

***“Addressing social consequences of climate change: impacts on development, employment, health and gender”***

**A WHO PERSPECTIVE**

**Copenhagen, Denmark - 15 December 09**

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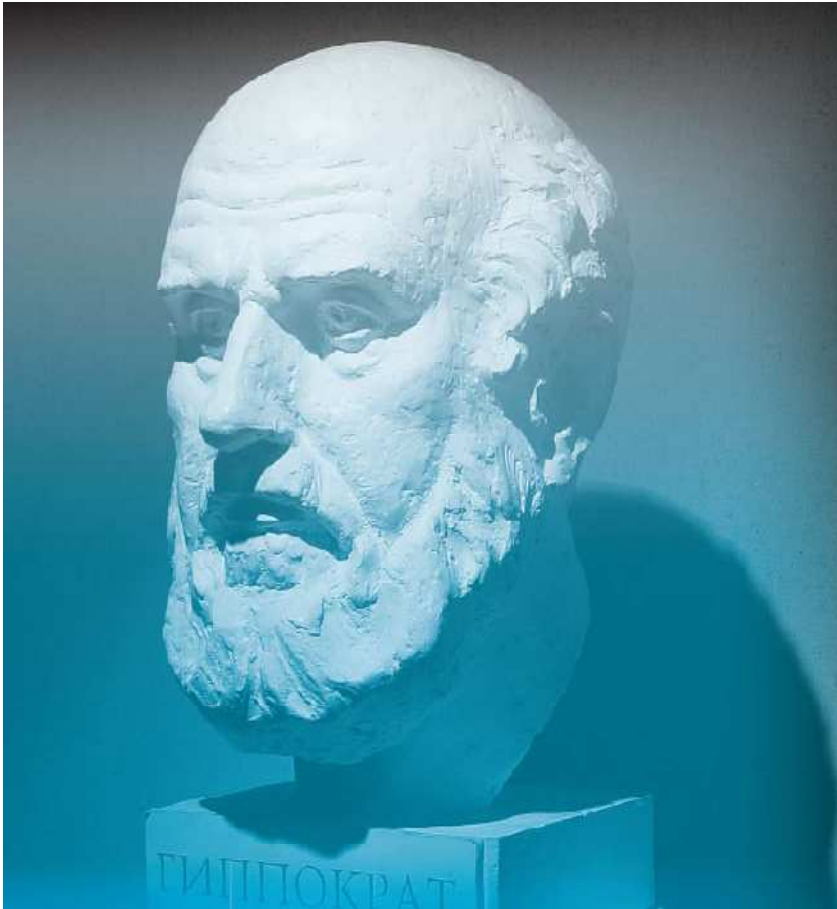
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**Department**



**World Health  
Organization**

## Climate change is "our" business



*“Whoever wishes to investigate medicine properly, should proceed thus: in the first place to consider the seasons of the year, and what effects each of them produces for they are not at all alike, but differ much from themselves in regard to their changes. Then the winds, the hot and the cold, especially such as are common to all countries, and then such as are peculiar to each locality”*

On Airs, Waters and Places.  
Hippocrates (Circa 400 B.C)



# The health effects of climate change



## 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

Based on Patz et al, 2000



# Indirect effects

## Major disease burdens are climate sensitive

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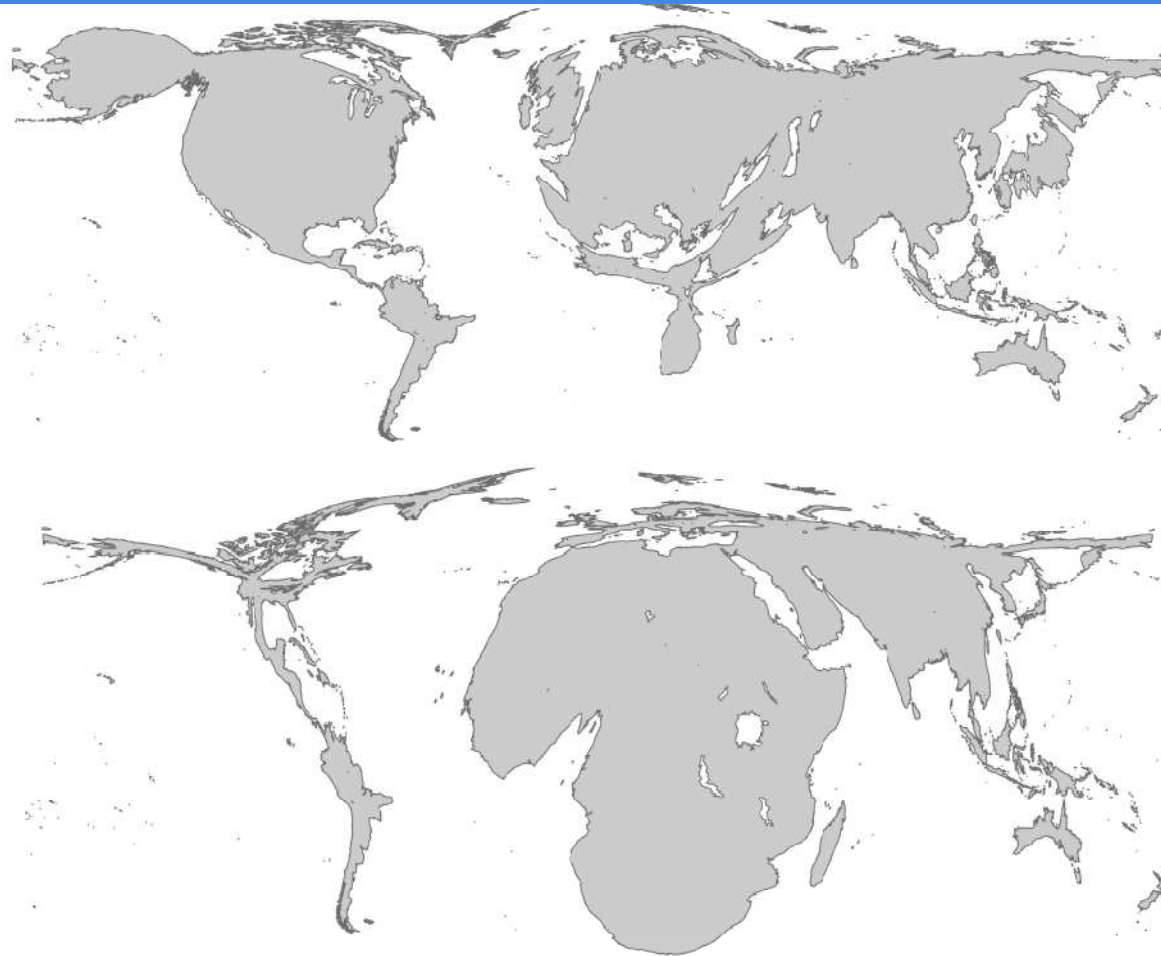
### Each year:

- Undernutrition kills 3.5 million
- Diarrhoea kills 2.2 million
- Malaria kills 900,000



**Each of these is highly sensitive to temperature and precipitation**

# Climate change is already affecting health globally



Cumulative emissions of greenhouse gases, to 2002

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



# Climate Change and Health: Paths, Examples

## Examples of health impacts

Impacts, via:

### Climate change

- Meteorological conditions, exposures
- Human/social consequences of climate change

- Warming } Salmonella; mosquitoes (malaria, dengue) heat-stress at work
- Humidity }
- Rainfall/drying } Food yields: nutrition
- Extreme events Injury/death; infection outbreak; depression and stress disorders
- Displacement (e.g. sea-level rise) Slums/shanties, emigration: many hlth risks
- Shifts in farming Land-clearing → new microbe contacts
- Malnutrition Stunting; infection susceptibility

Responses

- Mitigation actions
- Adaptation actions

- Alternative energy } Hydropower: snails and *Schistosomiasis*
- Clean air: ↓ cardio-resp. diseases
- Transport choices ↑ Physical activity
- Livestock production (esp. ruminants & methane) Diet/health impacts (excess red meat → colon cancer)
- Crop substitution Unexpected nutrient deficiencies
- Water shortage Water tanks → mosquitoes

# *Climate Change and the health of workers*



# CC impacts on workers' health

Climate related change	Health effects on workers	Occupations/sectors
Increased ambient temperature	Heat stress/stroke Decreased chemical tolerance	Farm and construction workers
Air pollution	Asthma Allergens	Outdoor workers in cities
UV radiation	Skin and eye cancer cataract	Sea platforms, outdoor workers
Vectors' expanded habitats	Pathogens, allergens, plants, insects, animals	Agriculture, forestry, oil and gas,
Changes in built environment	Tight buildings, radon, sick building syndrome, legionellosis	Office workers

Adapted from Schoulte & Chun, 2009





# Some health benefits of climate mitigation strategies

- **Renewable energy:**

- *Eliminate diseases and injuries from fossil fuel extraction – silicosis, black lung, mine explosions*
- *Improved occupational health profile of renewable technologies*

- **Organic farming:**

- *Reduction in pesticide poisonings and chronic effects*

- **Sustainable transport:**

- *Reduced air pollution*
- *Increased physical activity*



# Occupational health challenges of climate mitigation

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- Exposure to mercury in the production of fluorescent light bulbs
- Exposure to asbestos during retrofitting of buildings
- Occupational health risks in recycling industry



# Workers' health in the green economy



- Comparative assessment of conventional vs. green technologies – from cradle to grave
- Prevention through design – technologies, buildings
- Green jobs:
  - a green job should not be dangerous to health
  - occupational health benefits vs. risks in job creation

# Policy response

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- Incorporate workers' health in adaptation and mitigation strategies
  - prevention of heat stress
  - occupational exposure to disease vectors
  - sick building syndrome
  
- Regulate the assessment of occupational health impacts of green technologies across borders



# Conclusions

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- *Besides environmental and economic damage, the ultimate impact of climate change represents a toll on our most precious resource - human lives and health.*
- *Significant co-benefits for population health and well-being can result from mitigation policies in sectors such as energy, transport and agriculture.*
- *The health sector will bear most of the burden resulting from the impacts of climate change on populations and it will play a critical role in relation to adaptation and resilience.*



# Conclusions (ii)

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## Health in the COP15 negotiations

- *Recognition of the human face of climate change*
- *Health sector access to financial resources and technologies to enhance adaptation and resilience of populations*
- *Health co-benefit as a criterion for mitigation policies*

