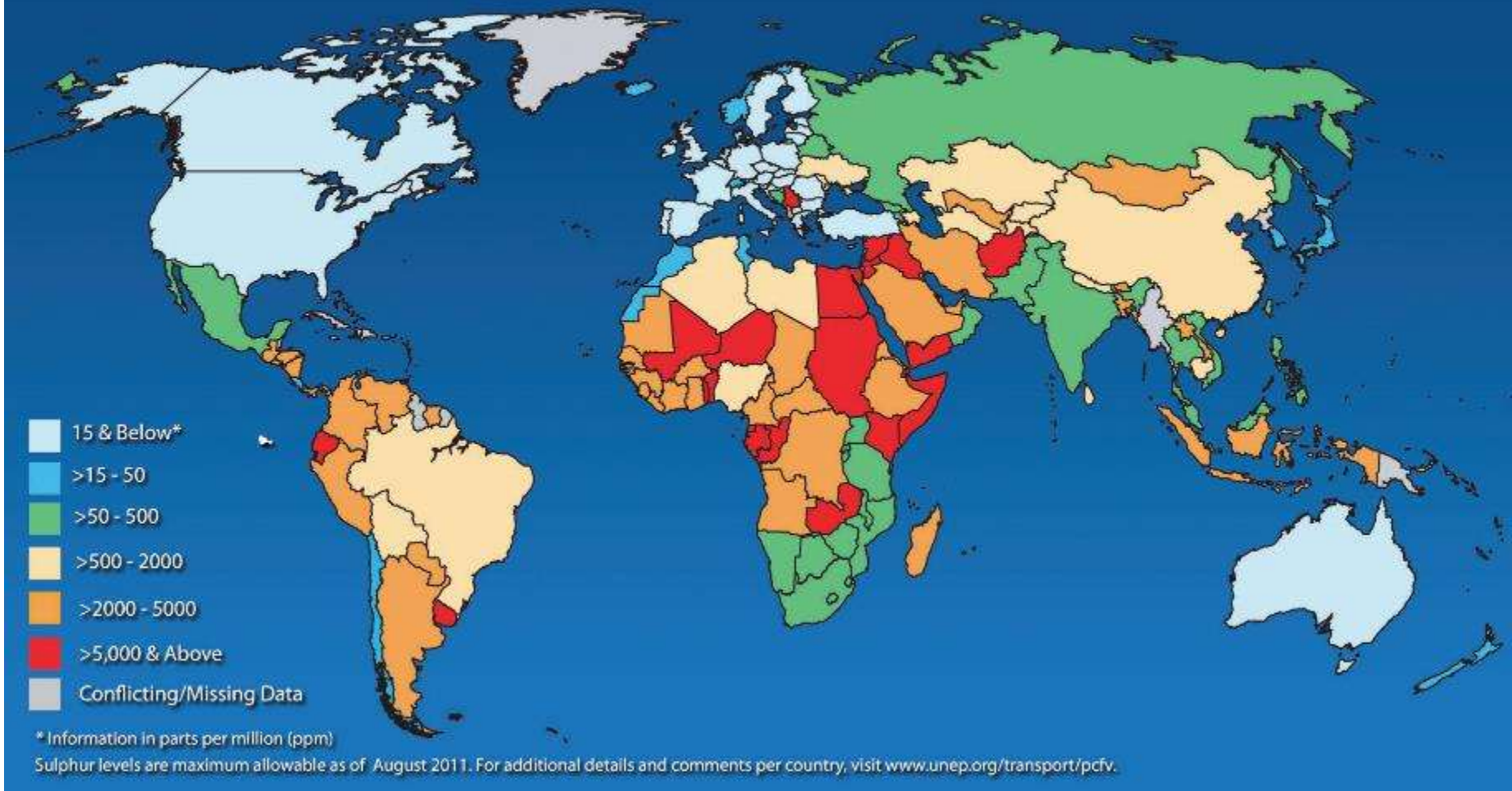
SEE YOUR OWN CITY'S LEVEL AT: [BREATHELIFE2030.COM](https://www.breathe.life/2030)

Kuala Lumpur - Malaysia





WORLD WIDE DIESEL FUEL SULFUR LEVELS



Kdz. Ereğli, Iron – Steel Complex





AIR POLLUTION'S YEARLY HIT LIST:

**1.7 million deaths due to
lung disease and cancer.**

Let's stop this invisible killer.



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Clean air. Healthy future.



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Organization



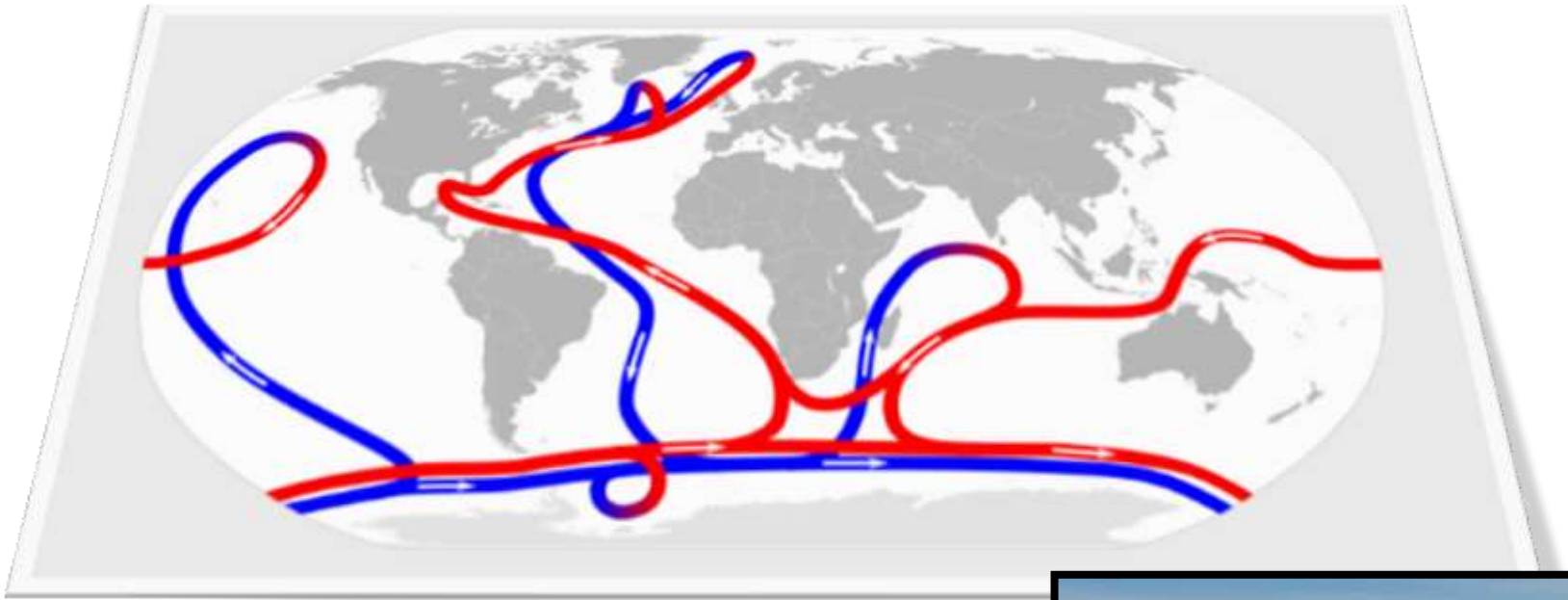
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COALITION
TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS

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environment

Classification of Air Pollutants



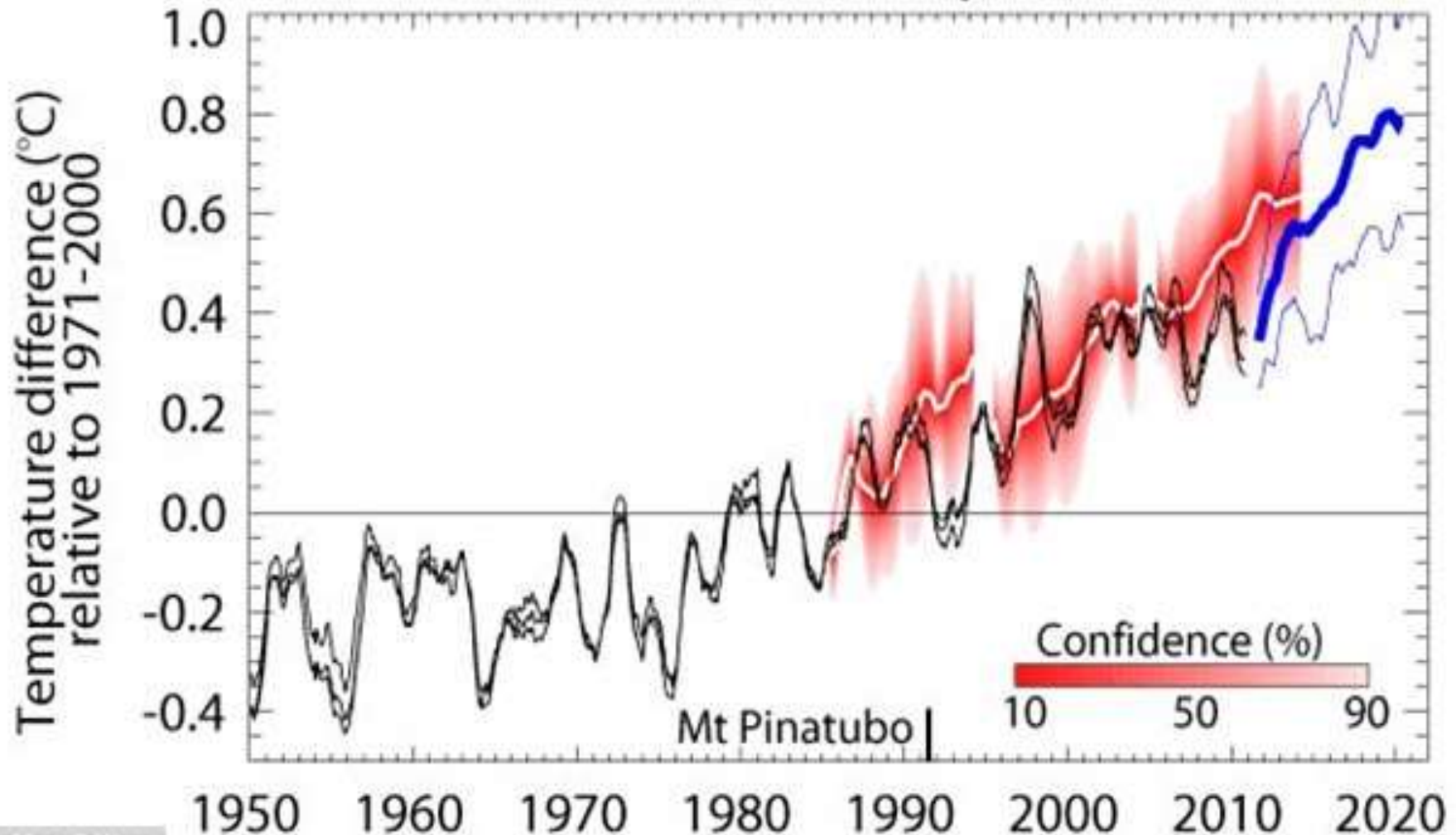
Global warming continues



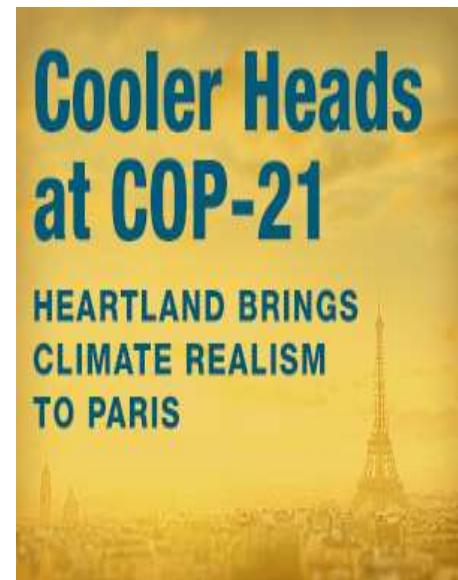
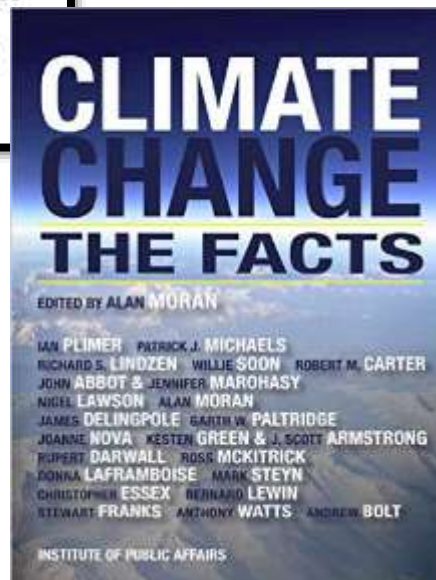
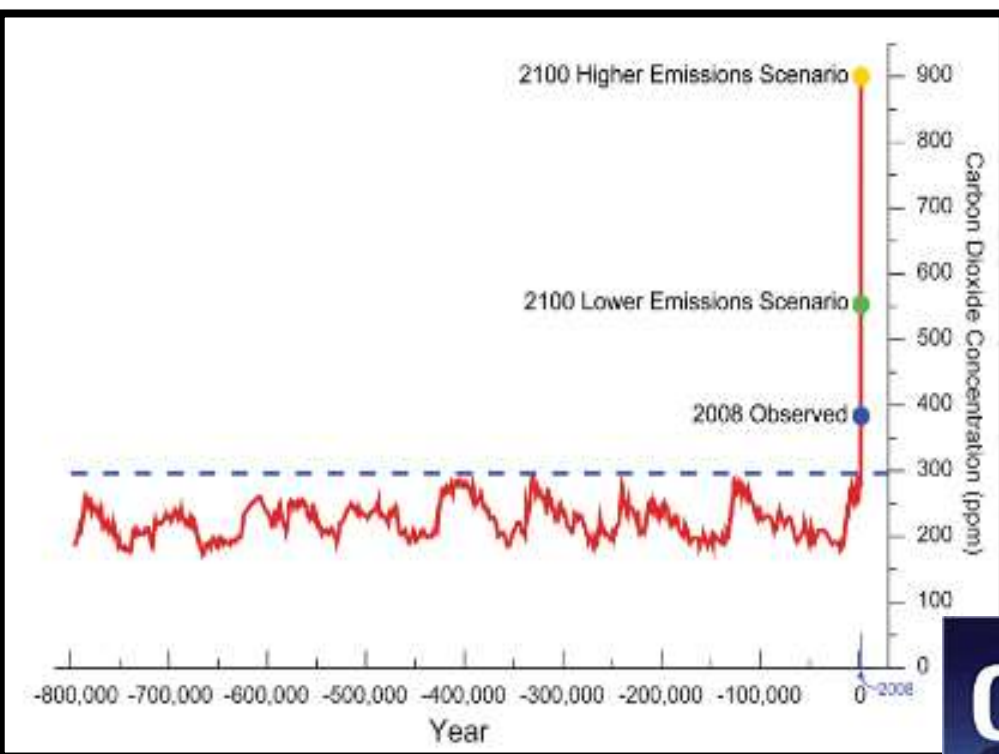
<http://www.climate-lab-book.ac.uk/2016/spiralling-global-temperatures/>

Global warming continues

Global annual temperature



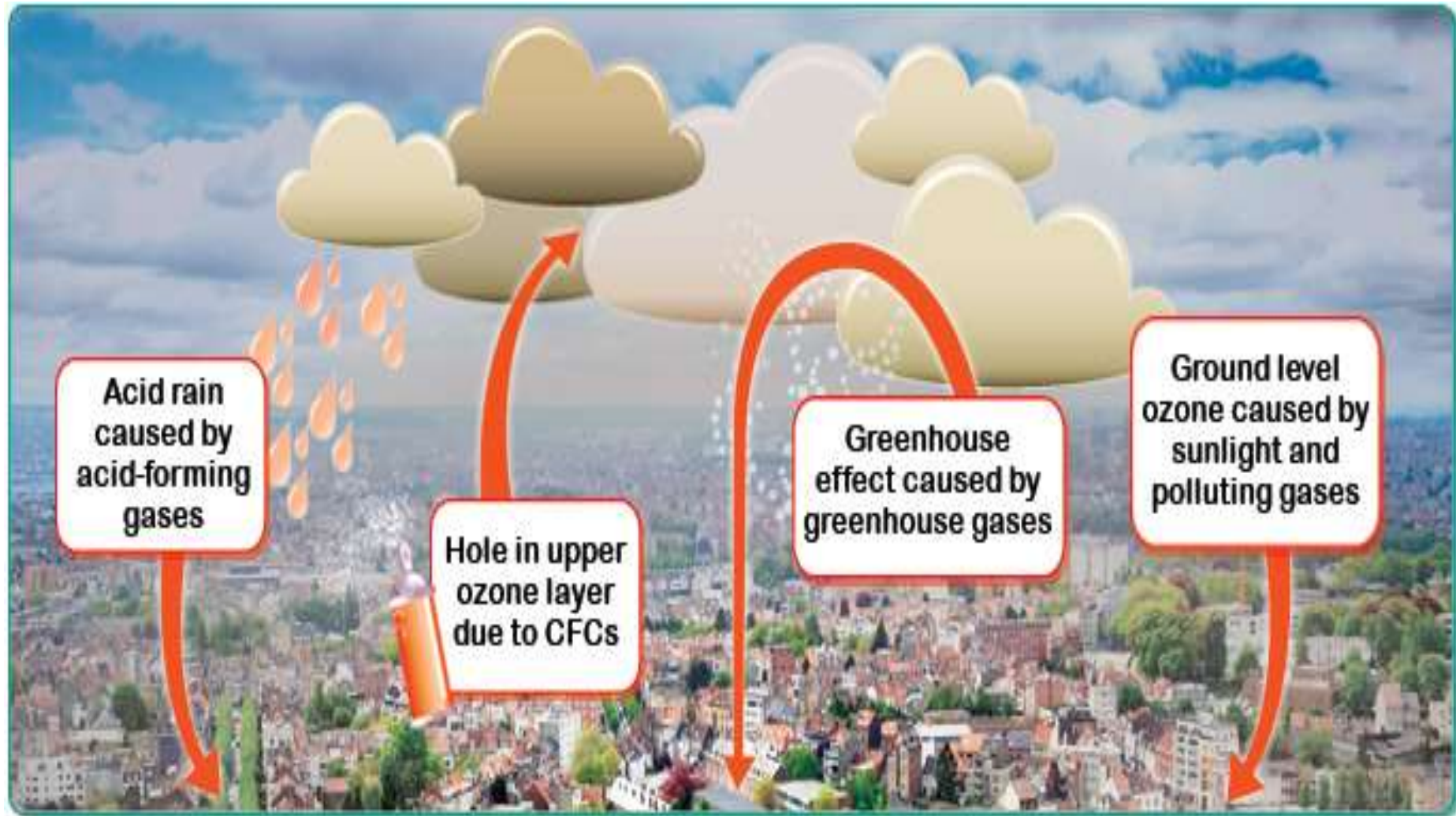
Global Emission is lasting



Global warming, ice melting..

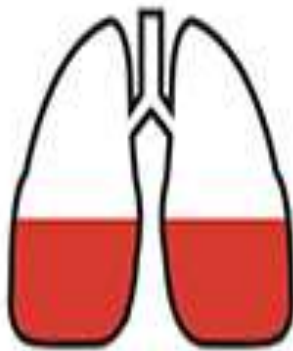


The Green house effect



THE **INVISIBLE KILLER**

Air pollution may not always be visible, but it can be deadly.



36%
OF DEATHS FROM
LUNG CANCER



34%
OF DEATHS FROM
STROKE



27%
OF DEATHS FROM
HEART DISEASE

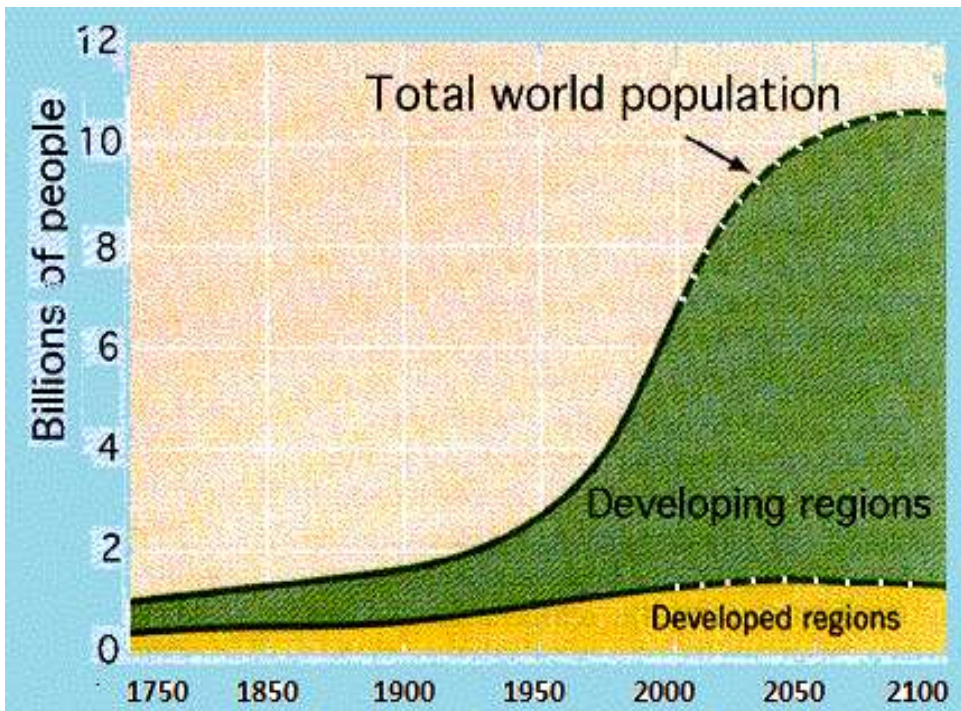
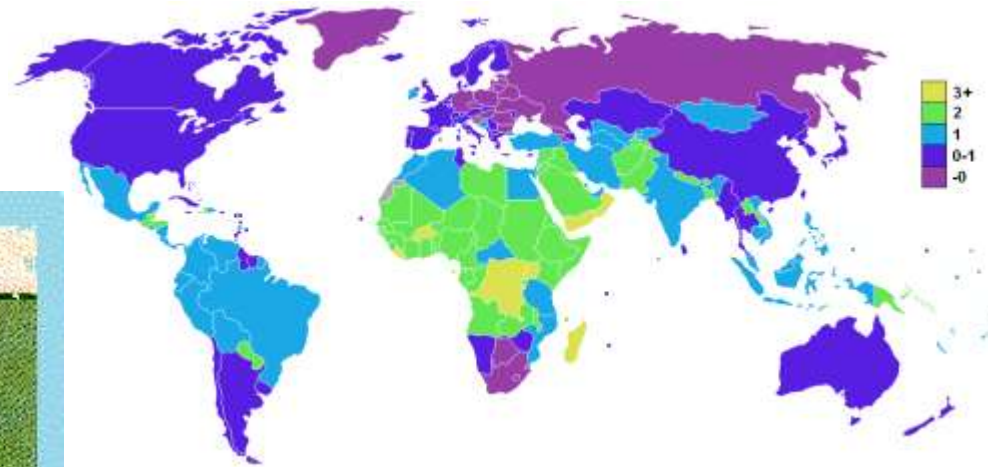
Combined natural gas transforming



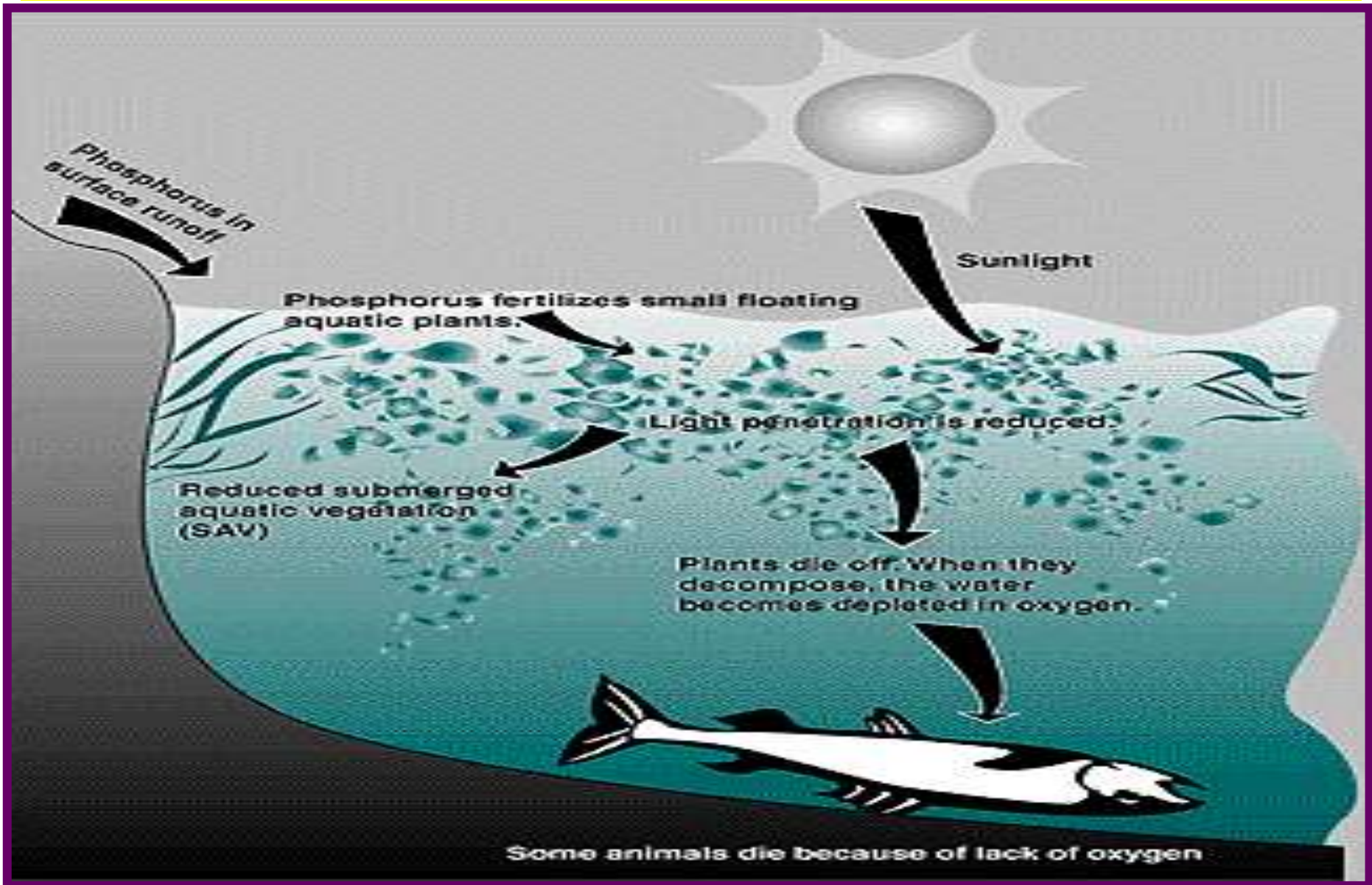
Pope: *Don't reproduce like rabbits!*



1 child for 1 family!



We're suffocating fishes in the water!



Asthma outbreak hits kids

RISKS OF THE 'RED ZONE'



JENNI GIRTMAN / Staff
Asthma sufferer Tyrone Johnson, 2, breathes fresh air Friday as his aunt Susan Thomas tends him at Atlanta's Hughes Spalding Children's Hospital. Sky-high smog readings in metro Atlanta have produced a flare-up of asthma cases, especially among children.

The Atlanta Journal-Constitution

SATURDAY, AUG. 19, 2000

Renewable energy.. WET (Wind Energy Tribunes)

Türkiye has substantial possibilities

Solar collectors



Solar collectors are extreemly fruitfull



Principles of Stockholm Declaration

❑ Stockholm Declaration:

- Human rights must be asserted, apartheid and colonialism condemned.
- Natural resources must be safeguarded.
- The Earth's capacity to produce renewable resources must be maintained.
- Wildlife must be safeguarded.
- Non-renewable resources must be shared and not exhausted.
- Pollution must not exceed the environment's capacity to clean itself.
- Damaging oceanic pollution must be prevented.
- Development is needed to improve the environment.
- Developing countries therefore need assistance.
- Developing countries need reasonable prices for exports to carry out environmental management.
- Environment policy must not hamper development.
- Developing countries need money to develop environmental safeguards.
- Integrated development planning is needed.



25th anniversary of Chernobyl Nuclear Disaster



FIRST WHO GLOBAL CONFERENCE ON AIR POLLUTION AND HEALTH

IMPROVING AIR QUALITY, COMBATTING CLIMATE CHANGE – SAVING LIVES

30 October – 1 November 2018

WHO Headquarters, Geneva, Switzerland

save the date



World Health
Organization

LET'S ACT TOGETHER

BECAUSE THE COST IS FAR TOO HIGH

Air pollution claims 6.5 million lives a year

Air pollution is a major driver of the non-communicable disease epidemic

Air pollution accelerates climate change

AND WE HAVE SOLUTIONS

Affordable and clean urban, transport, waste & household energy strategies

Health, environment & development sectors can lead the way to change

Organized in collaboration with



Clean Air | Healthy Future | Healthy Climate



STATE OF GLOBAL AIR /2019

A SPECIAL REPORT ON GLOBAL EXPOSURE TO AIR POLLUTION
AND ITS DISEASE BURDEN

State of Global Air-2019; UN, EU Report on global hunger

<https://currentaffairs.sellonlinetricks.com/current-affairs-in-english/state-of-global-air-2019-un-eu-report-on-global-hunger/>

Low carbon society



Facilitating a transition towards low carbon societies EA (b) Mitigation technology - EXAMPLE



Green Buildings Initiative:

- In partnership with the private sector UNEP promotes the worldwide adoption of sustainable building and construction practices.
- The current main focus of SBCI is to enable the building sector to respond to the climate change challenge. The building sector has the largest contribution to GHG emissions through energy use during construction and in particular during the use of buildings.

<http://www.unep.org/documents.multilingual/default.asp?DocumentID=469&ArticleID=5204&l=en>

Resources



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graph TD; R((Resources)) --- E1([http://www.earthday.org/]); R --- E2([http://www.unep.org/wed/index.asp]); R --- E3([http://www.globalwindday.org/]); R --- E4([http://www.earthhour.org/]); R --- E5([http://www.cleanuptheworld.org/]);
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<http://www.earthday.org/>

<http://www.unep.org/wed/index.asp>

<http://www.cleanuptheworld.org/>

<http://www.globalwindday.org/>

<http://www.earthhour.org/>

Watch a short video about [air quality changes, and learn what communities can do to prepare.](#)



Thank you for joining

www.ahmetsaltik.net