

**Organización
Panamericana
de la Salud**



Oficina Regional de la
Organización Mundial de la Salud

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Inequalities in Environmental Health

V I FORUM

“Gender Inequalities in Health and Environment”
Madrid, November 11th and 12th, 2009

Basic concepts

Inequalities in disease burden

Social and environmental inequalities

An agenda for action

What constitutes Health?

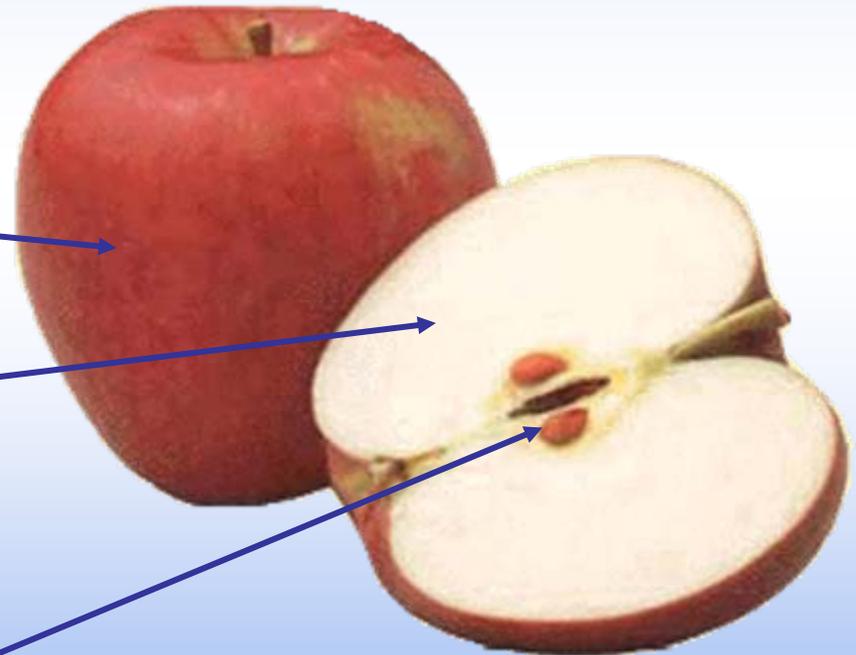
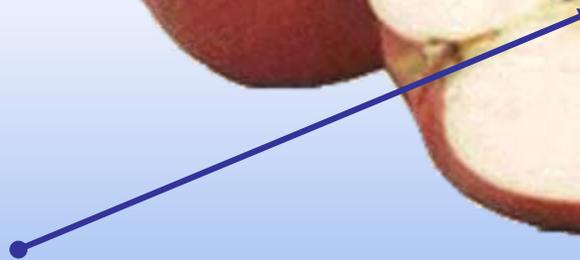
Everything



Social well-being

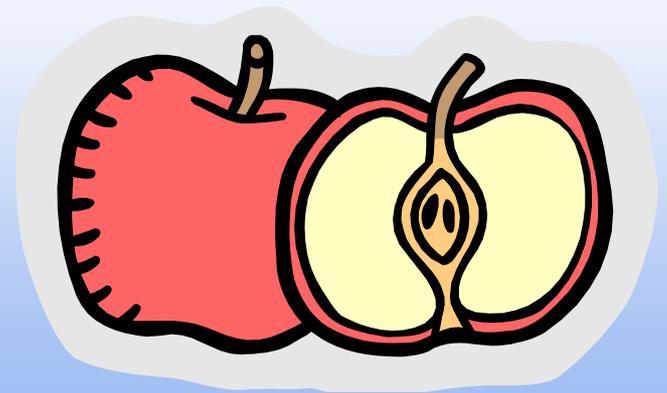


Physical, mental health

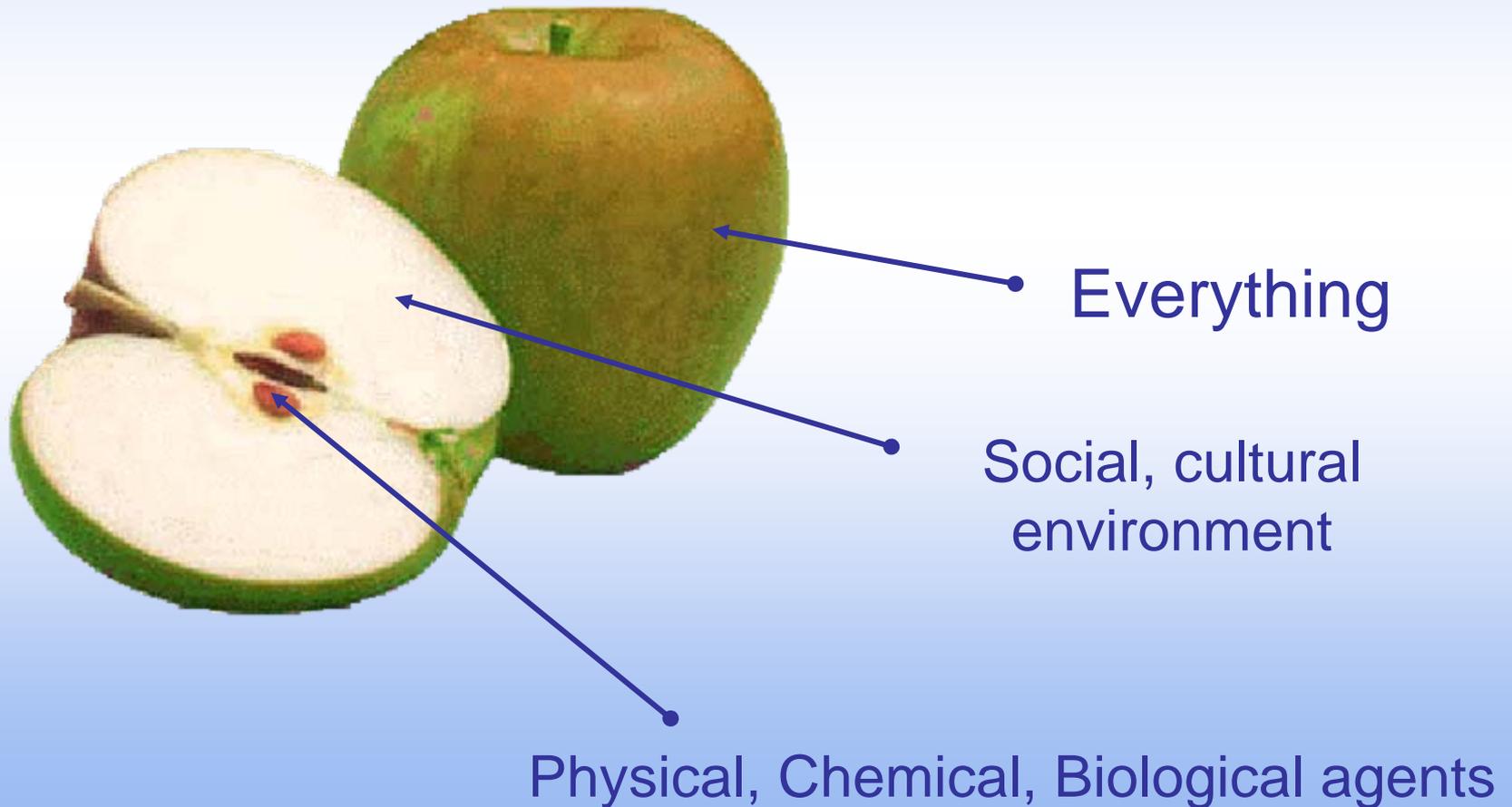


Health:

**A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity
(WHO, 1948)**

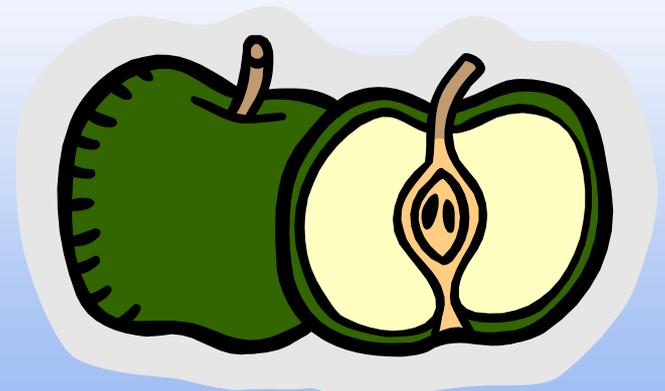


What constitutes environmental factors?



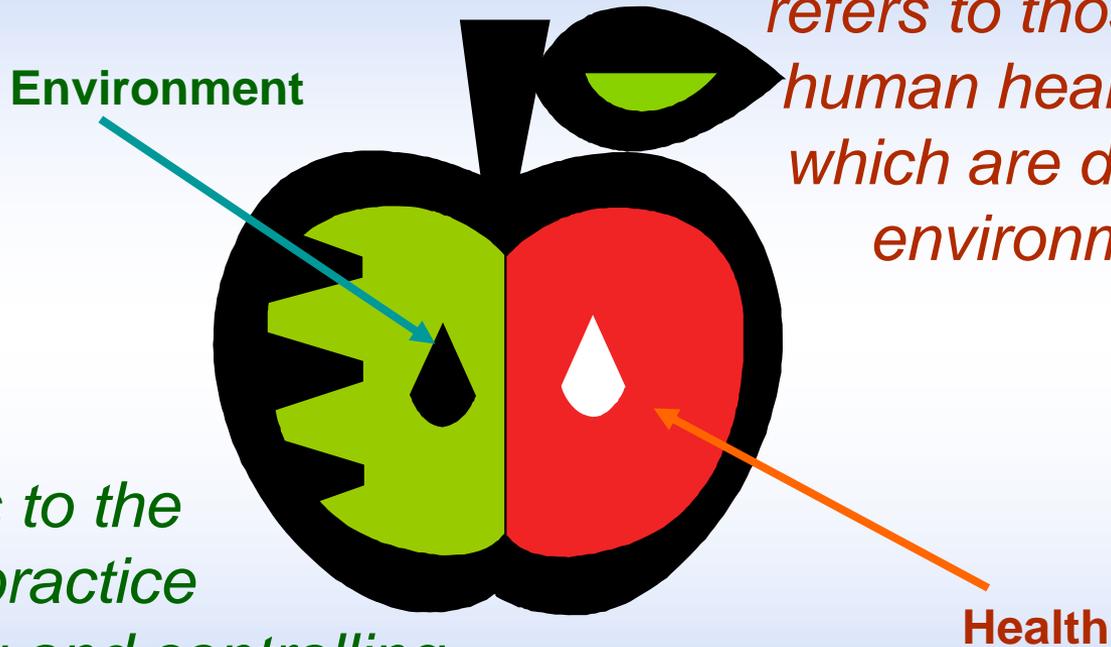
Environment:

**All that which is external to the human host.
Can be divided into physical, biological,
social, cultural, etc., any or all of which can
influence health status of populations
(J. Last, Dictionary of Epidemiology)**



What is Environmental Health?

Environmental health refers to those aspects of human health or disease which are determined by environmental factors



It also refers to the theory and practice of assessing and controlling environmental factors which can harm human health, or promoting those which protect health

The environment is not the same for all...

.....nor are its impacts

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Conceptual framework DPSEEA

Driving
Forces

Pressures

State

Exposure

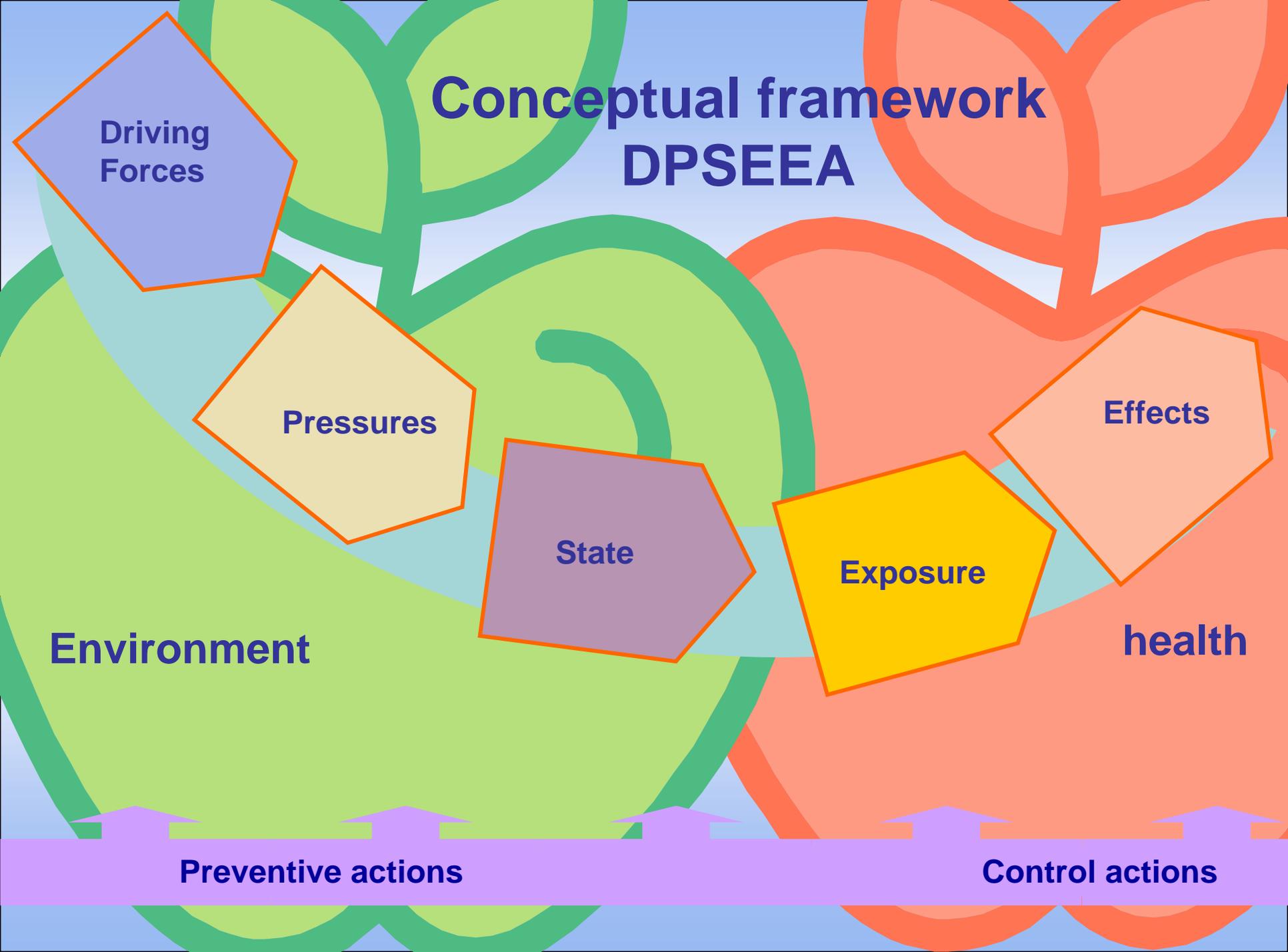
Effects

Environment

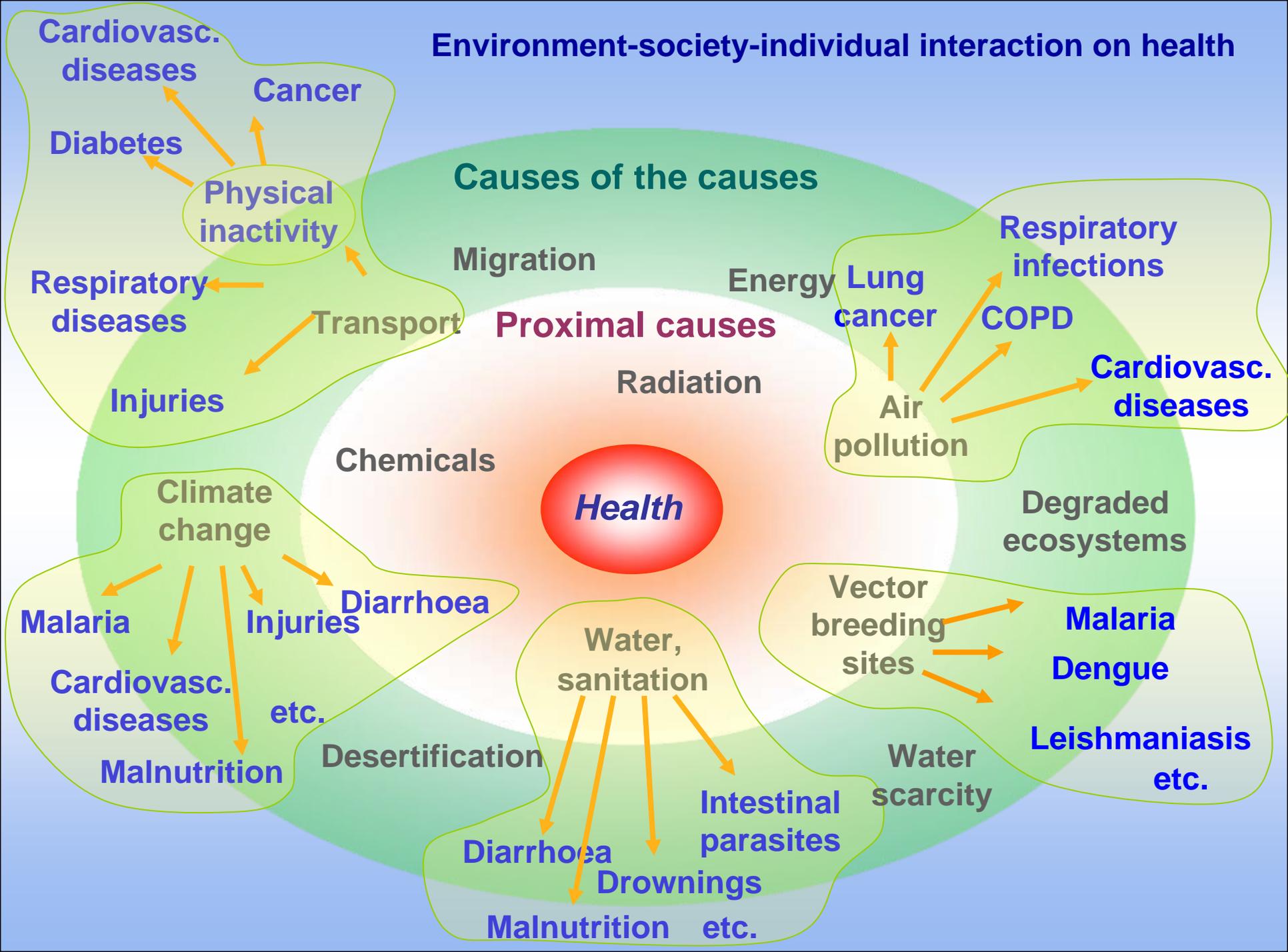
health

Preventive actions

Control actions

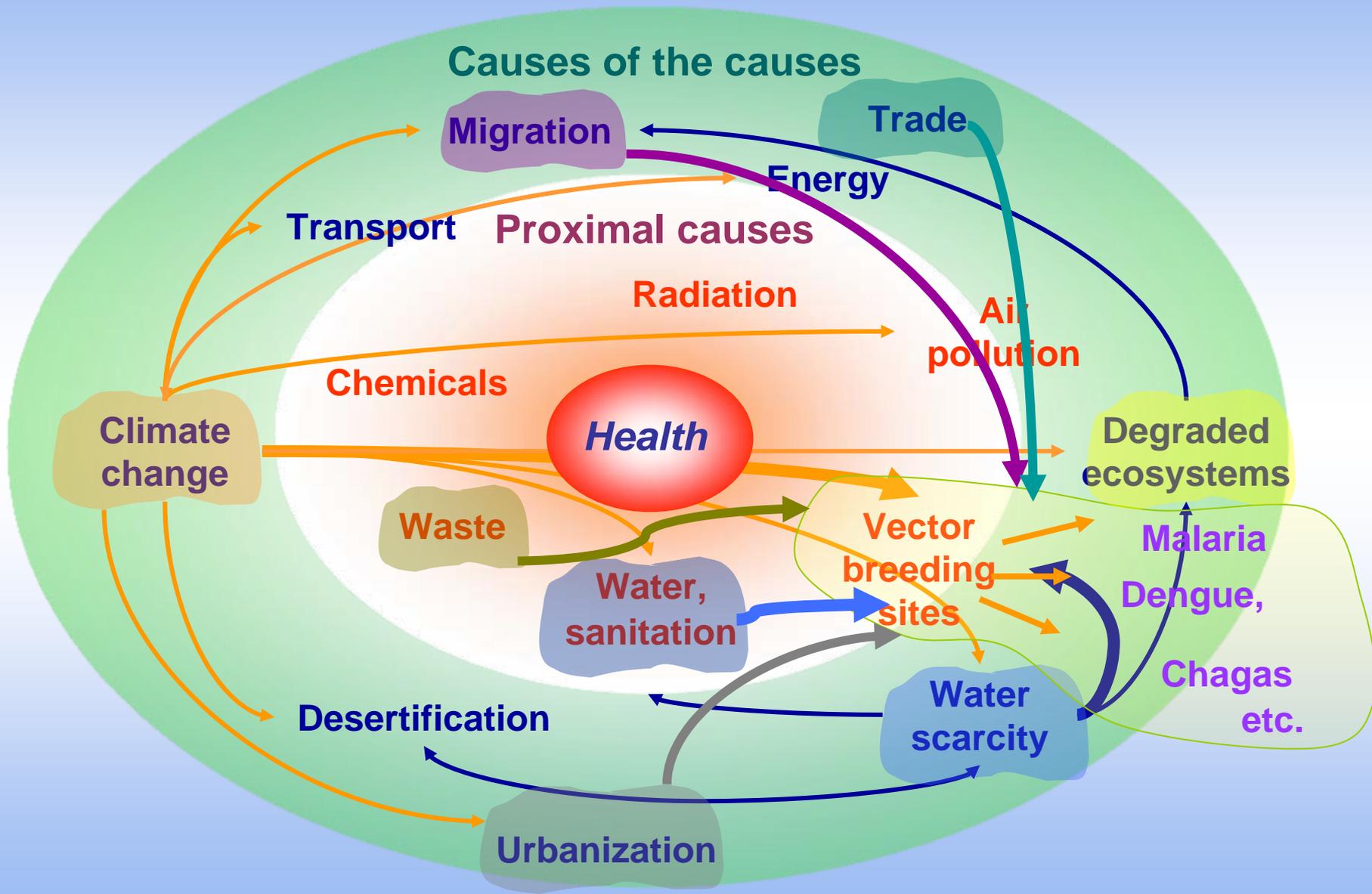


Environment-society-individual interaction on health



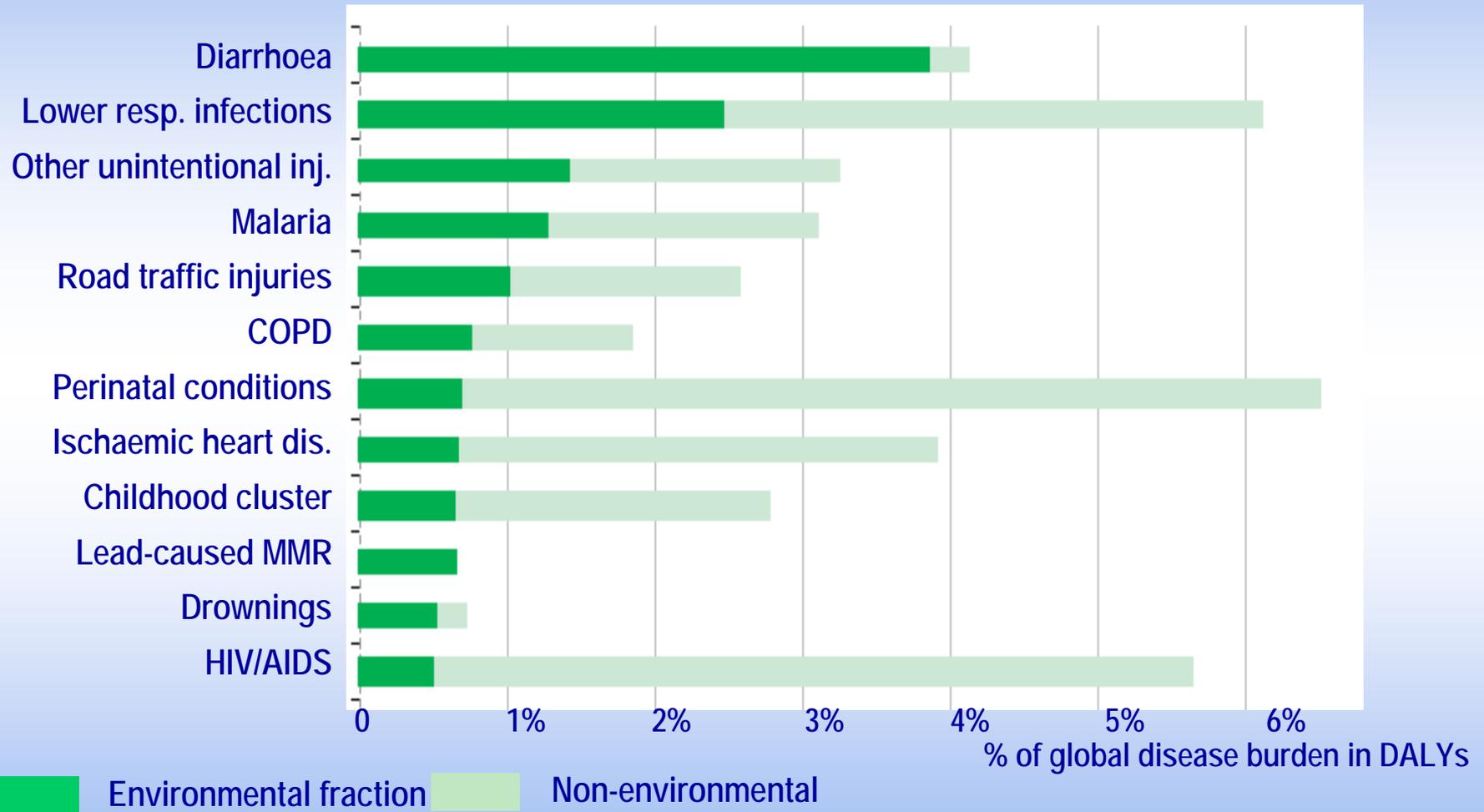
Current and emerging threats

Example of Water, Climate change, Degraded ecosystems, Migration, Trade.....



Unequal impacts on poor countries, children, marginalized populations...

Diseases with largest environmental contributions

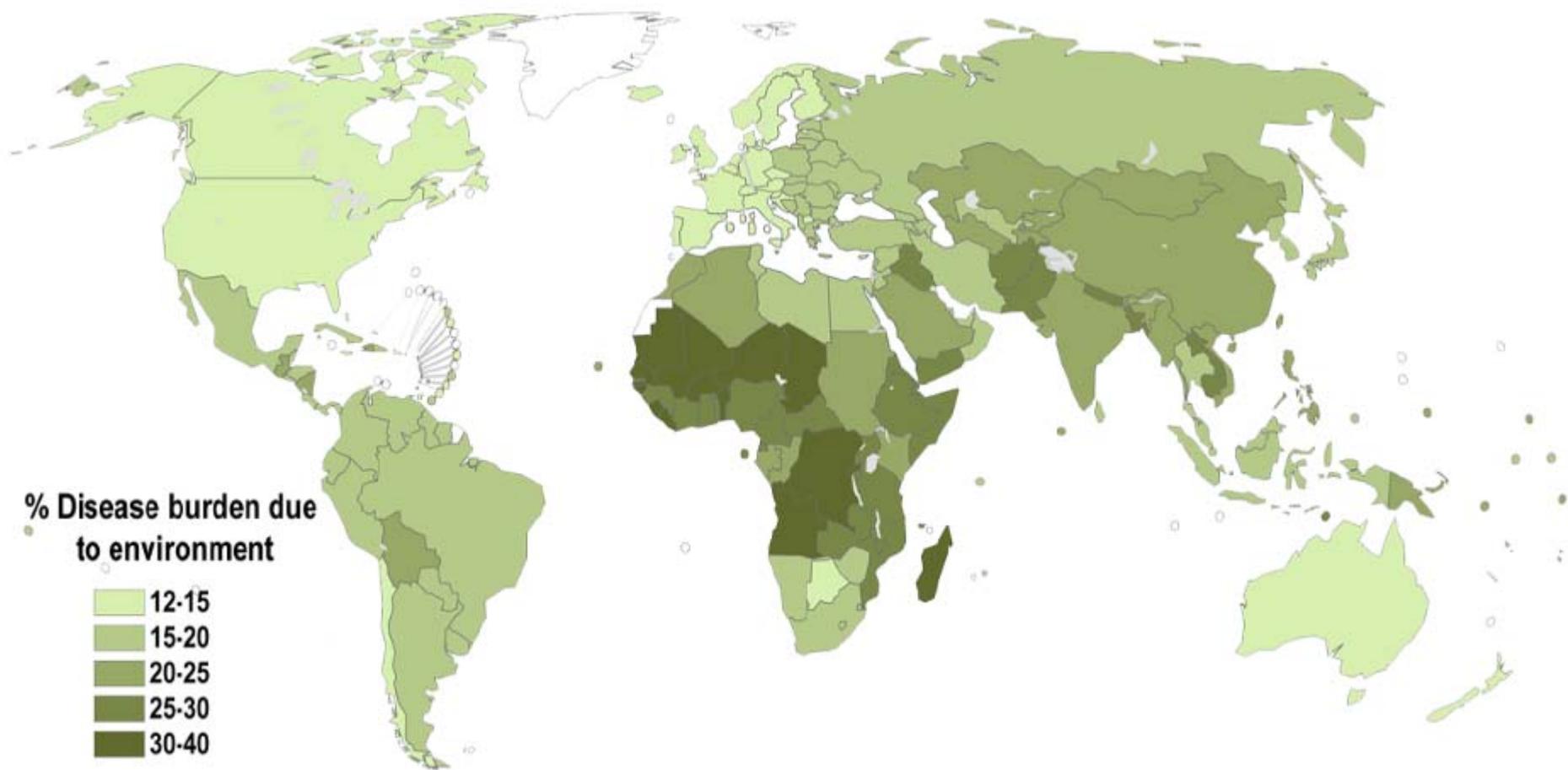


Environmental Burden of Disease

One quarter of the total burden of disease worldwide

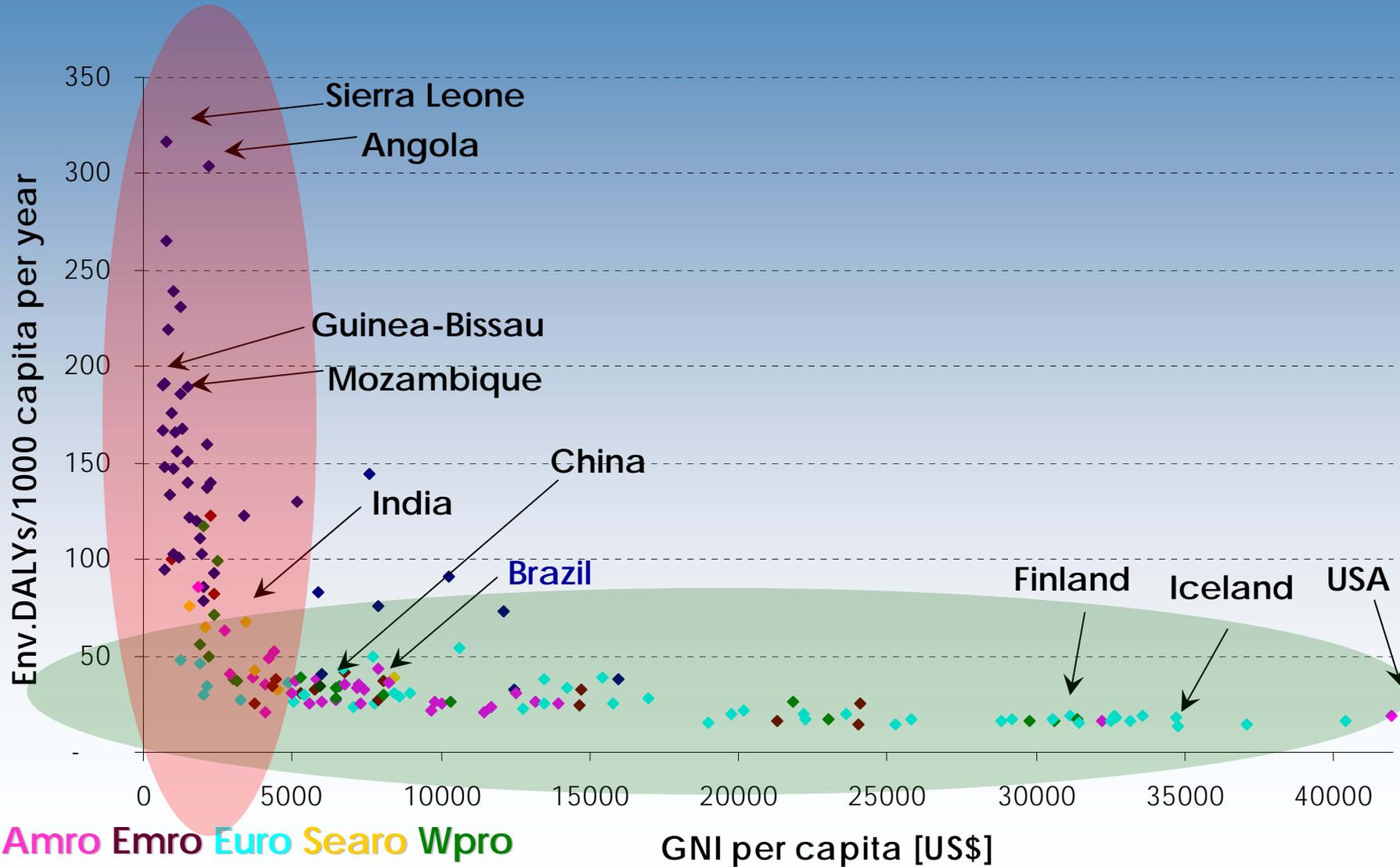
Varies from 12% to 35% in some countries

13 million deaths could be prevented every year through healthy environments

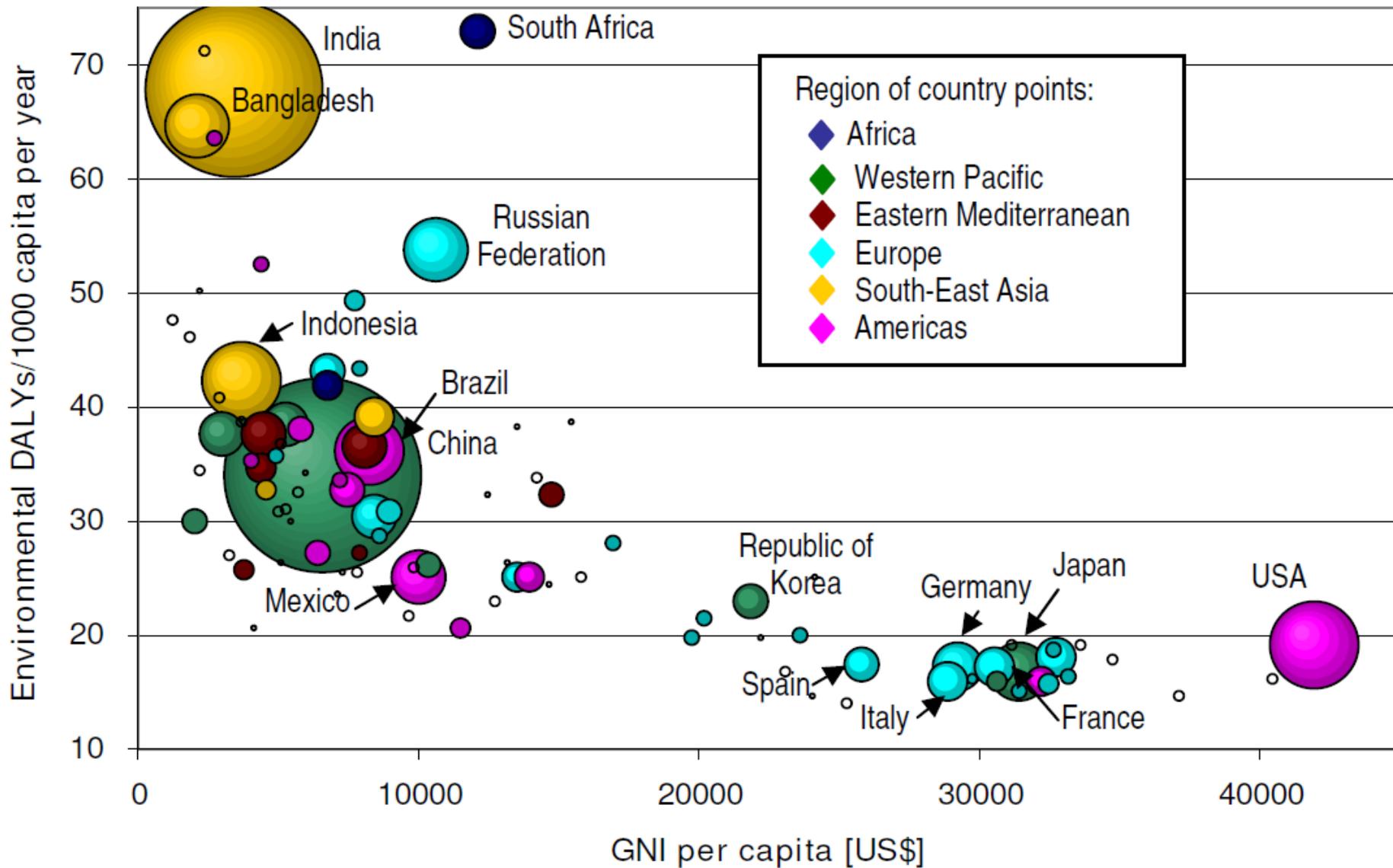


Measured in DALYs, a weighted measure of death, illness and disability

Global inequalities: GNI versus EBD



Environmental burden of disease by GNI and country population



Emerging facts

- Nearly one quarter of disease burden is due to the environment
- 37% in children of 0-4 years
- 85 of 102 diseases with environmental components

Per capita results:

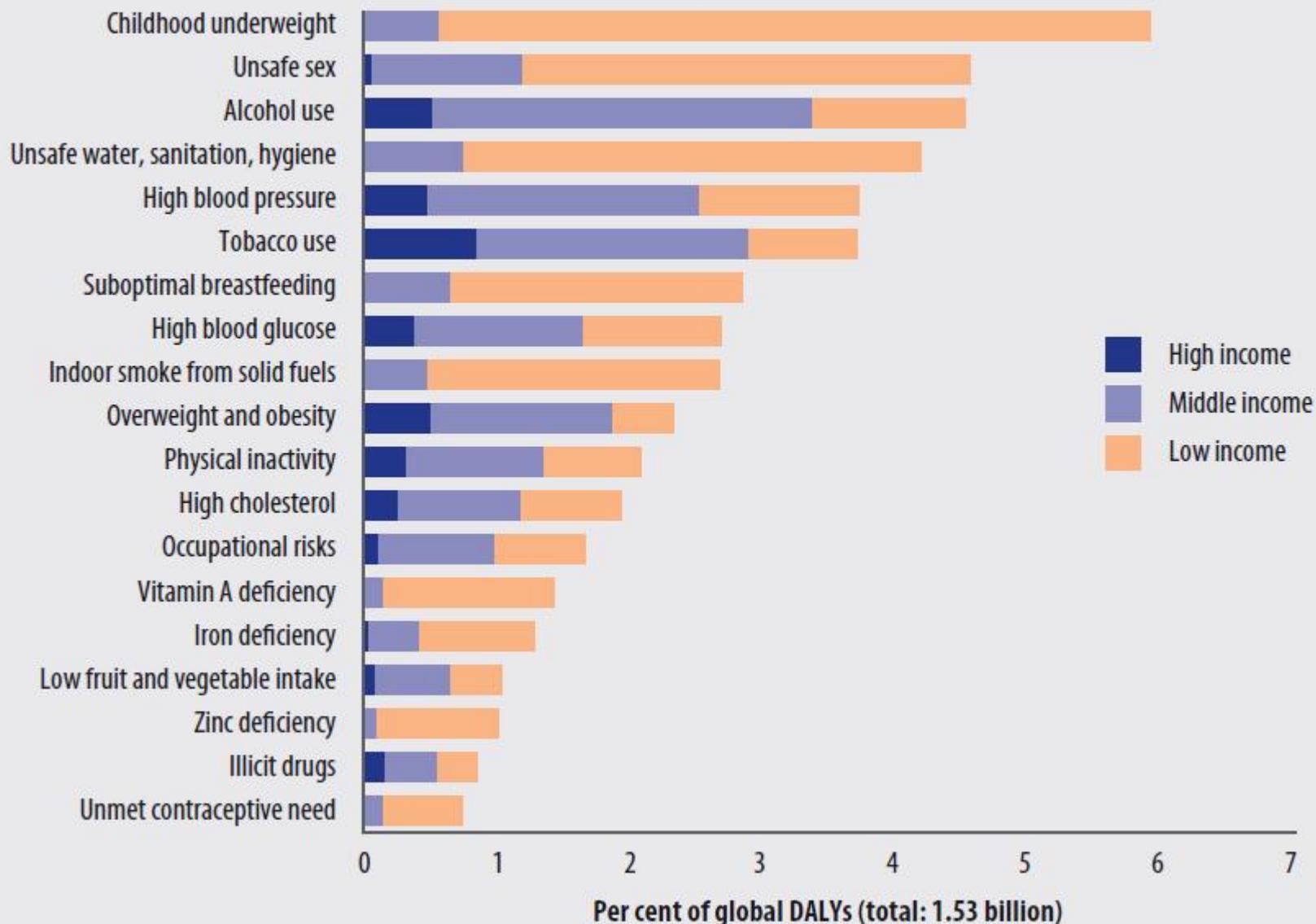
- 15 times more infectious diseases in developing than in developed countries
- 2x more injuries per capita in developing countries
- 2-3x more cancers and CVD in developed countries
- Over 100x more diarrhoeal and LRI burden if comparing worst and best performing regions

www.who.int/quantifying_ehimpacts/countryprofiles

Table 6: Deaths and DALYs attributable to five environmental risks, and to all five risks combined by region, 2004.

Risk	World	Low and middle income	High income
<i>Percentage of deaths</i>			
Indoor smoke from solid fuels	3.3	3.9	0.0
Unsafe water, sanitation, hygiene	3.2	3.8	0.1
Urban outdoor air pollution	1.7	1.7	2.1
Global climate change	0.2	0.3	0.0
Lead exposure	0.2	0.3	0.0
All five risks	9.3	10.3	2.6
<i>Percentage of DALYs</i>			
Indoor smoke from solid fuels	2.7	2.9	0.0
Unsafe water, sanitation, hygiene	4.2	4.6	0.3
Urban outdoor air pollution	0.5	0.5	0.8
Global climate change	0.4	0.4	0.0
Lead exposure	0.6	0.6	0.1
All five risks	8.8	9.4	1.2

Figure 7: Percentage of disability-adjusted life years (DALYs) attributed to 19 leading risk factors, by country income level, 2004.



Basic concepts

Inequalities in disease burden

Social and environmental inequalities

An agenda for action

Social and Environmental determinants:

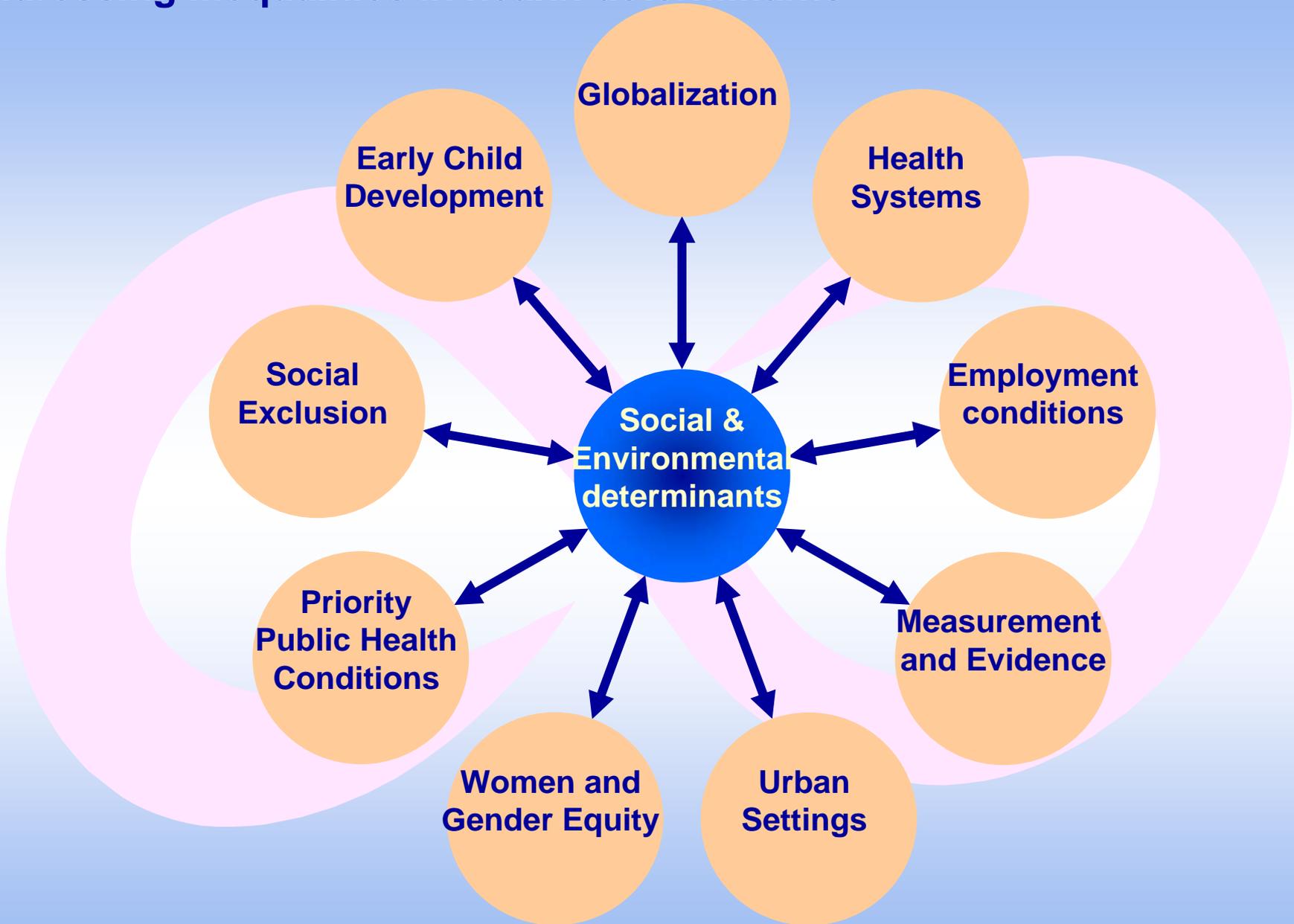
Two key aspects of Health



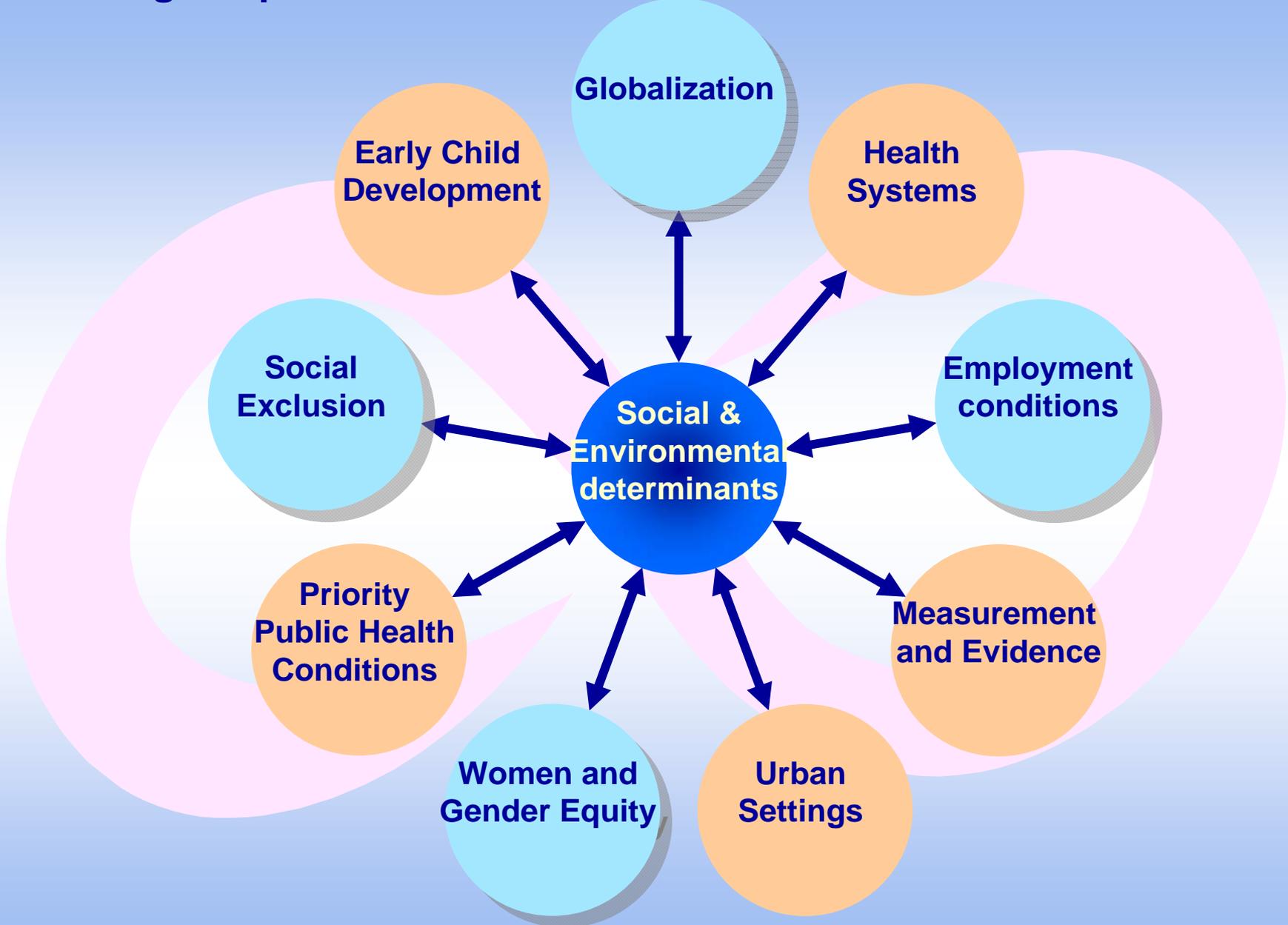
**Social
determinants**

**Environmental
determinants**

Addressing inequalities in health determinants



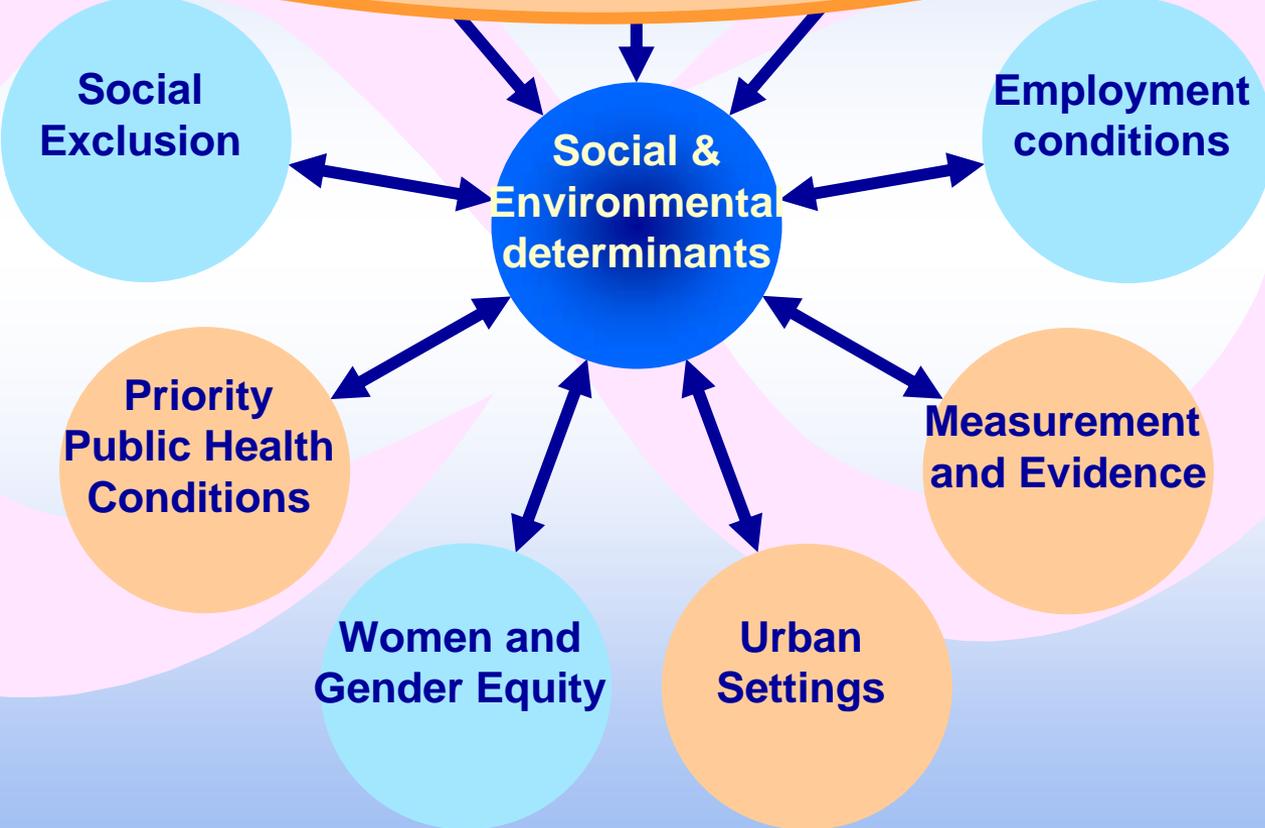
Addressing inequalities in health determinants



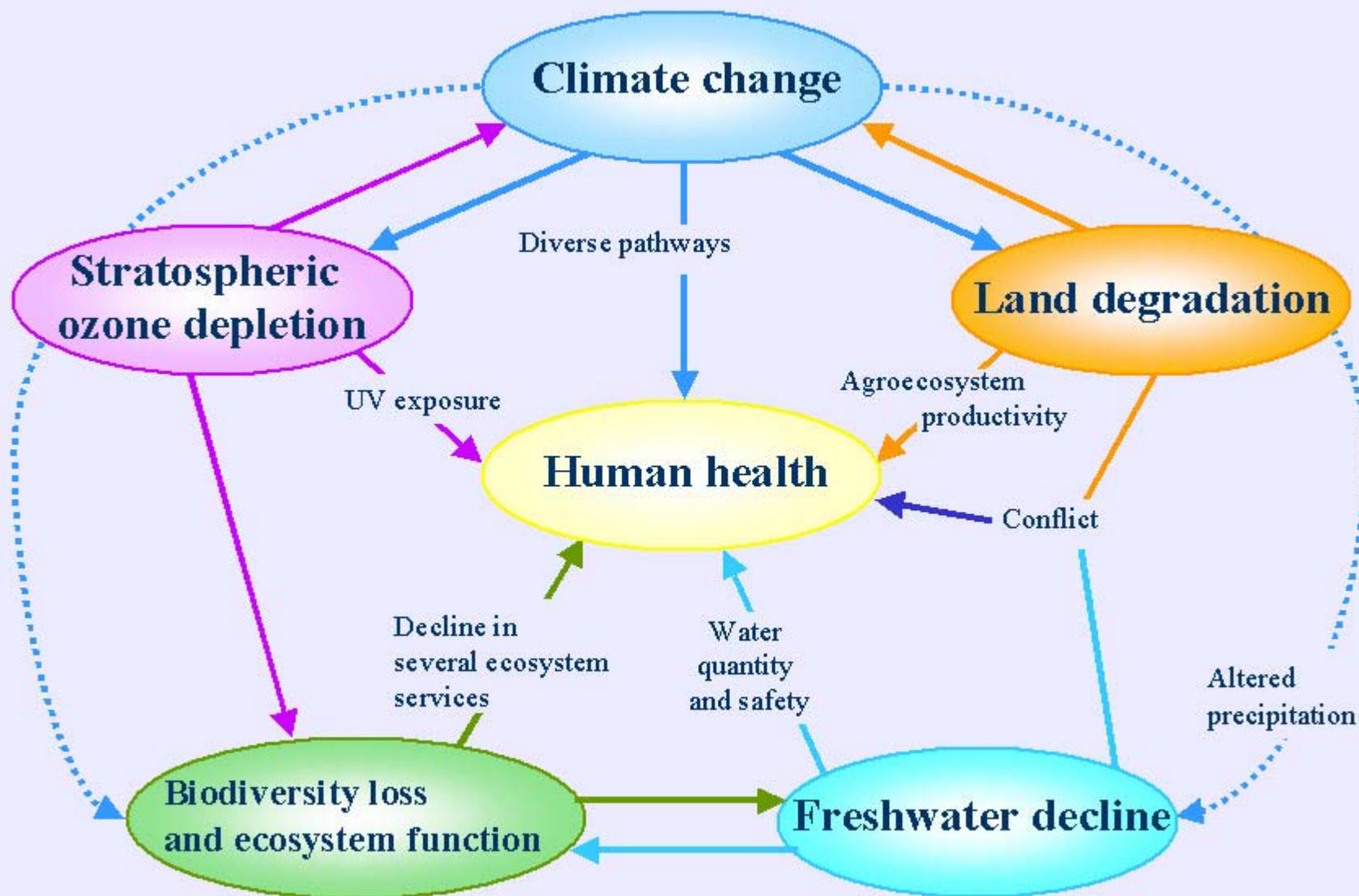
Addressing inequalities in health determinants

Globalization

- Exporting hazards to vulnerable regions
- Inequalities in access, e.g. to clean energy
- Globalization of environmental risk factors
- Changes in the global environment



Emerging issues: Global changes impacting on health



Climate Change: The warming is real

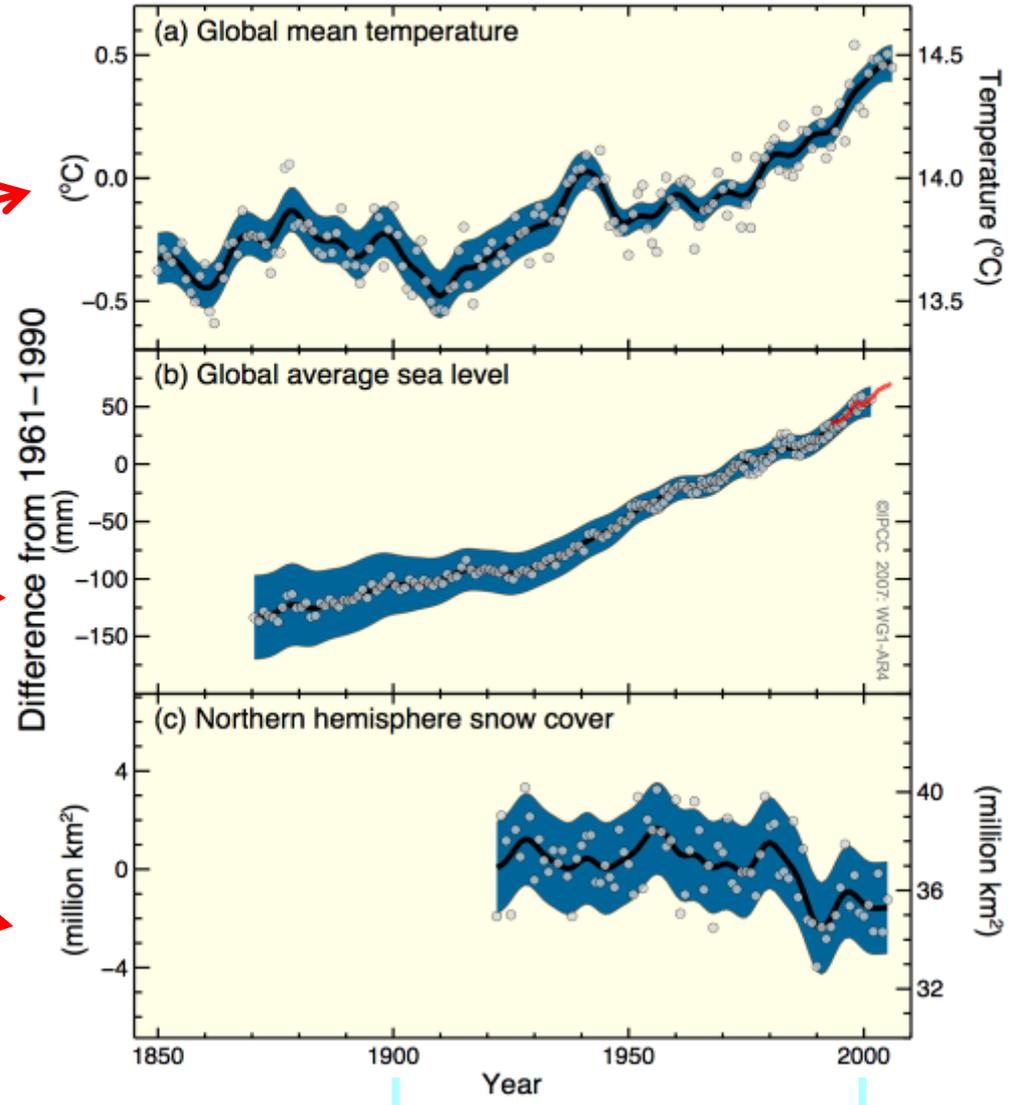
Increase in
atmospheric
temperature

Increase in sea
level

Snow reduction in
northern
hemisphere

Source: IPCC

Changes in Temperature , Sea Level
and Northern Hemisphere Snow Cover



1900

2000

The health effects of climate change

Some expected impacts will be beneficial but most will be adverse. Expectations are mainly for **changes in frequency or severity of familiar health risks**

Health effects

- Temperature-related illness and death
- Extreme weather- related health effects
- Air pollution-related health effects
- Water and food-borne diseases
- Vector-borne and rodent- borne diseases
- Effects of food and water shortages
- Effects of population displacement



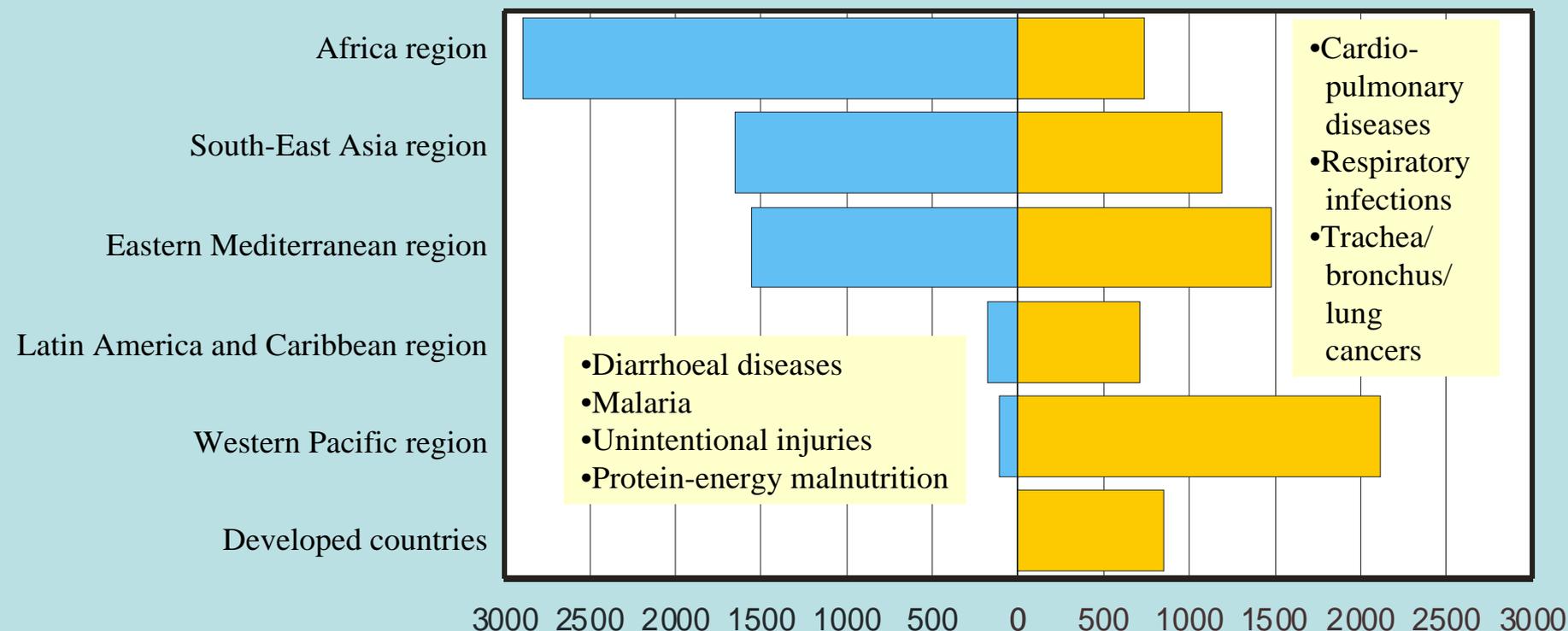
Inequalities in climate change impact on health

> 150 thousand deaths per year

Burden of disease by region: Climate change and urban air pollution
Disability Adjusted Life Year per million. World Health report 2002.

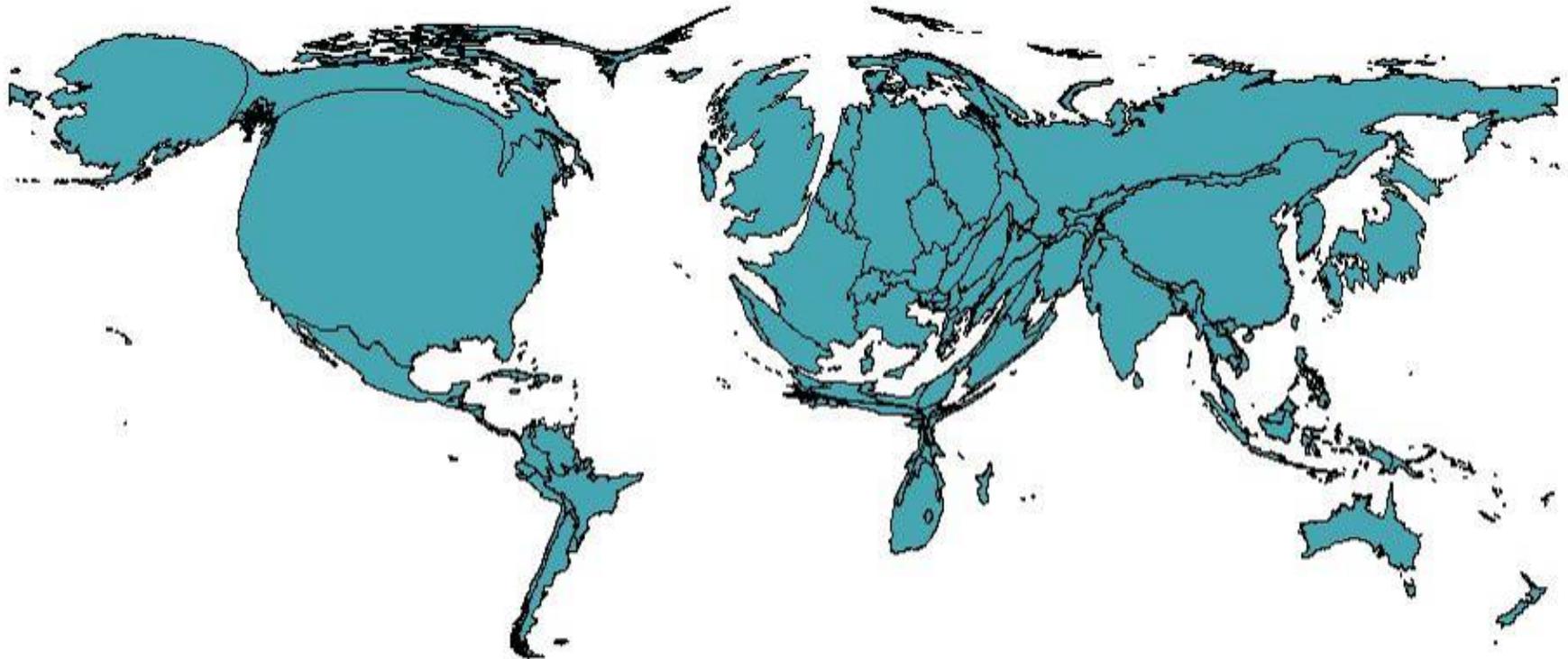
Climate change

Air pollution



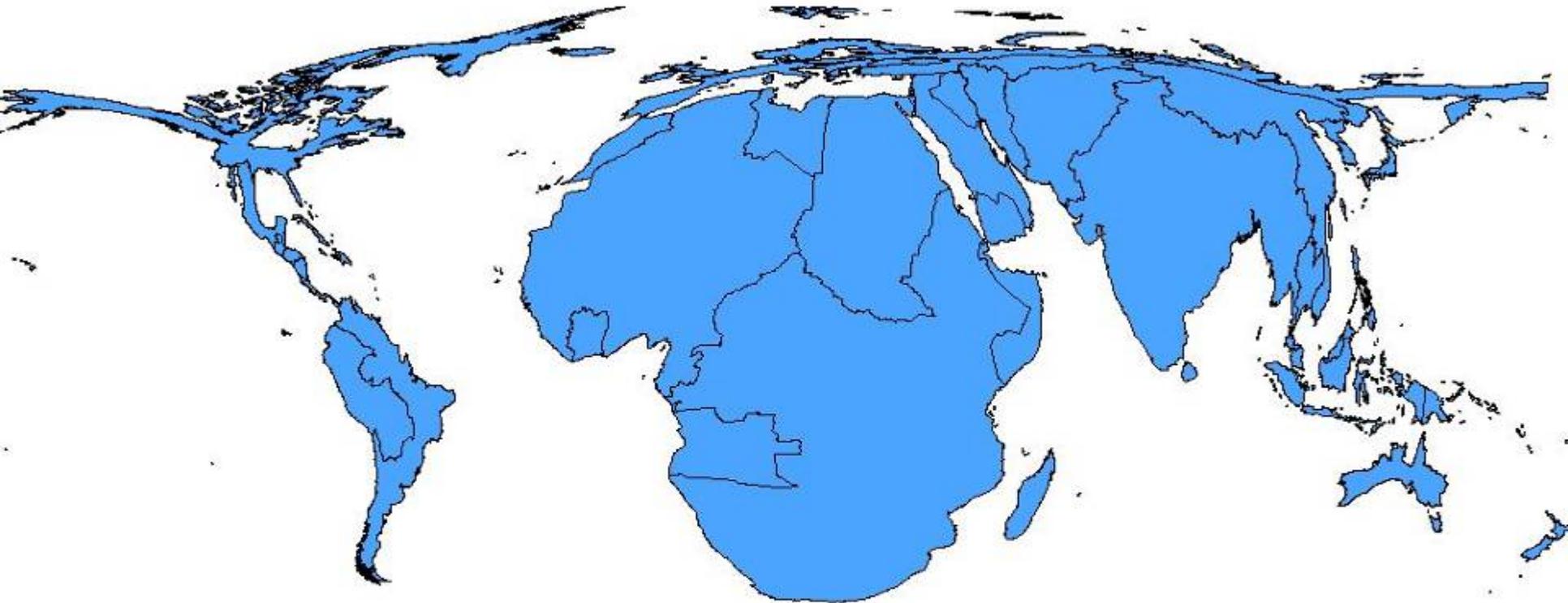
Global inequalities: Emissions of greenhouse gases

Total CUMULATIVE Greenhouse Gas Emissions in the Year 2002, by Country



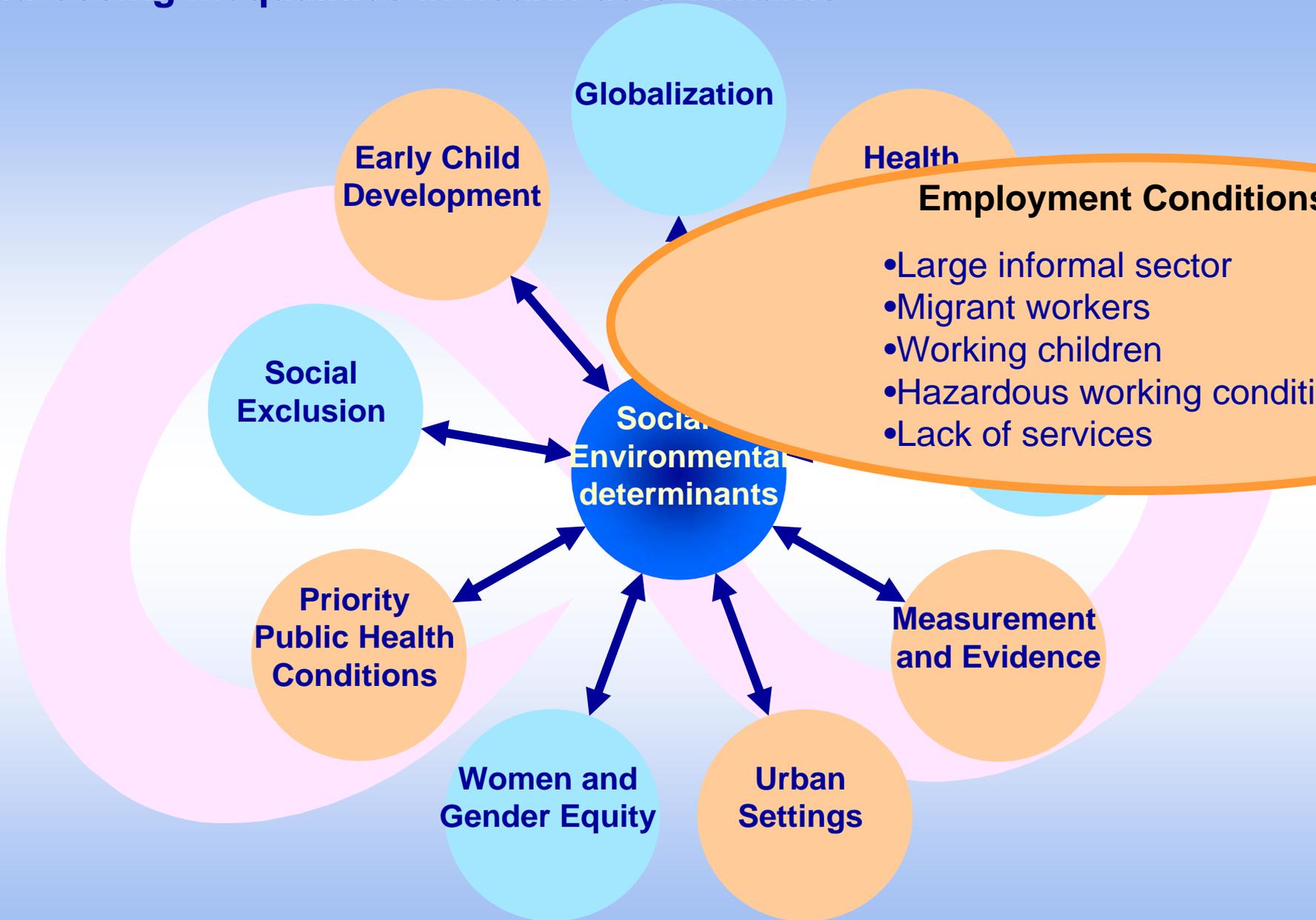
Density equalling cartogram. Countries scaled according to cumulative emissions in billion tonnes carbon equivalent in 2002. Gibbs et al

Global inequities: Health impacts of climate change



Density equalling cartogram. WHO regions scaled according to estimated mortality (per million people) in the year 2000, attributable to the climate change that occurred from 1970s to 2000. Gibbs et al

Addressing inequalities in health determinants



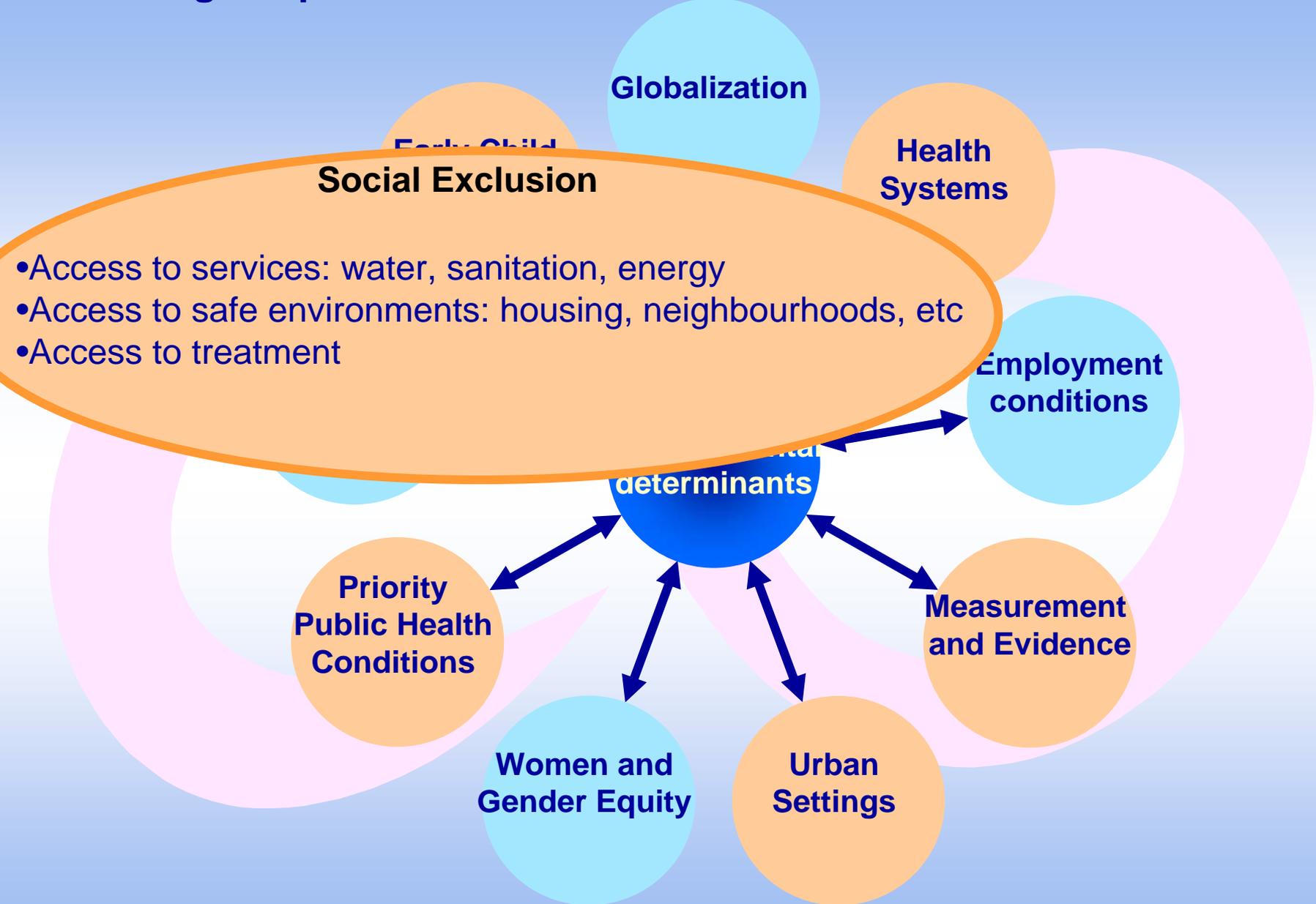
Workers represent half of the world population...yet:

- Unacceptable levels of work related hazards
- Work related diseases and injuries result in over 2 million deaths per year
- Less than 15% of workers have access to services in some countries
- Wide gap within and between countries in exposure, health status and access to services
- Globalizing economy, competition, changes in regulation, new technologies
- Migration

Occupational risks

Occupational risks	deaths (000)		DALYs (000)	
	Males	Fem	Males	Fem
Risk factors for Injuries	331	21	10810	802
Carcinogens	137	41	1419	479
Airborne particulates	352	105	5272	1479

Addressing inequalities in health determinants



Inequalities in access to water



Water scarcity affects 4 out of every 10 persons globally

Water, sanitation and hygiene related disease burden

Diarrea: 1.4 million preventable child deaths per year

Malnutrition: 860 000 child deaths per year

2 billion intestinal nematode infections

Lymphatic filariasis: 25 million seriously incapacitated

Schistosomiasis: 200 million preventable infections

Malaria: half a million preventable deaths annually

Water scarcity:

Increases use of unsafe sources of drinking water.

Reduces hygiene

Encourages water storage in homes, increasing the risk of household water contamination and/or providing breeding grounds for vectors

Underscores the need for better water management.

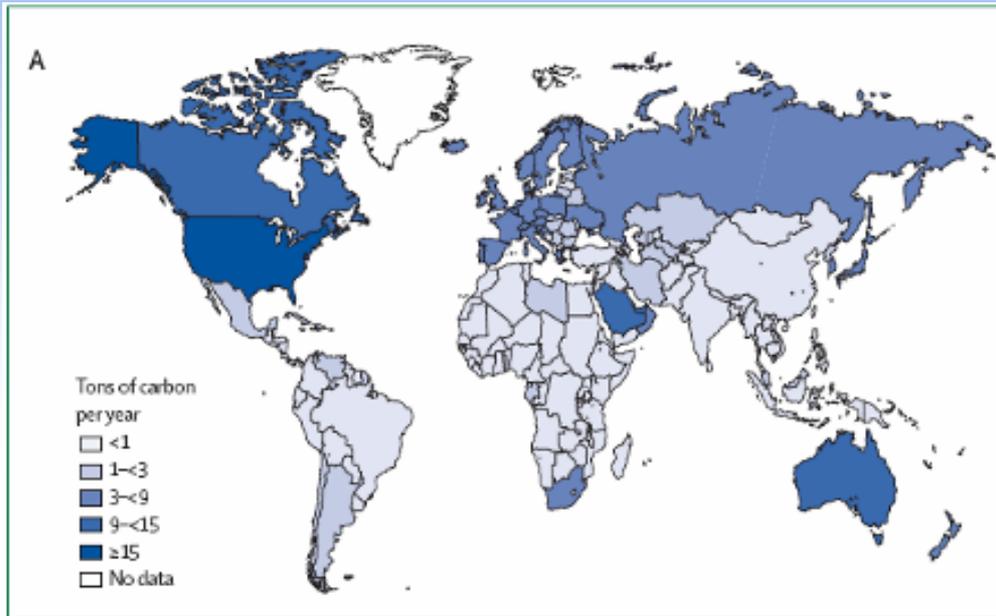
MDG 7, target 10 aims "to halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation": increasing water scarcity may seriously undermine progress towards achieving and this goal.

Inequalities in access to energy



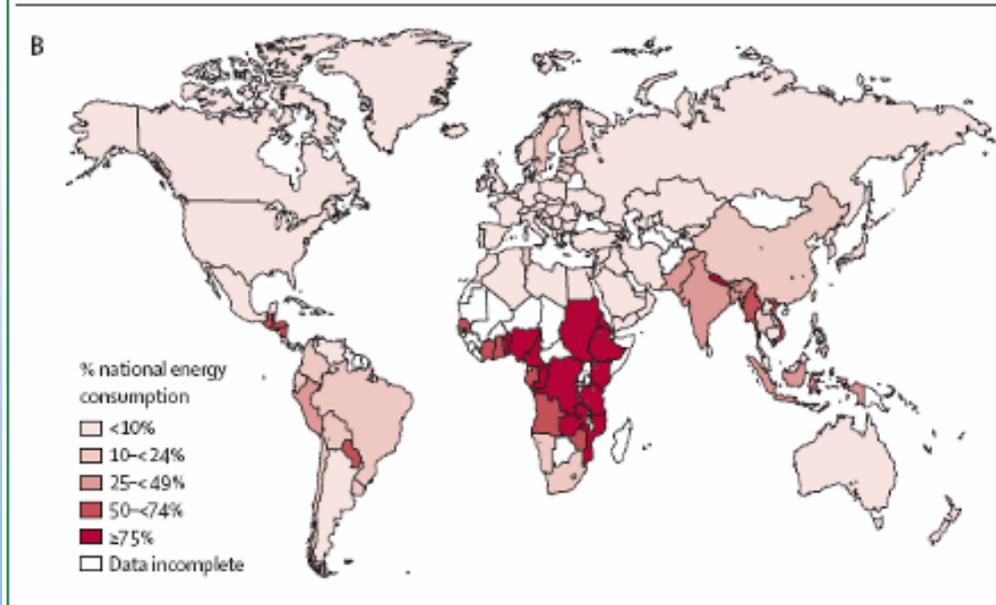
Rich countries use over 20 times more energy than poor countries

Global inequalities: energy rich, energy poor



A. Per capita Carbon emissions

A. Health impacts from climate change: higher on those with lower emissions



B. Biomass use (% of all energy national level)

B. 2.4 billion exposed to pollution from solid fuels: health impacts remain with the users

Household energy:

Indoor air pollution relates to a neglected energy crisis

3 billion people use solid fuels (wood, agricultural waste, coal) for their basic energy needs of cooking and heating

Characteristics:

Low quality

High cost

High health impacts

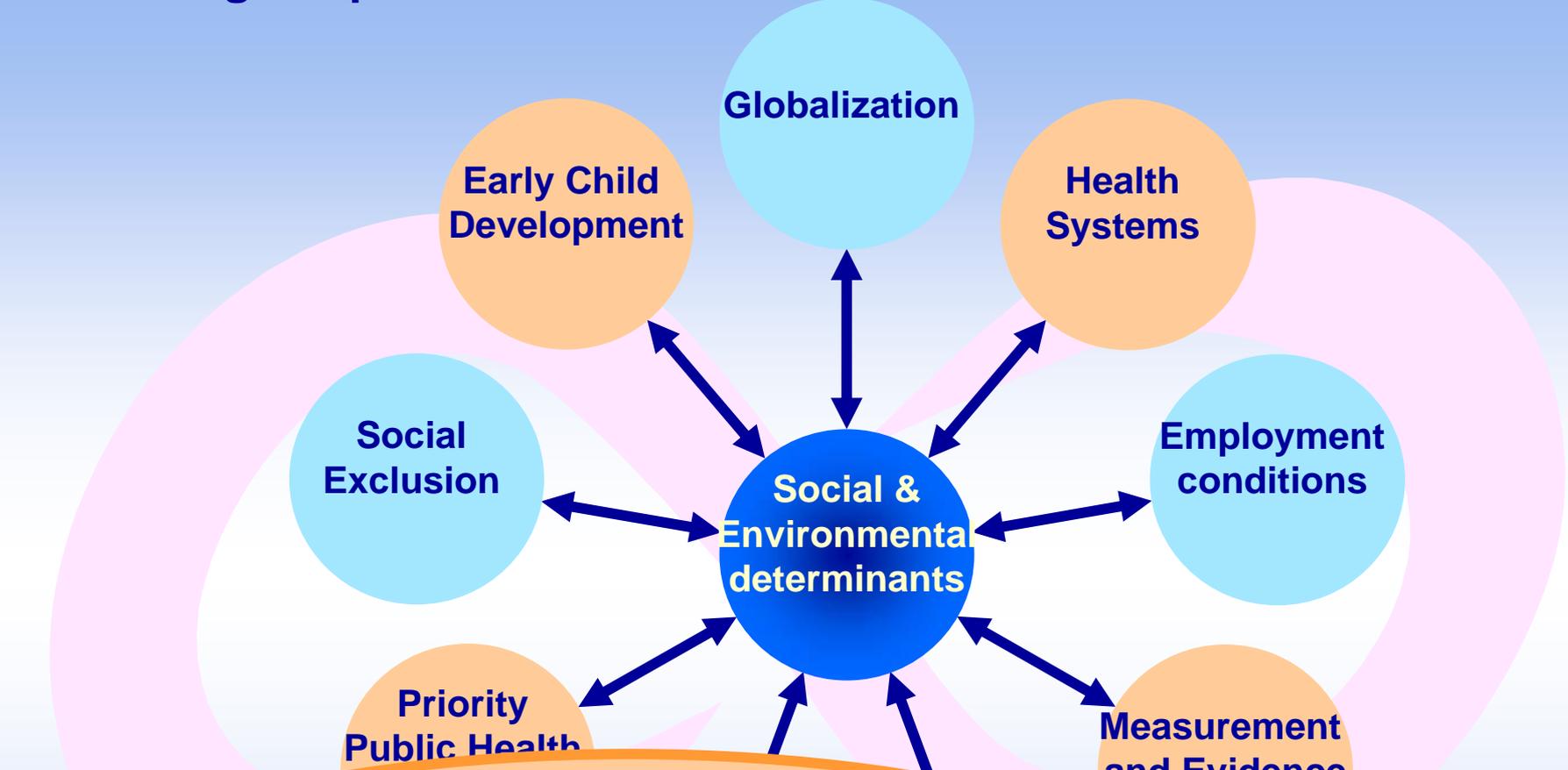


Results:

- 1.5 million deaths per year
- Among the poor and in poor countries
- Mostly affecting women and children



Addressing inequalities in health determinants



Women and Gender Equity

Women and girls:

- Collection of water
- Collection of wood fuel
- Time away from school
- School dropout (lack of sanitation)

Women and Gender Equity Knowledge Network

WHO Commission on Social Determinants of Health

Women generally:

- Less wealth and property in almost all societies
- Women employed and segregated in lower paid, less secure, informal occupations
- Girls are fed less, educated less more physically restricted
- Viewed as less capable or able
- Income earned is used for the family

Men generally:

- Have greater wealth
- Have better jobs and higher incomes
- Fewer restrictions on behaviour
- Greater political power
- Income may be used more frequently for personal use

Women and Gender Equity Knowledge Network

WHO Commission on Social Determinants of Health

Differences in exposure and vulnerability:

Health conditions determined by biological sex differences



Gender roles based, affecting health of both women and men

Combination of sex and roles differences - examples:

- 2.7 times as many men as women die in road traffic injuries
- Abortion where preference for boys
- Smoking: 47% men, 11% women, shifting towards women
- Alcohol: adolescent males more likely to drive.
- Violence against women
- Gendered division of labour
- Work related fatalities higher in men

Health impact, by gender:

3 times more IAP-attributable COPD deaths among women than among men

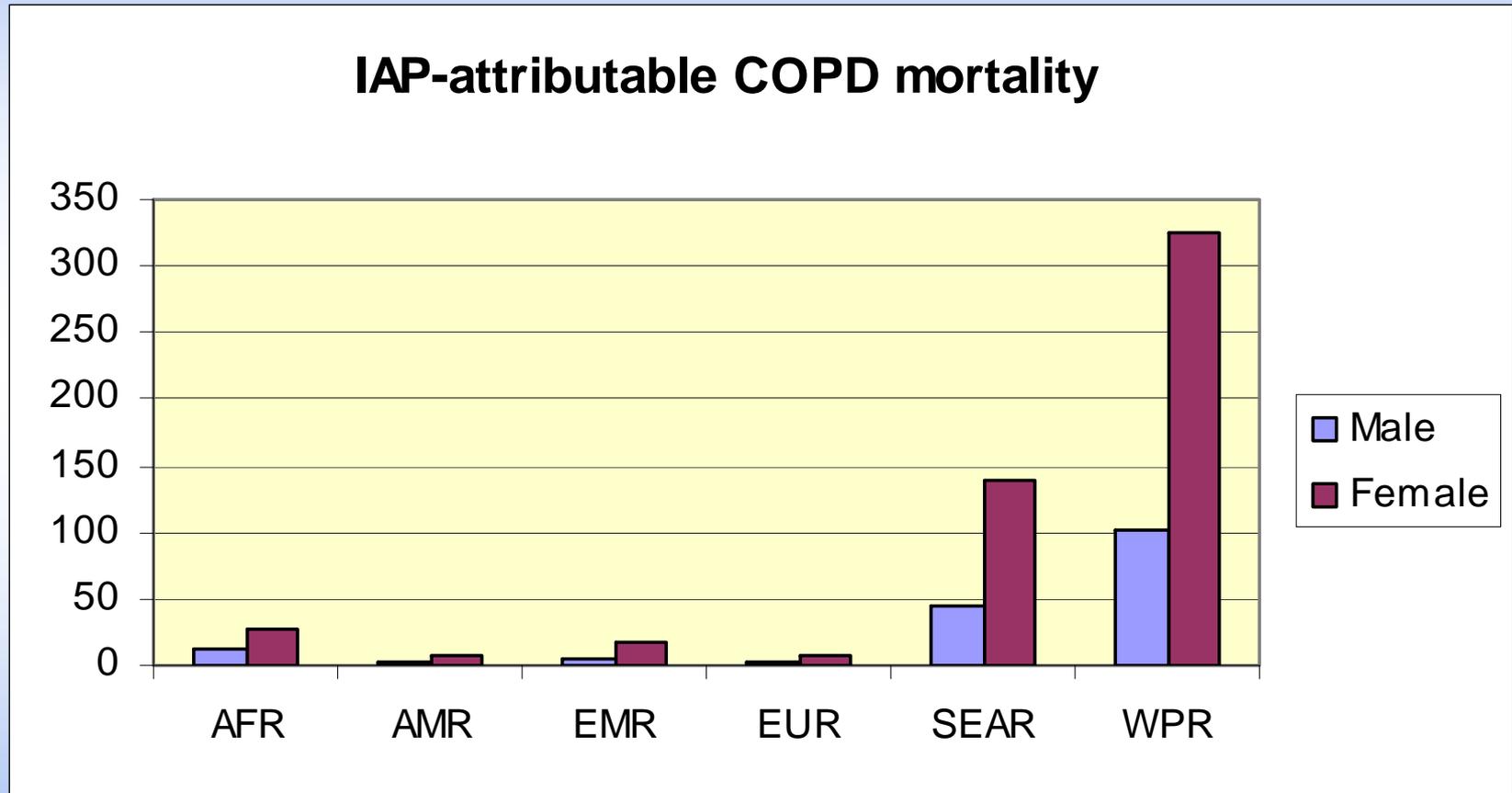
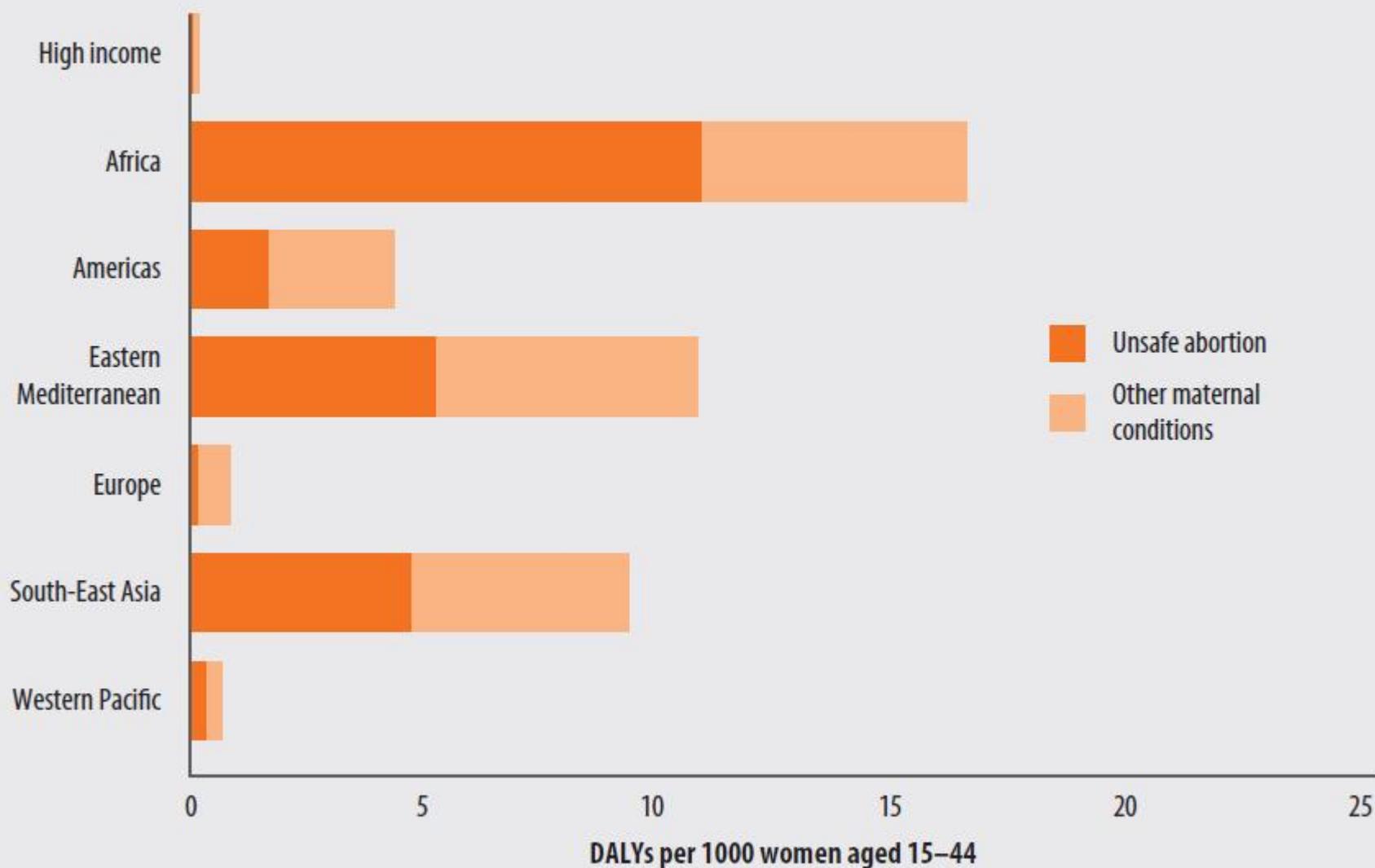


Figure 10: Burden of disease attributable to lack of contraception, by WHO region, 2004.



Basic concepts

Inequalities in disease burden

Social and environmental inequalities

An agenda for action

We cannot separate the action needed to solve emerging global problems, from the action needed to reduce poverty, inequalities and the traditional problems in environmental health (water, sanitation, indoor air...)

**World Health Assembly
Climate change and health Resolution, May 2008**



**PAHO Directing Council
Climate change and health action plan
September 2008**

A strategic approach protect health from climate change: Climate change and health action plan

Strengthen health systems locally and nationally to protect human health from risks related to climate change.



Why?

Because global environmental changes
produce local health impacts
and increase inequalities

And because climate change begins with...

the most vulnerable groups:

Children under 5;

Pregnant women;

Elderly people;

Marginalized rural, urban and indigenous
populations;

Displaced persons

GLOBAL ENVIRONMENT

COMMUNITY

HOME



Social & work environment

Vector-borne diseases

Air pollution

Housing and shelter

Water supply

Natural hazards

Noise

Food

Road traffic

Hazardous chemicals

Solid waste

Sanitation and hygiene

Radiation

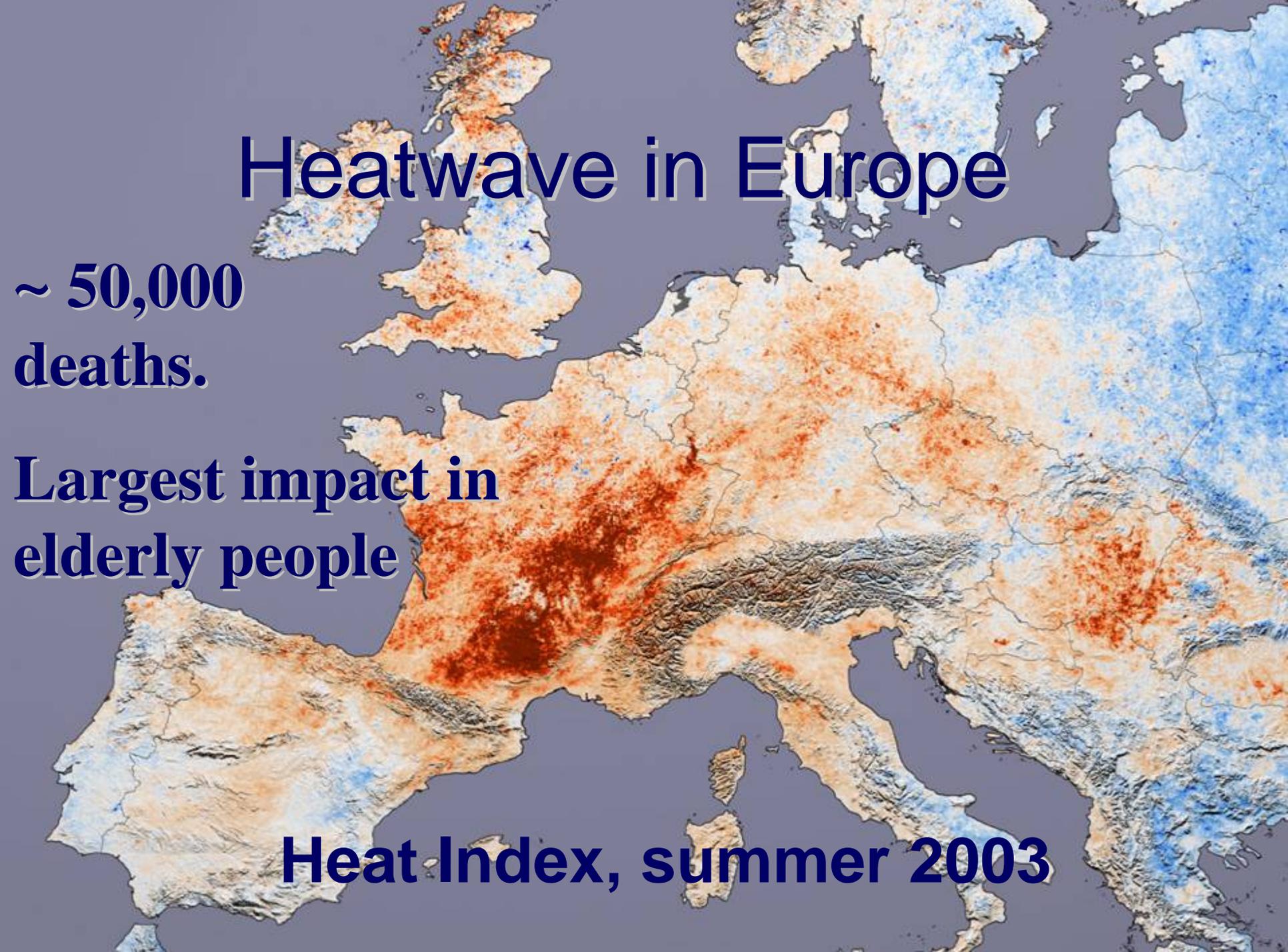
The most vulnerable to environmental changes are
the least responsible for their cause

Climate change: children are the worst affected

**88% of the burden of disease attributable to
climate change affects children under 5**



Heatwave in Europe



**~ 50,000
deaths.**

**Largest impact in
elderly people**

Heat Index, summer 2003

And because climate change begins with...

the most vulnerable regions:

With high transmission of climate sensitive diseases;

Low food production;

Water scarcity;

Island and coastal cities

Mountain communities



And because climate change begins with...

the most important public health problems:

Communicable diseases;

Food security;

Disaster risks

Water quality and access

Disease vectors

Many of the major killers are climate sensitive

- **Each year:**
 - Undernutrition kills 3.5 million
 - Diarrhoea kills 2.2 million
 - Malaria kills over 900 thousand

Each of these is highly sensitive to temperature and precipitation



Global and current environmental
problems also threaten achievements
towards the
Millennium Development Goals

MDG achievement

- *Goal 1: Eradicate extreme poverty and hunger*
- *Goal 2: Achieve universal primary education*
- *Goal 3: Promote gender equality and empower women*
- *Goal 4: Reduce child mortality*
- *Goal 5: Improve maternal health*
- *Goal 6: Combat HIV/AIDS, malaria and other diseases*
- *Goal 7: Ensure environmental sustainability*

MDG achievement

Goal 1: Eradicate extreme poverty and hunger

Access to water & clean energy frees productive time

Many environmentally-caused diseases cause lost earnings

Malnutrition is 50% attributable to the environment

MDG achievement

- *Goal 2: Achieve universal primary education*

Providing clean water and sanitation encourages school attendance (especially for girls)

Time freed from water and fuel collection can be spent on education

MDG achievement

Goal 3: Promote gender equality and empower women

Similarly to goal 2, women and girls are generally the ones collecting water and solid fuels, and looking after children that are sick.

Environmental interventions could be freed for income generation and improving the nutritional standard and health of the family

Environment and MDG achievement

Goal 4: Reduce child mortality

The environment is an important contributor to the main diseases affecting children in developing countries.

180-fold difference between worst and best performing regions.

36% of deaths among children aged 0-14 could be avoided by environmental interventions

Environment and MDG achievement

- *Goal 5: Improve maternal health*

A safe home environment is of great importance to the health of mothers and their unborn children.

Childbirth requires safe water and sanitary conditions;

Curbing indoor air pollution can protect the health of mother & child after giving birth.

Environment and MDG achievement

Goal 6: Combat HIV/AIDS, malaria and other diseases

Over half a million environmentally preventable deaths from malaria

Over quarter from occupationally-caused HIV/AIDS

3 million deaths each year from LRI (AF=42%) and diarrhoea (AF=94%)

Environment and MDG achievement

Goal 7: Ensure environmental sustainability

Providing sustainable sources of water and clean energy would not only save many lives but also greatly contribute to a sustainable environment

Implementation

Where need is highest, where impact is highest:

Faces, Voices and Places

Healthy environments, healthy settings

Actions from the local to the global level

Micro level

Remove the vicious circle of daily survival:

Cut down, pollute & risk today to eat tomorrow

Macro level

Protect the planet's life support system:

Remove the vicious circle of *Consuming today as if there is no tomorrow*

