



Preventing Disease through Healthy Environments





Why Public Health and Environment?

Mandate

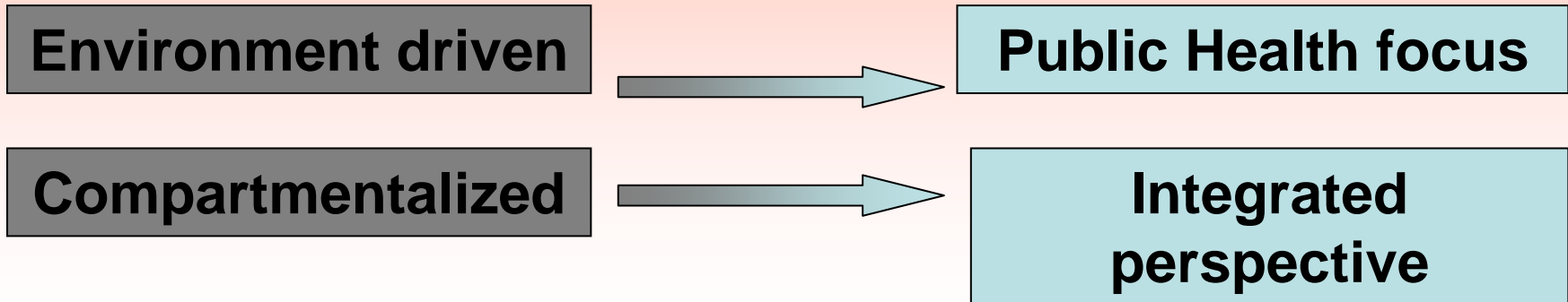
WHO

- **Constitution, strategic direction and Programme Budget**

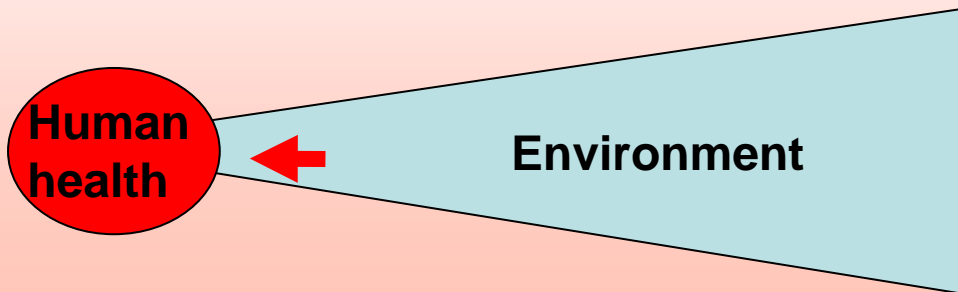
International Policy Framework for action

- **Agenda 21 (adopted at the United Nations Conference on Environment and Development, Rio de Janeiro, 1992),**
- **Plan of Implementation of the World Summit on Sustainable Development (Johannesburg, 2002),**
- **Millennium Development Goals**
- **Regional inter-Ministerial processes on environment and health**

Public Health and Environment



- Review perceptions of "environment"
 - Nature/conservation - human health?
 - Move beyond physical environment . . .



Focus on Public Health

- "chemical safety" = cancer prevention
- "improved transport" = ↓ obesity, injuries, etc
- "safe water" = ↓ DD
- "clean air" = ↓ ARI, CRI

The "prevention arm" within WHO

Strategic Directions (1)

1. Provide health leadership on international environment policy
 - *Provision of norms, standards, guidelines; evidence and global monitoring*
2. Reinvigorate WHO leadership in risk assessment and management
 - *Focus attention on priority chemical, microbiological, and radiological hazards*

Strategic Directions (2)

3. Provide "preventive health" perspective within WHO
 - *New health sector emphasis on "preventive actions" addressing environmental risks to health*
4. Prepare for, and respond to, environmental emergencies and disasters
 - *E.g. REMPAN (radiation alert and response); and chemical arm of WHO alert and response*

Strategic Directions (3)

5. Identify and respond to emerging threats
 - *E.g. energy and health; radiation and EMF*

- 6 . Focus action through integrated, healthy settings approaches
 - *Mobilize local awareness and support through action in communities, homes, markets, workplaces and schools.....*

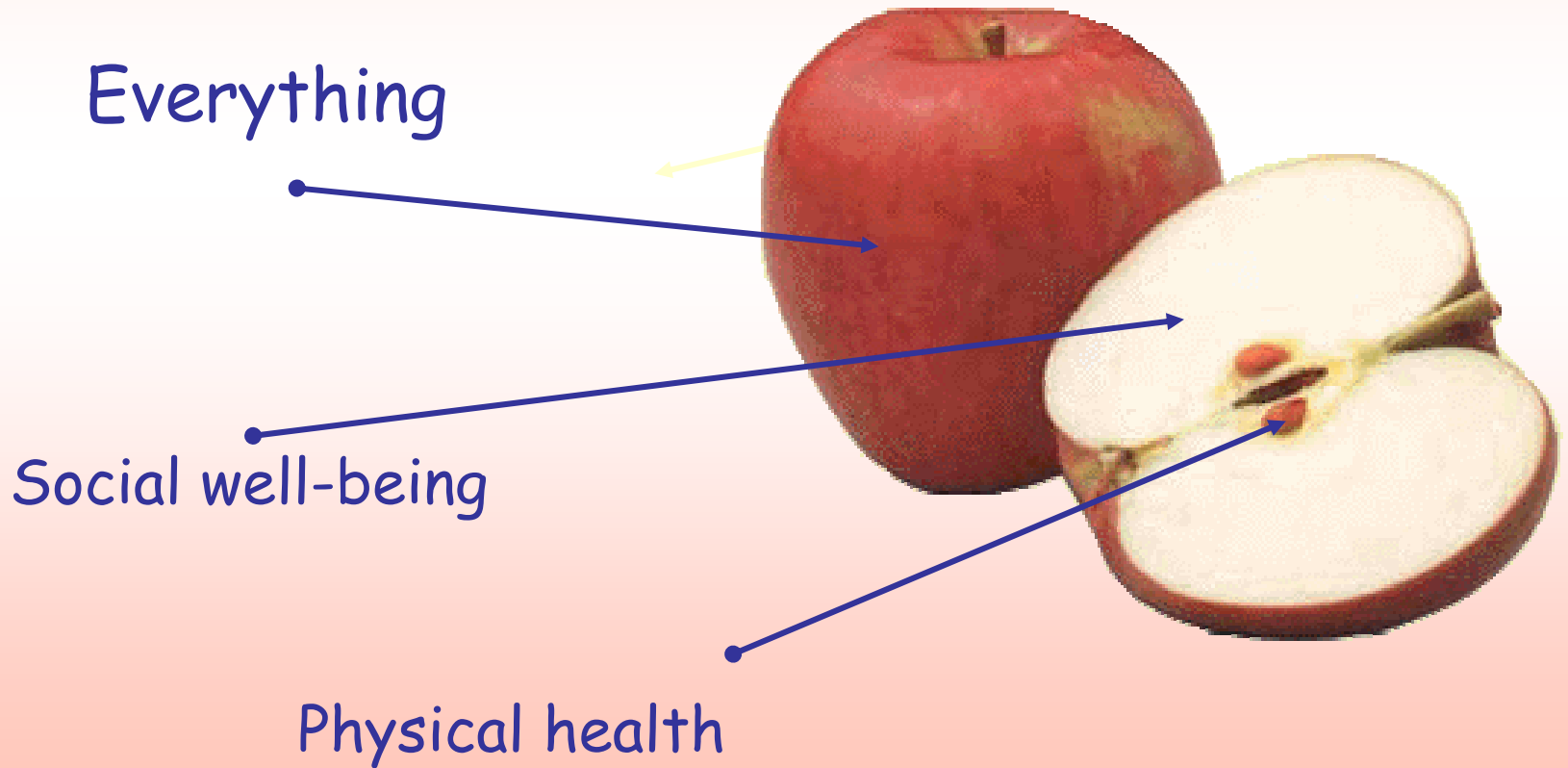
Mission

**to improve health by preventing
and reducing environmental
hazards**



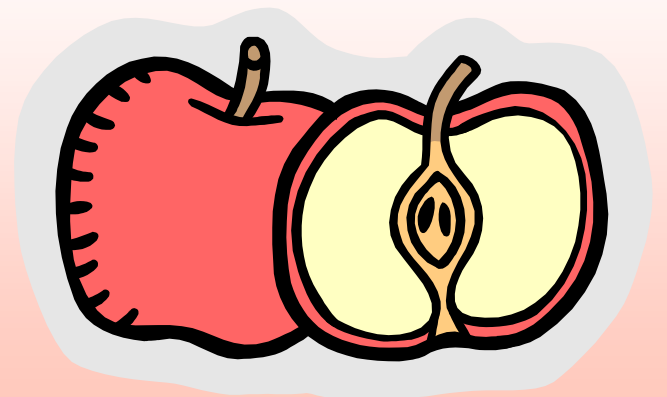
What are the elements of Public Health and Environment?

What constitutes Health?

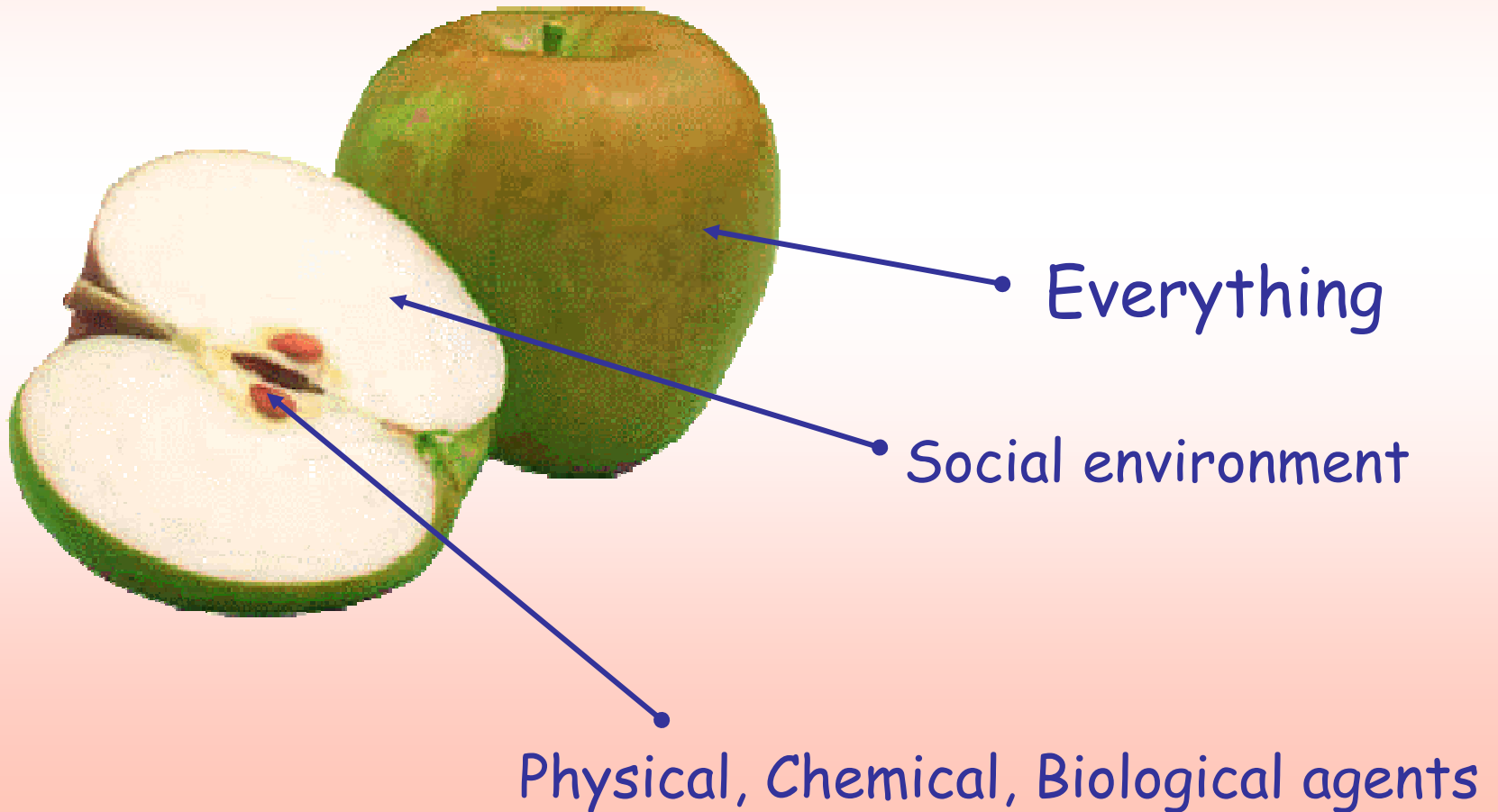


Health:

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

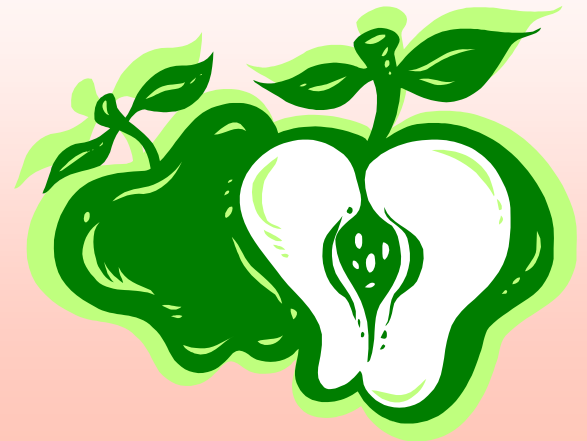


What constitutes environmental factors?

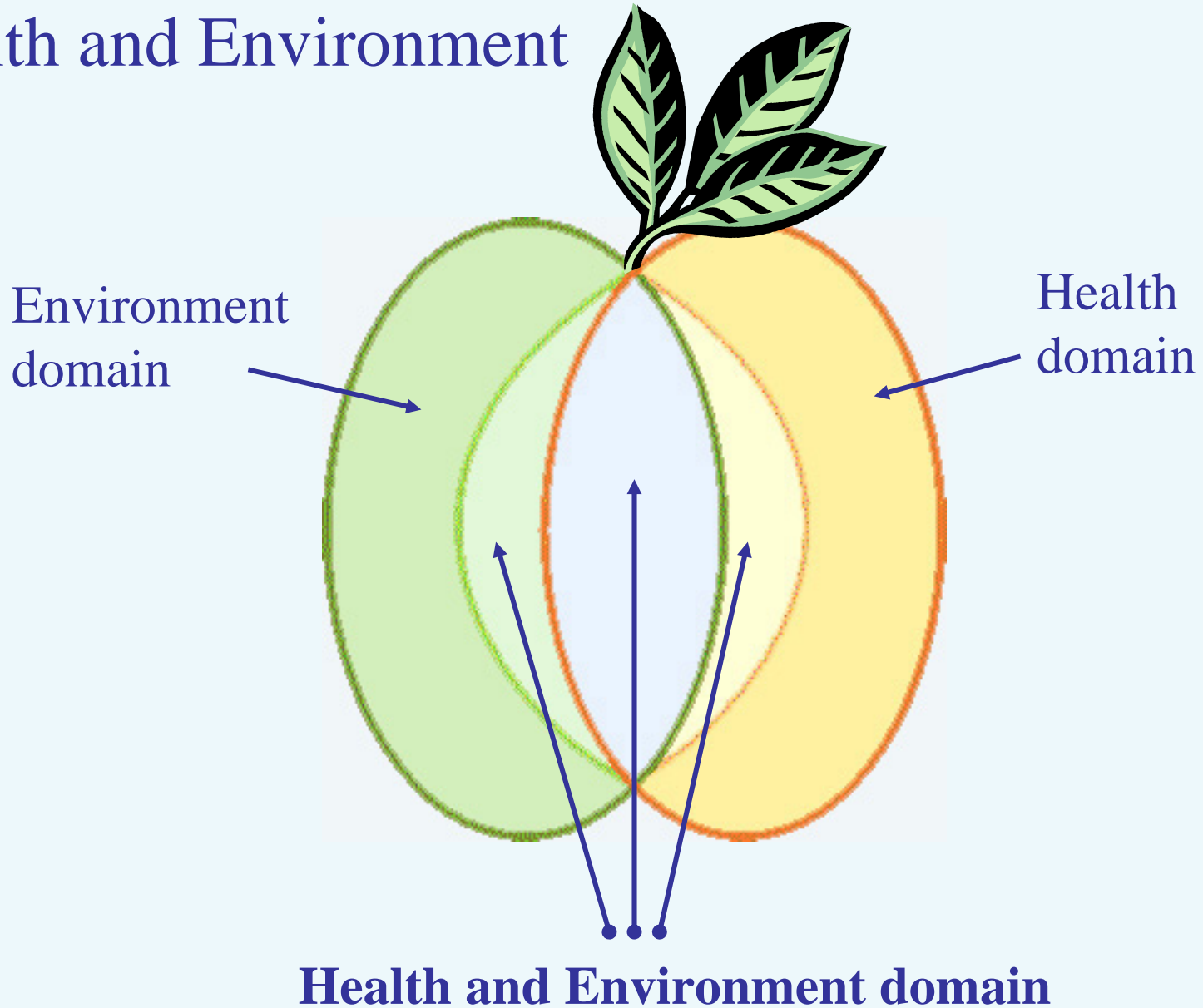


Environment:

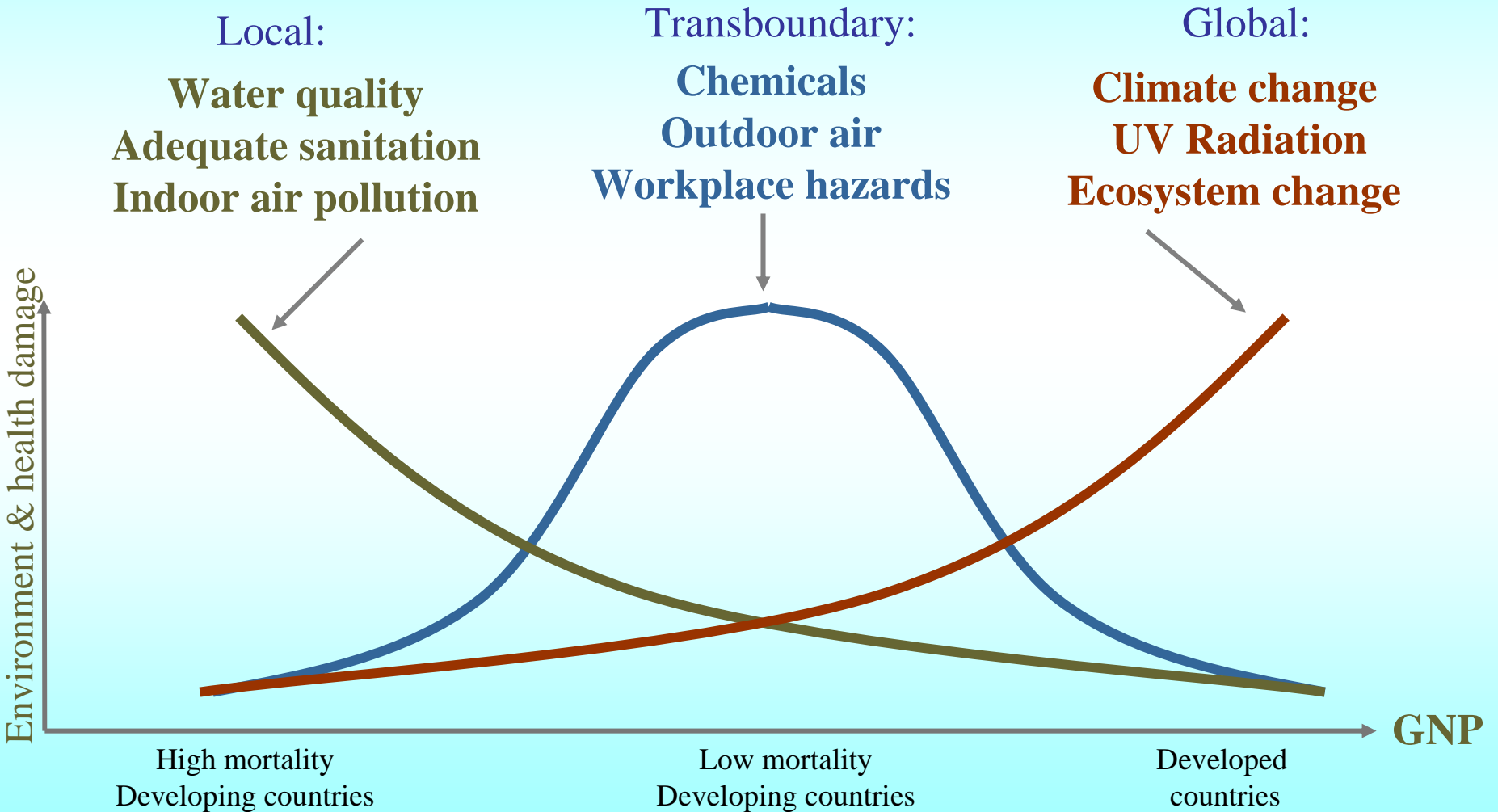
**All that which is external to the human host.
Can be divided into physical, biological,
social, cultural, etc., any or all of which can
influence health status of populations
(J. Last, Dictionary of Epidemiology)**



Health and Environment



Environmental risk factors



GLOBAL ENVIRONMENT

COMMUNITY

HOME



Social environment

Vector-borne diseases

Air pollution

Housing and shelter

Water supply

Natural hazards

Noise

Food

Road traffic

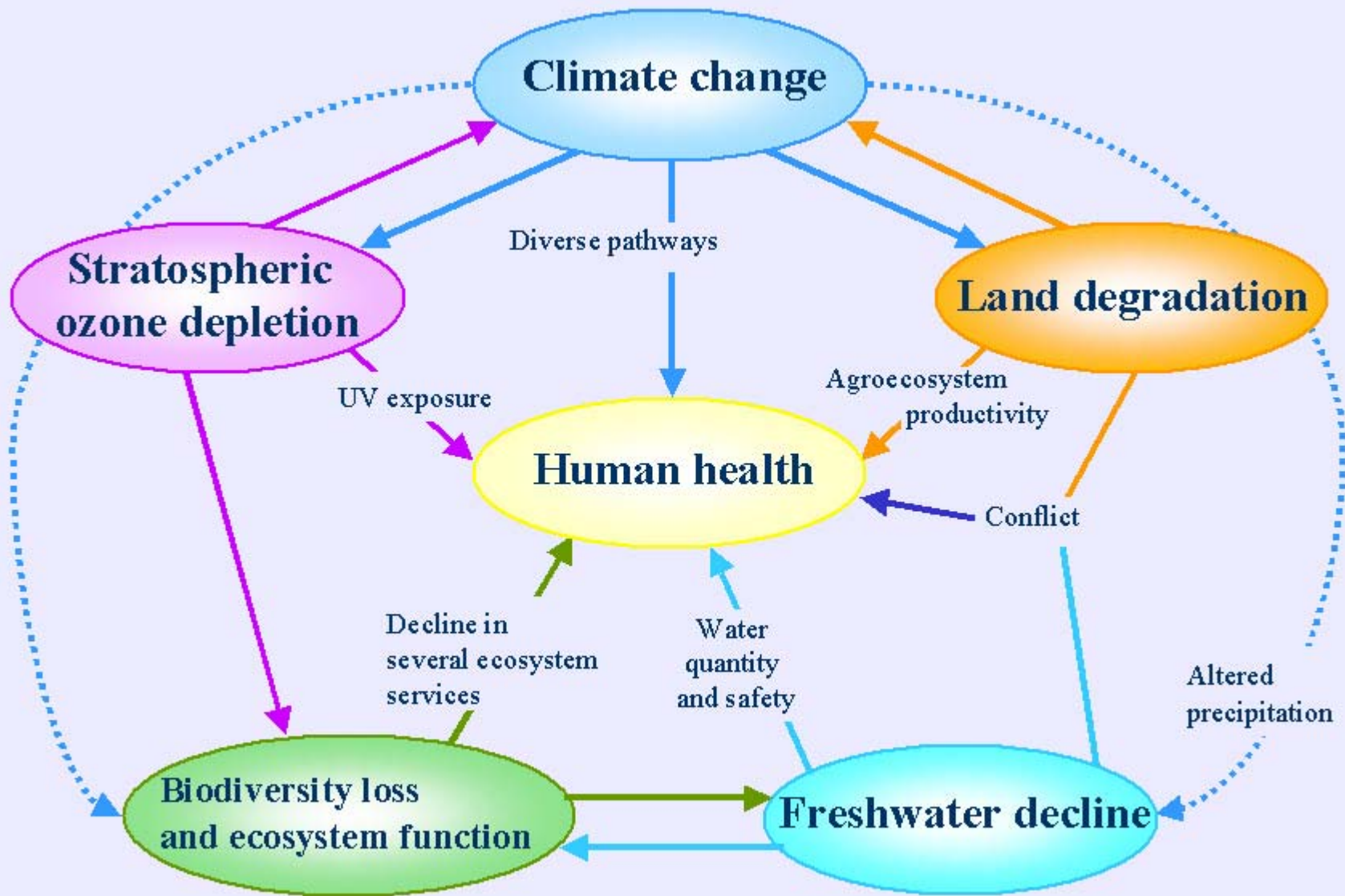
Sanitation and hygiene

Hazardous chemicals

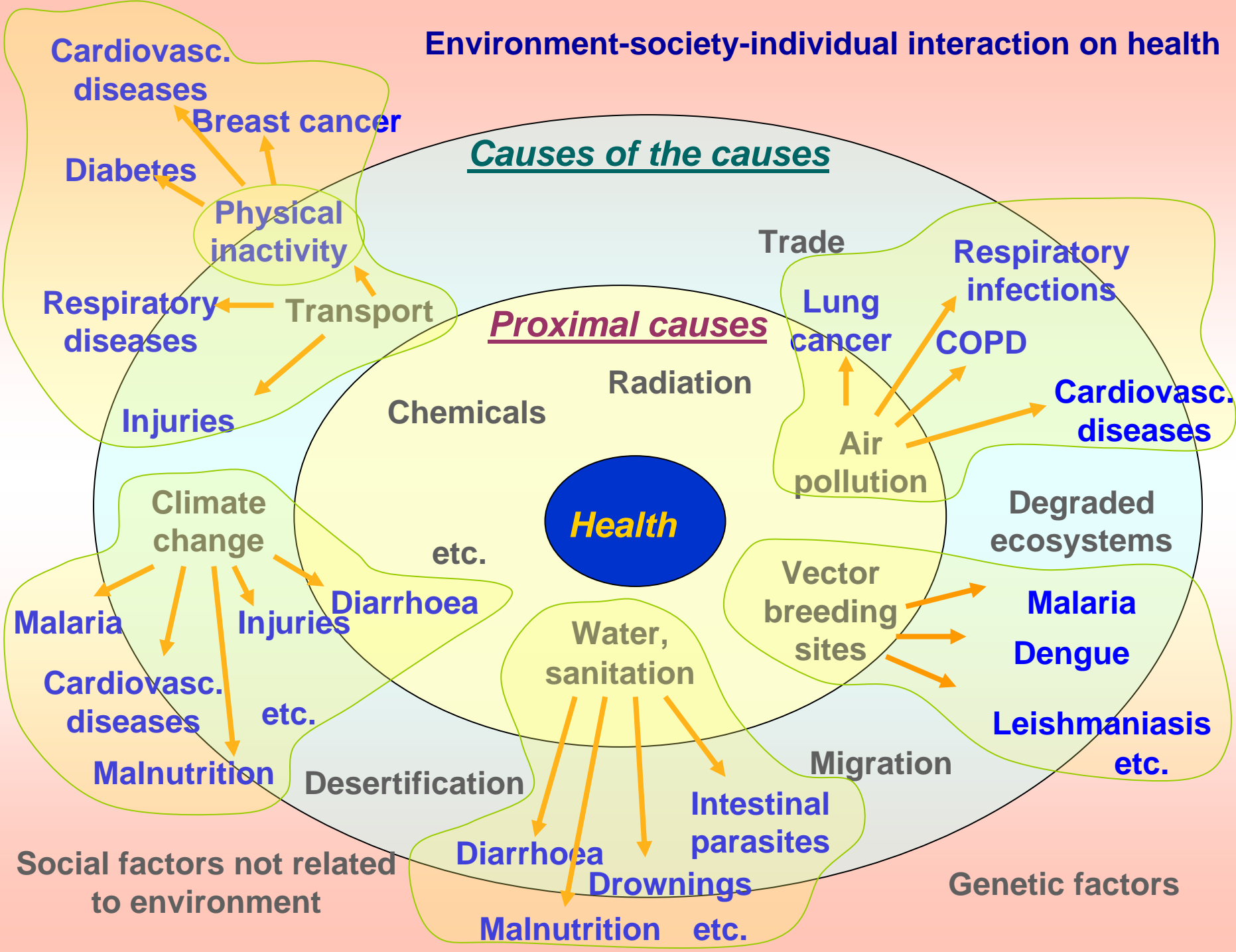
Solid waste

Radiation

Global and ecosystem changes impacting on health



Environment-society-individual interaction on health





What is the evidence for Public Health and Environment?

Burden of Disease Study: Background

No systematic review and calculation of the preventive potential of the environment available

WHO's 2002 Comparative Risk Assessment (CRA) has provided partial results

Relevant to address the "modifiable" environment

How much health gain could be achieved by environmental interventions

Method – systematic reviews and expert opinion

Systematic reviews or CRA cover only about one third of expected environmental contributions (10 risks, 45 diseases)

Completed systematic literature reviews with expert opinion

Experts from or selected by WHO programmes, and authors from key publications

Global representation of experts

More than 100 experts contributed

What is the modifiable environment ?

Pollution

UV and ionizing radiation, noise, EMF

Occupational risks

Built environment, incl. housing, land use, roads

Agricultural methods, irrigation schemes

Man-made climate change, ecosystem change

Related behaviour, e.g. handwashing

What is the modifiable environment ?

Not included:

Tobacco use, diet

Natural environments that cannot reasonably be modified

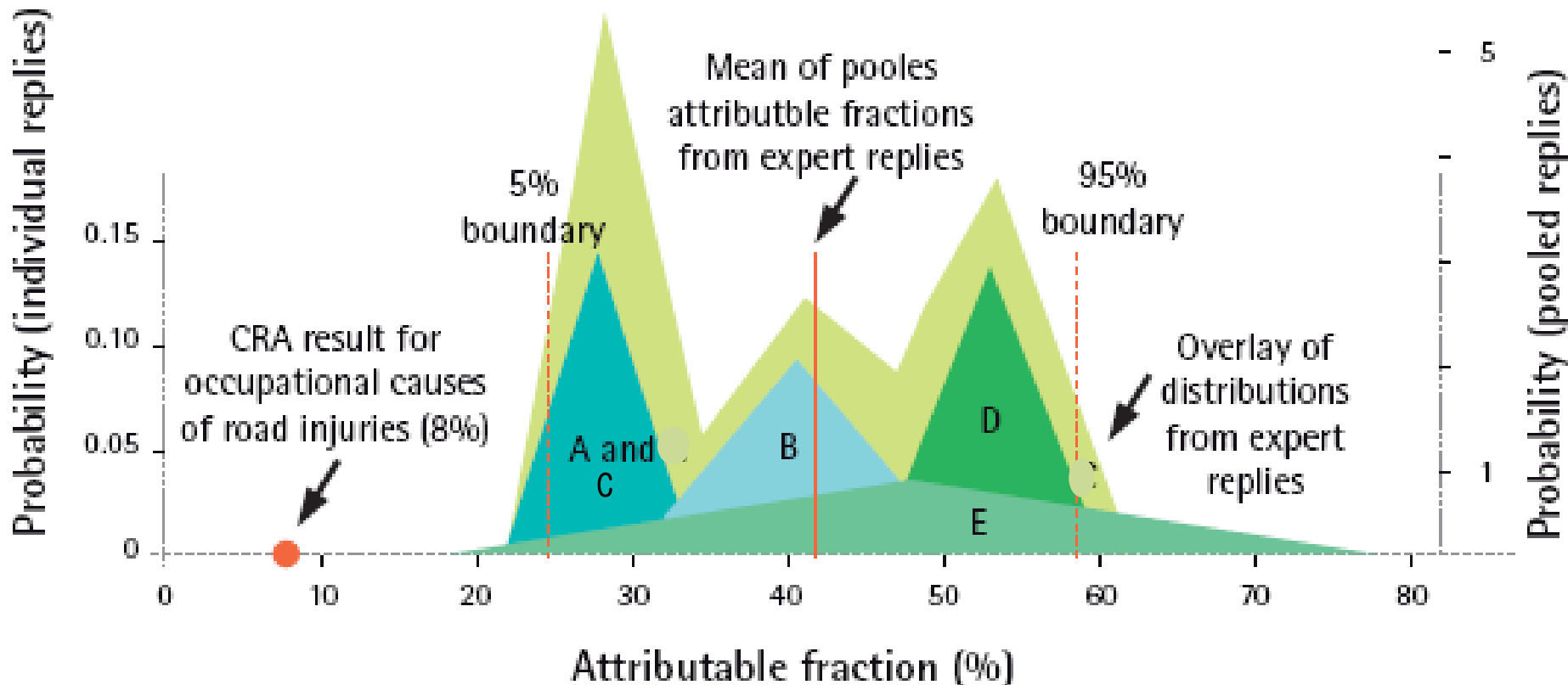
Personal transmission that cannot be modified through environmental interventions

Social and cultural factors (e.g. unemployment)

... although certain aspects such as advertising and lack of alternatives leading to low quality food intake could overlap with the physical environment.

Methods – systematic approach

Each expert opinion is assumed to have a triangular distribution, characterized by mean, 5% and 95% confidence boundaries

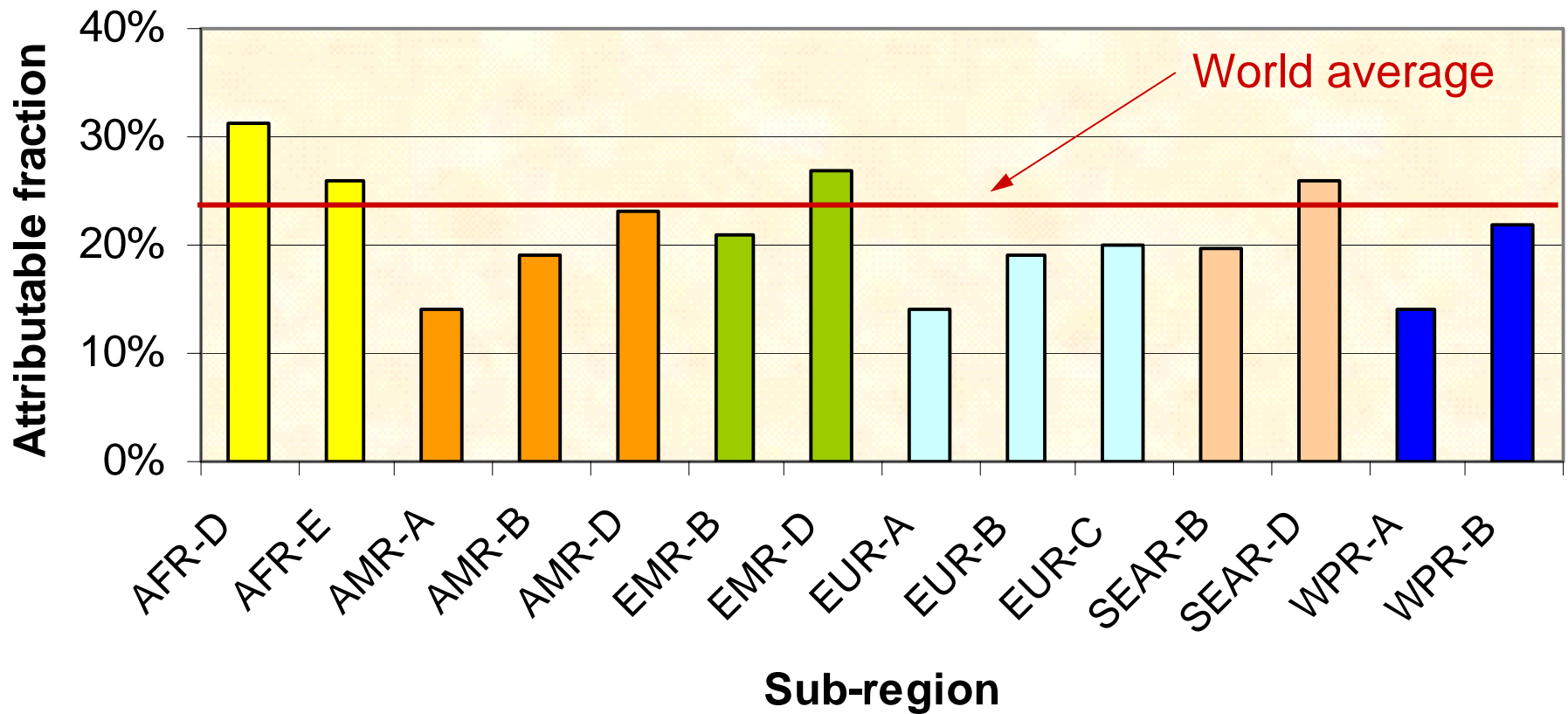




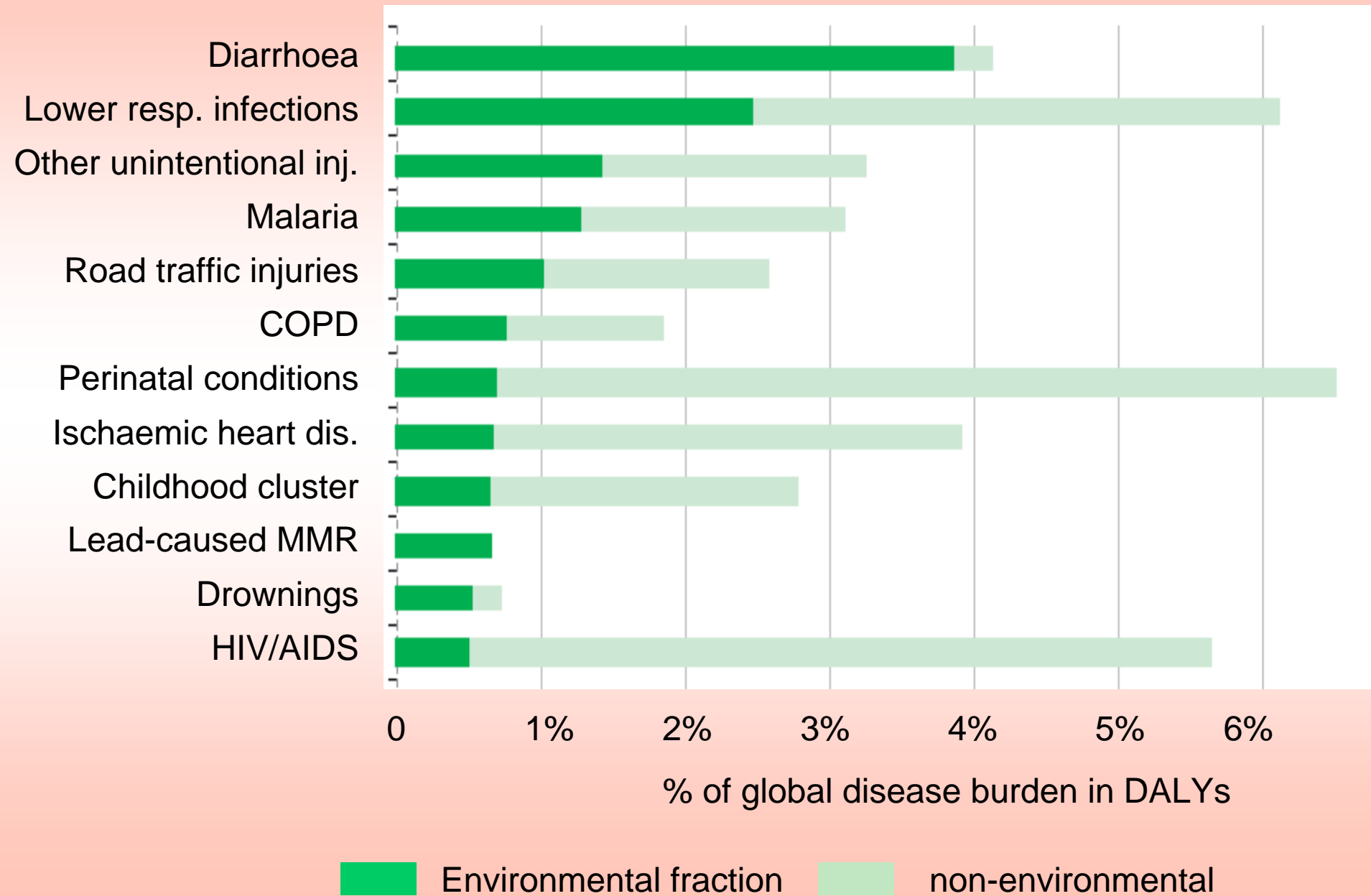
Study results

How much disease is could be prevented by modifying the environment ?

Current evidence - best conservative estimate 24%



Diseases with largest environmental contributions



Diseases with largest environmental contributions

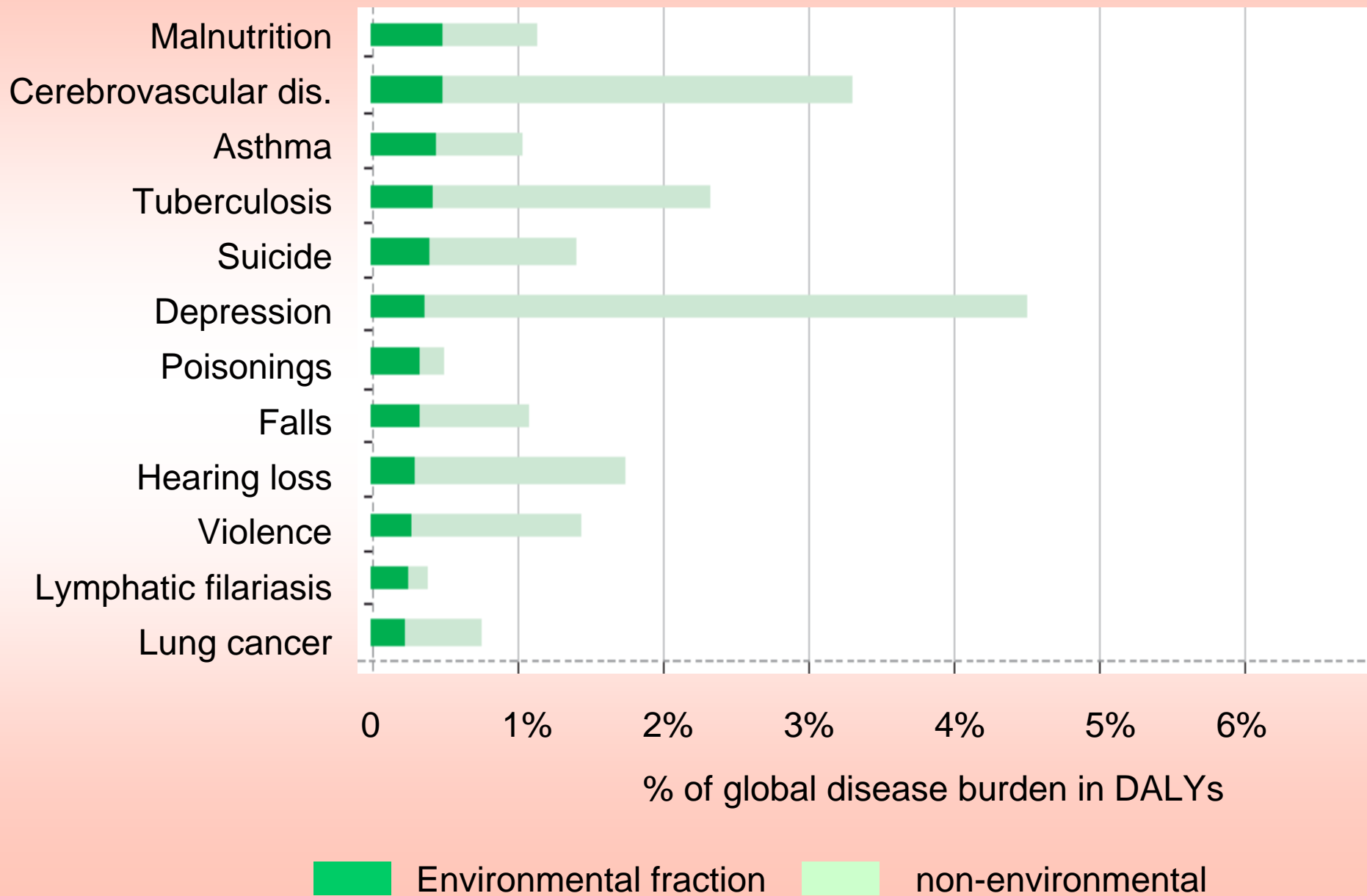


FIGURE 6 ENVIRONMENTAL DISEASE BURDEN IN DALYS PER 1000 PEOPLE, BY WHO SUBREGION (2002) ^a

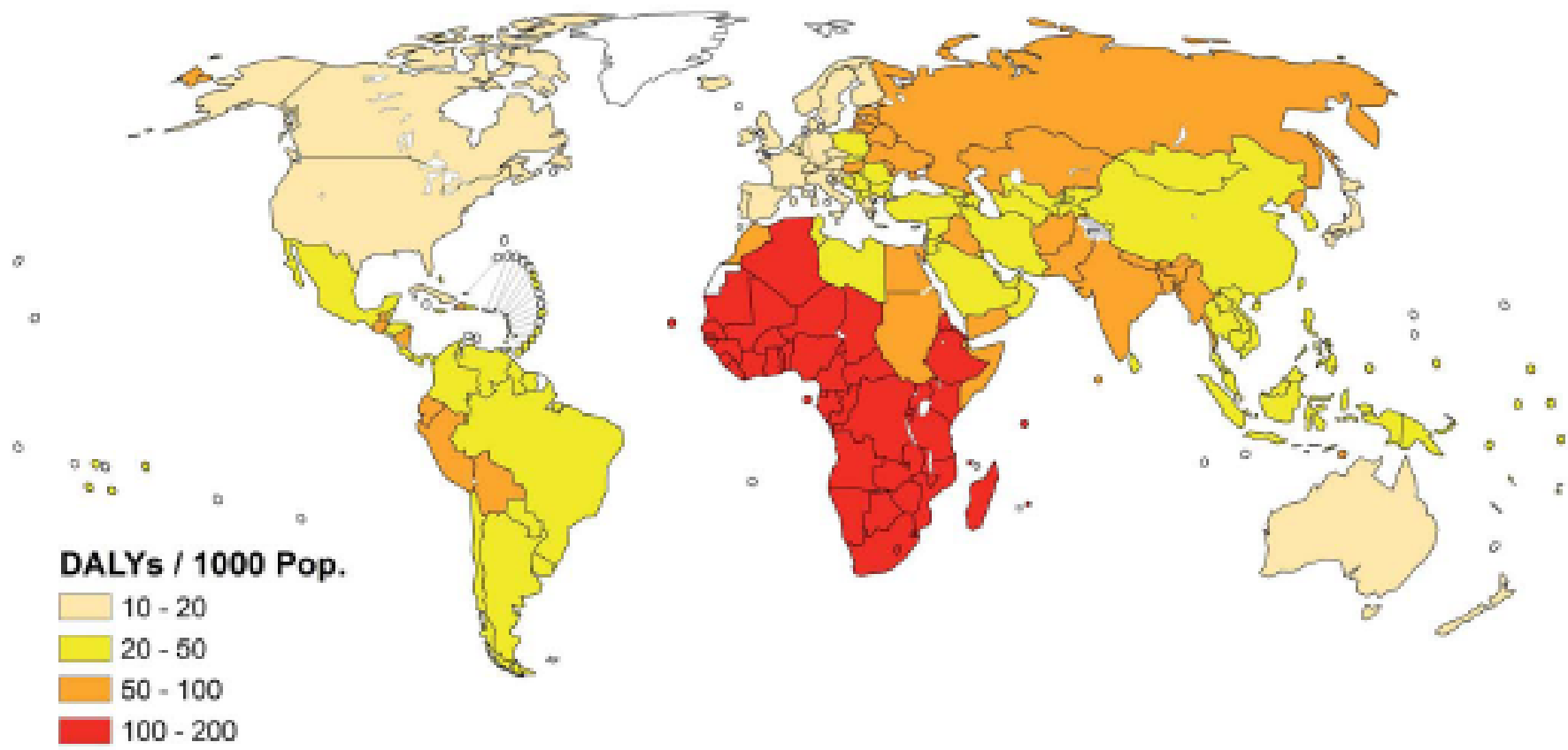
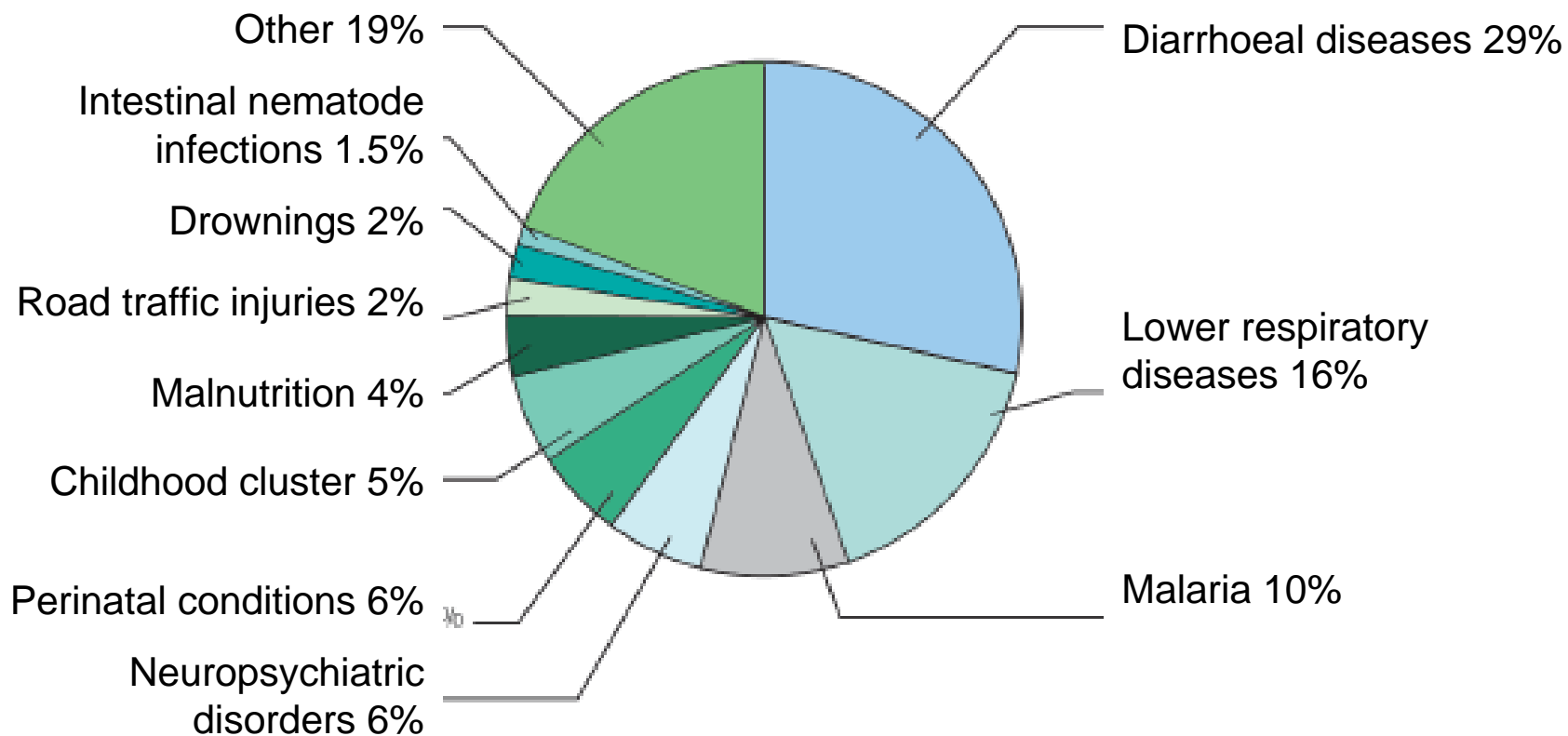


FIGURE 9 MAIN DISEASES CONTRIBUTING TO THE ENVIRONMENTAL BURDEN OF DISEASE, AMONG CHILDREN 0-14 YEARS ^a



Summary findings

Nearly one quarter of disease burden is due to the environment

Over one third in children of 0-14 years

85 of 102 diseases (reported in the WHR) had environmental links

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

More than 100x more diarrhoeal and LRI burden if comparing worst and best performing regions



Study implications

Environment and MDG achievement

- *Goal 1: Eradicate extreme poverty and hunger*

Many environmentally-caused diseases cause lost earnings; malnutrition is 50% attributable to the environment

- *Goal 2: Achieve universal primary education*

Providing clean water and sanitation encourage school attendance (especially for girls) and freed time for water and fuel collection could be spent for education

- *Goal 3: Promote gender equality and empower women*

Similarly to goal 2, women generally are the ones collecting water and solid fuels, and looking after children that are sick. Time could be freed for income generation and improving the nutritional standard and health of the family

Environment and MDG achievement

- *Goal 4: Reduce the child mortality*

The environment is an important contributor to the main diseases affecting children in developing countries, with 180-fold difference between worst and best performing regions

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

Over half a million environmentally preventable deaths from malaria, over quarter from occupationally-cased HIV/AIDS; 3 million deaths each year from LRI (AF=42%) and diarrhoea (AF=94%)

- *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

Misconceptions about health & environment

Environment is a luxury, it is for developed countries

Highest in developing countries

e.g. >30% of Africa's burden attributable to the environment

Environment mainly affects adults, after many years of exposure

Attributable fraction of 37% in the age group 0-4 years

We reduce the environmental disease just by increasing GNP ?

A health enhancing environment can be achieved through education, technology and good management

Environmental interventions are expensive

*seven fold return investment from water and sanitation;
three fold return for improved household energy*



**We have the vision,
the evidence and the strategy.**

Healthy Islands are places where:

*Children are nurtured in body and mind;
Environments invite learning and leisure;
People work and age with dignity;
Ecological balance is a source of pride;
The ocean which sustains us is protected*





Thank you