Public Health and Climate change Risks & Resilience

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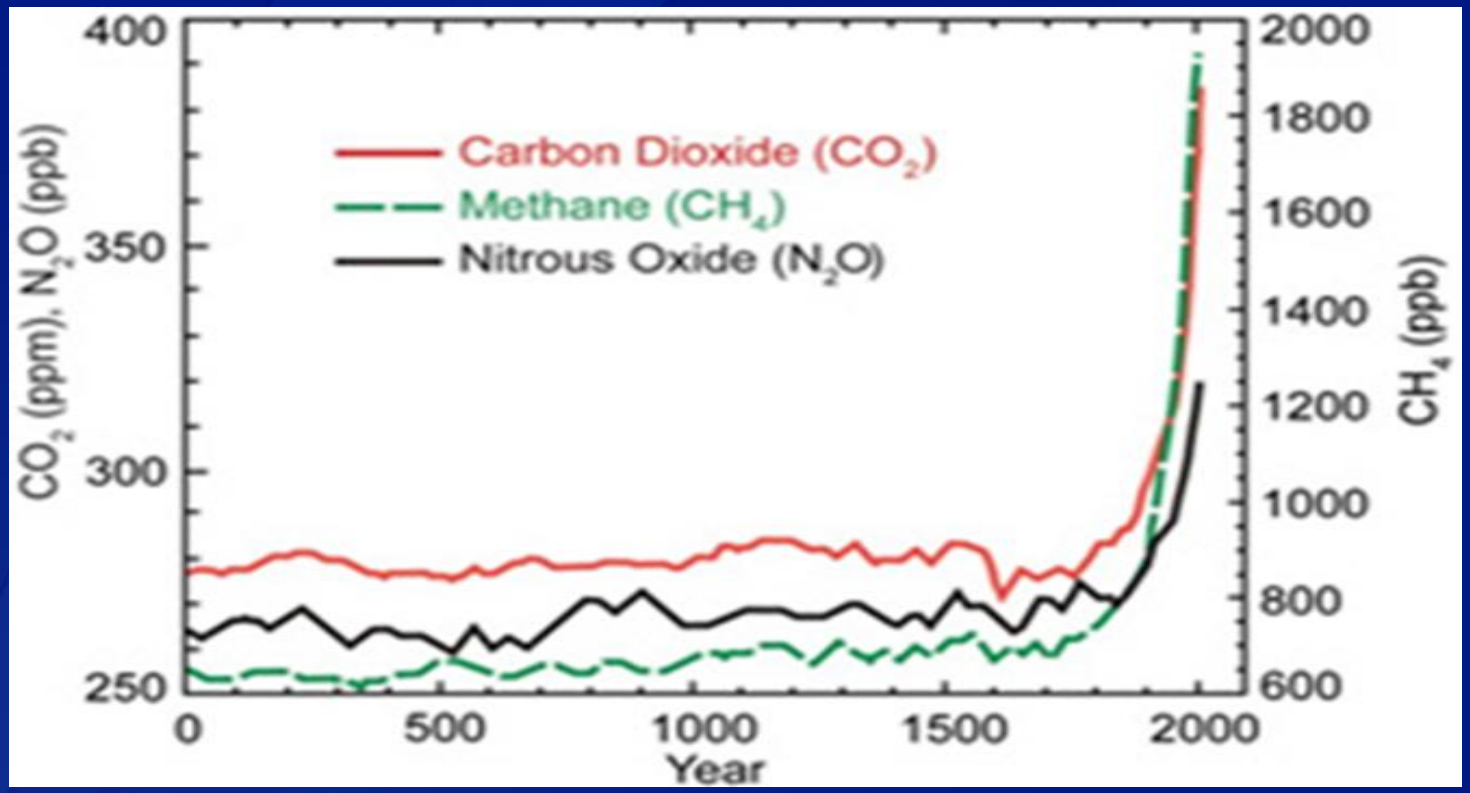
Ragia Elgerzawy

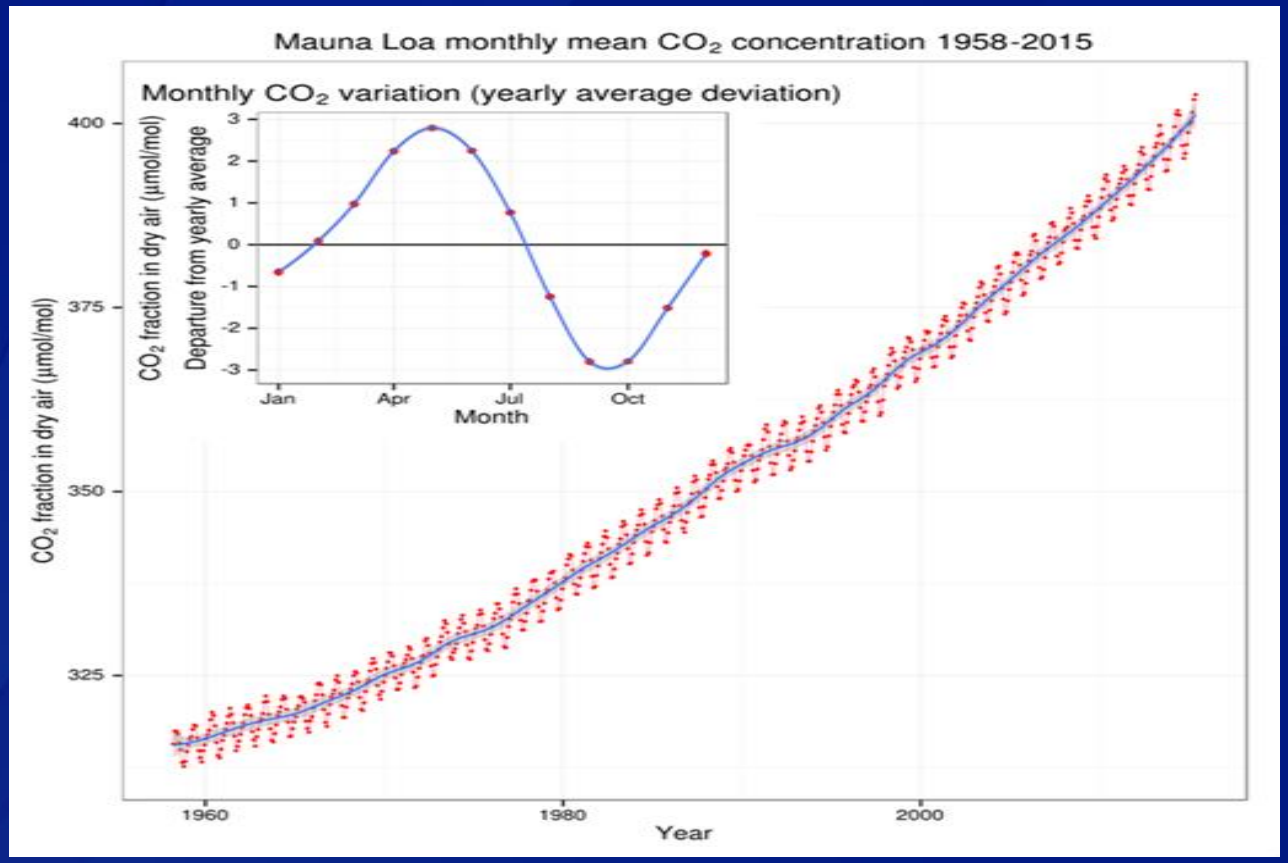
Content

- Climate Change
- The CC effects on Public Health
- Populations affected
- Adaptation and resilience
- Policy recommendations

Human activities – particularly burning fossil fuel – have released sufficient quantities of CO2 & GHGs to trap heat in the lower atmosphere and affect the global climate



In the last 130 years, the world has warmed by approximately 0.85C



- Extra trapped heat influences the way temperature, wind and moisture move around the planet
- We have warmer weather, heavy precipitations, melting glaciers, rising sea levels, floods, droughts , storms wild fire, and other extreme weather events
- Each of the last 3 decades has been successively warmer than any preceding decade since 1850
- The number of reported weather-related natural disasters has more than tripled since the 1960s

Climate Change Belongs to the Public Health Debate

- WHO considers climate change the defining issue for the 21st century. The overall health effects of a changing climate are likely to be overwhelmingly negative
- In the heat wave of summer 2003 in Europe for example, resulted in more than 70 000 excess deaths.
- Every year, the reported weather-related natural disasters result in over 60 000 deaths
- More than half of the world's population lives within 60 km of the sea.

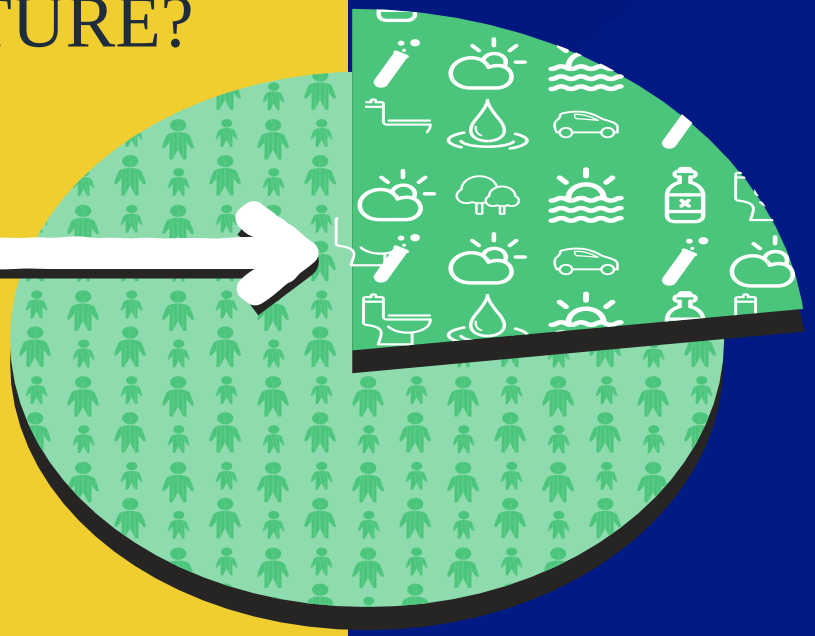
ENVIRONMENTAL IMPACTS ON HEALTH

WHAT IS THE BIG PICTURE?

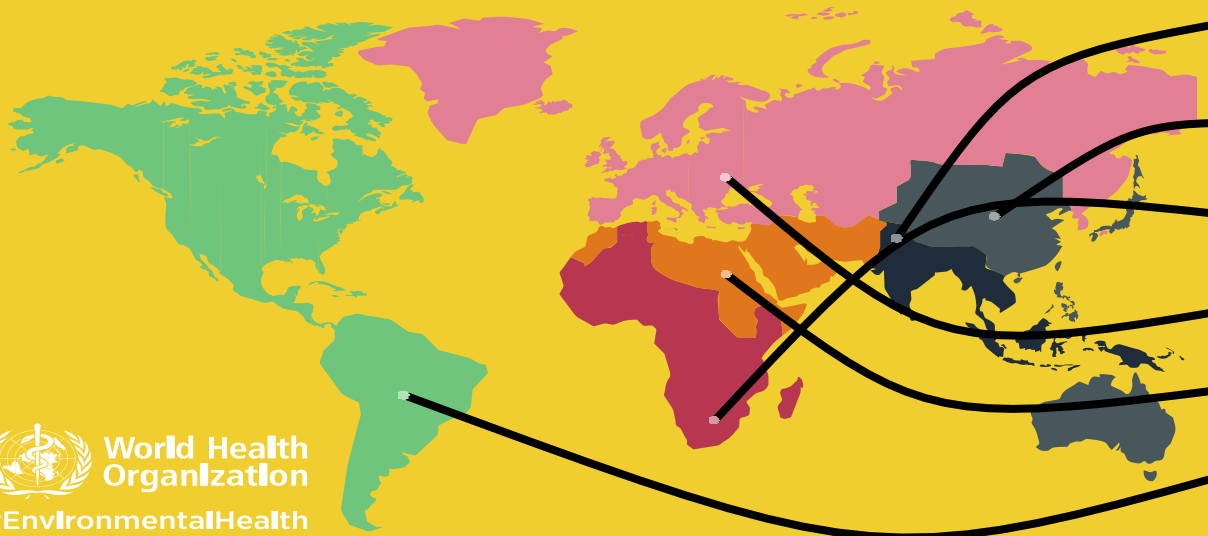
:FACT

%23

of all global deaths are linked
.to the environment
12.6That's roughly .million deaths a year



WHERE IS IT ?HAPPENING



million 3.8
in South-East Asia Region

million 3.5
in Western Pacific Region

million 2.2
in Africa Region

million 1.4
in European Region

000 854
in Eastern Mediterranean Region

000 847
in the Region of the Americas

World Health Organization

#EnvironmentalHealth

- Climate change can influence Health directly and indirectly.

- Direct effects include the short-term consequences of heat & extreme weather events

- Indirect effects occur through air pollution, water and food availability and safety, changes in disease vectors and pathogens, loss of livelihoods and mass migration…

Heat

- High air temperature can contribute to to deaths from cardiovascular and respiratory disease, particularly among elderly
- Heat stress can lead to exhaustion, decreased productivity, violence and mental stress
- Extreme heat leads to fatal stroke
- High temperature increases the concentration of air pollutants and allergens

Severe weather events

- These bring about all kinds of health problems. . Effects are worse when disrupting the health services.

- Heavy rains, floods, storms, and rising sea level can directly cause Injuries, displacement, loss of homes and properties, death…

- Indirectly, lead to contaminating freshwater supplies, increasing the risk of water-borne diseases, and creating breeding grounds for vectors like mosquitoes .

- Decrease in precipitation leads to lack of safe water, compromised hygiene and food born diseases.

- Droughts : famine, under nutrition, death and displacement .Displacement in turn heighten the risk of other health effects

- Dryness may lead to Wild fires which cause severe air pollution.

Air pollution

- From Combustion of fossil fuel. Currently, Air pollution causes 7million deaths a year from.
- Rising temperature leads to raising ground level Ozone (smog).
- Heat increases particulate matter concentration
- Heat increases pollens and allergens concentration and prolong the allergy season

Food

- Rising temperatures, variable precipitation and stronger pathogens, decrease the staple food and livestock productivity

- This increases the prevalence of malnutrition and under nutrition . Currently 3.1 million deaths every year, mostly in developing countries

Infections

- Climate change would cause Intensifying of known infections and emergence of new ones

- *Vector-borne diseases* : Prolonged transmission, and altered geography

- *Malaria: kills 400 000 people every year. Children*
- *Dengue: endemic in Egypt . Aedes aegypti mosquitoes*
- *Zika: more than half of the world's population exposed*

- *Water and food born infections*:
- Due to pollution and warming of water reservoirs : diarrhea, Lyme disease, ameba, food poisoning
- The pathogen itself would survive better

- *Emergence of new Infections*
- About 75% of all new human pathogens originate in wild or domestic animals.
- Changing weather force animal hosts to leave their ecological niches and invade human settlements.

- *Nipah virus*
- *First Isolated in 1999 . It caused encephalitis and respiratory illness among pig farmers in Malaysia and Singapor. From 300 human cases, over 100 deaths were reported*

- *Hanta virus* :
- *First isolated in the nineties. Fatal Pulmonary Syndrome. People become infected through contact with hantavirus-infected rodents*

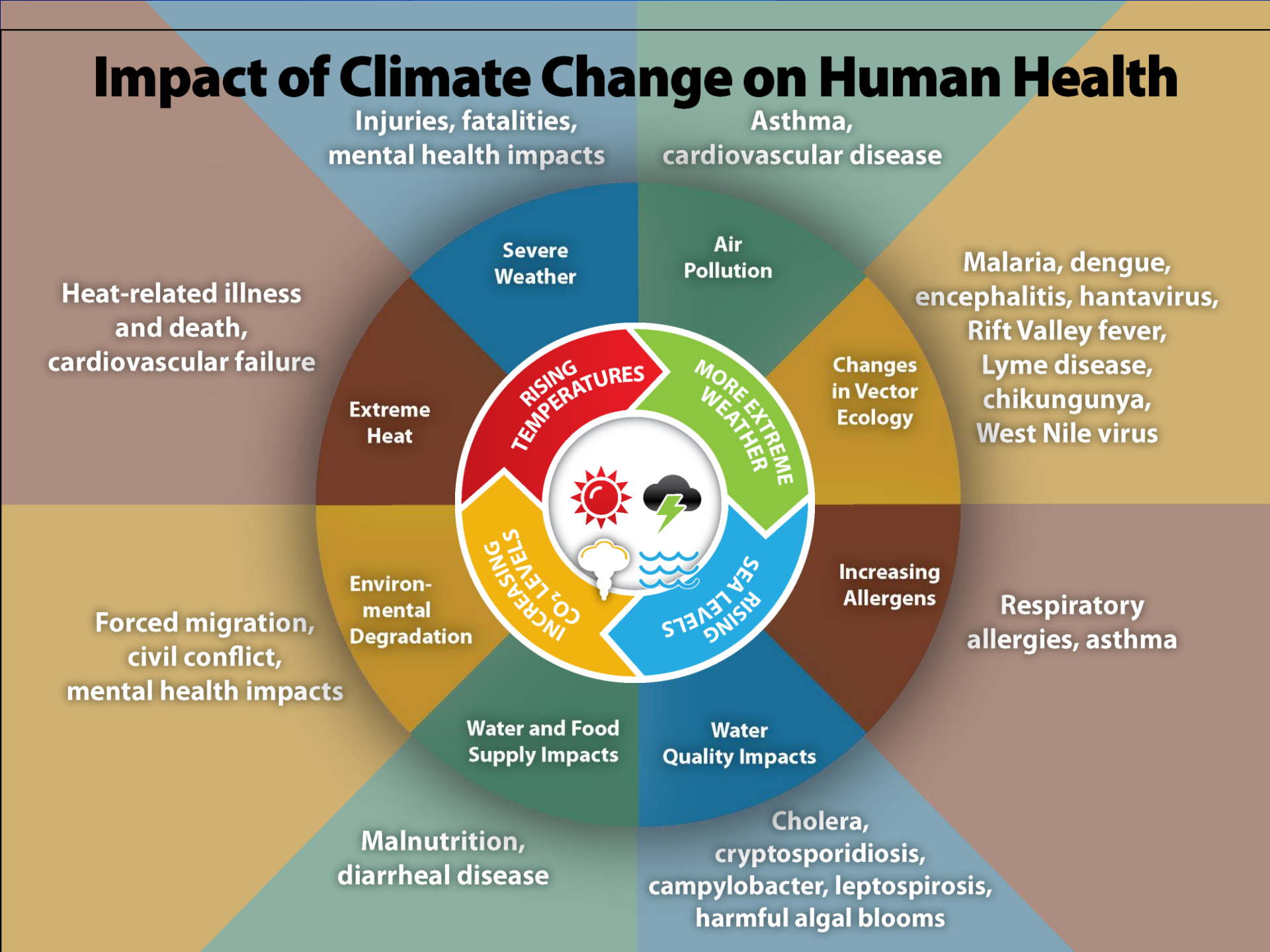
Health Risks In Egypt

- Egypt faces inland river flood risk due to climate change. Under a high emissions scenario.
- It is projected that by 2030, 1.1 million additional people may be at risk of river floods annually due to climate change.
- 2.4 million people are projected to be affected by rising seal levels

- Air pollution in Greater Cairo: 3,400 deaths/year, 15,000 cases of bronchitis, 329,000 cases of respiratory infection (UNEP, 2007).
- About 18% reduction in wheat and maize and other crops
- 29% of Egyptian children under 5 years showed evidence of chronic malnutrition or stunting . 7% are acutely malnourished (2008)
- Under nutrition and diarrhea increase risk of child mortality

- Communicable Diseases:
- Egypt vulnerable to Malaria, Filaria, Leishmania
- Schistosoma and faschiola
- TB surge
- Diarrhea and water and born infections

Impact of Climate Change on Human Health



Populations affected

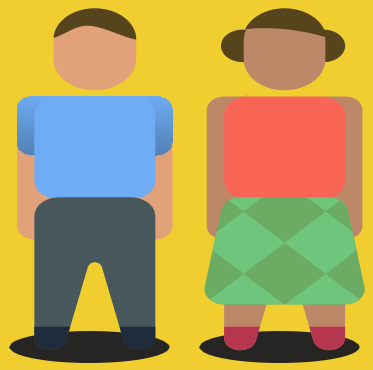
- All populations will be affected by CC. but some are more vulnerable than others:
- Small island and coastal regions, megacities, and mountainous and polar regions
- Children, elderly ,people with infirmities or pre-existing medical conditions. Women
- Socio-economic factors: people living in areas with high levels of air pollution , Poor quality housing ,, weak health infrastructure.

WHO IS MOST IMPACTED BY THE ENVIRONMENT

Environmental impacts on health are uneven across age and mostly affect the poor.

Children under five and 75 and 50 adults between years old are most affected by the environment.

Low- and middle-income countries bear the greatest share of environmental disease.



Men

are slightly more affected due to occupational risks and injuries.

Women

bear higher exposures to traditional environmental risks such as smoke from cooking with solid fuels or carrying water.

YEARLY

MILLION 4.9

Deaths in adults

years. The most75 and 50 between common causes are noncommunicable diseases and injuries.

MILLION 1.7

Deaths in children

under five. The most prominent causes are lower respiratory infections and diarrhoeal diseases.

World Health Organization

#EnvironmentalHealth

Health impacts are unfairly distributed

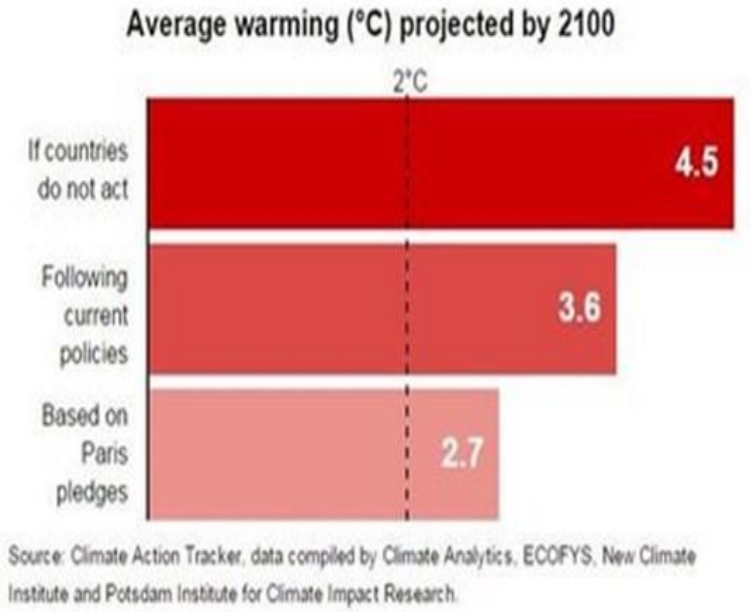
Cumulative emissions of greenhouse gases, to 2002

WHO estimates of *per capita* mortality from climate change, 2000

Map projections from
Patz et al, 2007; WHO, 2009.

What to do?

Mitigation


Average warming (°C) projected by 2100
2°C
If countries do not act
4.5
Following current policies
3.6
Based on Paris pledges
2.7
Source: Climate Action Tracker, data compiled by Climate Analytics, ECOFYS, New Climate Institute and Potsdam Institute for Climate Impact Research.

- Address the root cause : growing carbon intensity of development.

- May not bring clear reductions in health effects for decades, but essential to avoid severe risks in future

- *A rapid phase out of coal and other fossil fuel*
- *Quick Shift to cleaner alternatives.*
- *More efficient energy use*
- *Reducing consumption*
- *Sustainable transport*

- Activities that reduce the amount CO_2 in the atmosphere already prevent health problems.
- The transport sector is responsible for 14% of global carbon emissions. Reducing its energy demand reduce a 15%–40% in its CO_2
- Active modes of transport can reduce pollution, rates of obesity, heart disease, and diabetes.
- It could cut heart disease and stroke by up to 20%.

Adaptation and Resilience

- Refers to measures taken to reduce the harmful impacts of climate change on social well-being, the economy, and the environment
- Resilience: "capability to anticipate, prepare for, respond to, and recover from significant threats.
- Measures can be on local, national and international levels

Adaptation to heavy rains and floods

- Land-use planning: restricting development in flood-prone areas, incorporating elements that better handle storm water run-off (permeable paving materials)
- Relocating buildings and roads that have experienced repeated flooding
- Communities can create greenways

Heat adaptation

- Staying hydrated and avoiding hard outdoor exercise.
- Improving the ability of buildings to provide protection (green roofs).
- Providing access to public drinking fountains, swimming pools and conditioned spaces
- Street trees and wooded areas can reduce local air temperatures from heat island by 5-10 degrees.
- Avoid removing green spaces. a study in Manchester removing 10% of green space would lead to a 4°C higher temperature rise by 2080

- **Air pollution**: vegetation in street canyons can reduce street-level pollutant concentrations by up to 40% for NO2 and 60% for particulate matter

- **Sea level Rise**: Seawalls and restoration of wetlands to address sea level rise.

- **Vector Borne diseses:** Avoiding bug bites, nets, long sleeves, insect repellents..

- **Agriculture**: Change cultivation seasons and use genetically heat resistant strains

Health professionals role

- Ensuring the provision of clean water and sanitation, vaccinations, vector control, food hygiene and inspection, nutritional supplementation and disease surveillance
- Encourage behavioral change: active transport, healthy vegetable rich diet.
- Shift in emphasis from treatment towards prevention
- Building capacity and raising awareness of physicians
- Advocating for health equity.

key policy recommendations

- Climate change and sustainable development are integrated across all aspects of global health. WHO
- A successful response needs support from all sectors
- Strengthen health systems, improve health equity. healthcare facilities could act as anchors of community resilience.
- Effective surveillance and response systems
- Monitoring drinking water , Monitor Air quality, Heat waves warning system

- Disaster risk reduction policies, emergency plans and identification tools for potentially vulnerable populations.
- Updating building codes and landscaping laws
- Raise public awareness of the health risks of climate change, even from heat waves and other extreme weather events, is currently low
- Climate change and public health research, monitoring and surveillance to ensure a better understanding of the adaptation needs, most vulnerable people and groups and potential co-benefits of climate mitigation.

6

NATIONAL POLICY RESPONSE

The following table outlines the status of development or implementation of climate resilient measures, plans or strategies for health adaptation and mitigation of climate change (reported by countries) a

GOVERNANCE AND POLICY	
Country has identified a national focal point for climate change in the Ministry of Health	✓
Country has a national health adaptation strategy approved by relevant government	✗
The National Communication submitted to UNFCCC includes health implications of climate change mitigation	✓
HEALTH ADAPTATION IMPLEMENTATION	
Country is currently implementing projects or programmes on health adaptation to climate	✗
Country has implemented actions to build institutional and technical capacities to work on climate change	✓
Country has conducted a national assessment of climate change impacts, vulnerability and adaptation	✗
Country has climate information included in Integrated Disease Surveillance and Response (IDSR) system, including development of early warning and response systems for climate-sensitive health risks	✗
Country has implemented activities to increase climate resilience of health infrastructure	✗
FINANCING AND COSTING MECHANISMS	
Estimated costs to implement health resilience to climate change included in planned allocations. Funds domestic funds in the last fiscal year	✗
Estimated costs to implement health resilience to climate change included in planned allocations. Funds international funds in the last fiscal year	✗
HEALTH BENEFITS FROM CLIMATE CHANGE MITIGATION	
The national strategy for climate change mitigation includes consideration of the health implications. Health co-benefits of climate change mitigation	✗
Country has conducted valuation of co-benefits of health implications of climate mitigation	✗

a 2010a. Supporting monitoring efforts on health adaptation and mitigation of climate change: a systematic approach for monitoring progress on the global level. WHO survey.

For further information please contact:
World Health Organization
Avenue Appia 20
CH-Geneva 1211
Switzerland
+41 22 791 4811 (Fax: +41 22 791 3111 Tel. +
public.health@who.int; http://www.who.int/phe/

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Personal and Shared Action for Health Challenge