

Protecting Health from Global Climate Change: Economic Analysis to Enhance Policy & Decision Support to Member States

UNFCCC Technical Workshop on costs and benefits of adaptation options

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World Health Organization

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Health on the Climate Change Agenda

- Raised profile around the Copenhagen meeting (COP15)
- IPCC: severe and diverse health consequences of CC



Main global health impacts of CC

	Negative Impact	Positive Impact
Very High Confidence <i>Malaria: Contraction and expansion, changes in transmission season</i>	←	→
High Confidence <i>Increase in malnutrition</i>	←	
<i>Increase in the number of people suffering from deaths, disease and injuries from extreme weather events</i>	←	
<i>Increase in the frequency of cardio-respiratory diseases from changes in air quality</i>	←	
<i>Change in the range of infectious disease vectors</i>	←	→
<i>Reduction of cold-related deaths</i>		→
Medium Confidence <i>Increase in the burden of diarrheal diseases</i>	←	

Source: IPCC, 2007

- Malaria and other vectors
- Malnutrition
- Extreme Weather Events, incl. migration
- Air quality
- Diseases of poor water & sanitation

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Health on the Climate Change Agenda

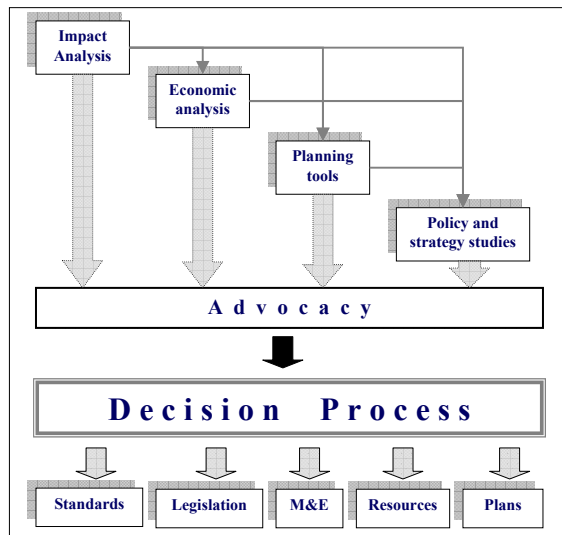
- Raised profile around the Copenhagen meeting (COP15)
- IPCC: severe and diverse health consequences of CC
- WHO: CC impacts <0.4% selected disease burden in 2004, but rising. New WHO Global Burden of Disease study in process (2010)
- Health at the centre of adaptation
 - World Bank estimates in 2009 of **US\$ 86 Billion per year** for adaptation measures, of which US\$ 2 B health, US\$ 11 B water supply, US\$ 8 B child nutrition, US\$ 2 B fisheries & US\$ 6.5 B extreme weather events = **35% directly related to health**
 - UNFCCC estimates in 2007 of **US\$ 73 Billion per year** for adaptation measures, of which US\$ 5 B health, US\$ 11 B water supply, US\$ 14 B agriculture, forestry & fisheries = **40% direct**

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Economic information is part of a process



- Economic analysis consists of:
 - Damage cost
 - Adaptation cost
 - Cost-minimization
 - Cost-effectiveness
 - Cost-benefit

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Review: Vector-Borne Diseases

- **Damage cost:** economic burden established for malaria and dengue
- **Adaptation cost:** malaria included in CC adaptation cost studies; cost studies and tools, mainly malaria
- **CEA:** rich literature and many initiatives – both preventive and curative, mainly for malaria; PEEM guidelines
- **CBA:** fewer studies, some quite dated; C-B of diagnosis
- **Other:** WHO's Roll Back Malaria 'Toolbox'

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Review: Diseases of Poor Water, Sanitation and Hygiene

- **Damage cost:** WB studies (1) costs of poor sanitation in Asia; (2) environmental degradation costs in MENA region; (3) country environmental analyses
- **Adaptation cost:** WHO global costs estimated; WHO costing tool; IRC's WASHCost project
- **CEA:** WHO global study; 12 published studies; WB ongoing Asia study; WHO book in print
- **CBA:** WHO global study; WB ongoing Asia study; WHO rural water guideline; WHO WSS methodology; ADB book
- **Other:** GLASS, WB Africa CSO; WB political economy of sanitation

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Review: Diseases of Poor Air Quality

- **Damage cost:** health cost studies from cities
- **Adaptation cost:** costing of urban air pollution reduction strategies; cost part of CEA and CBA
- **CEA:** none for outdoor air; WHO global IAP study
- **CBA:** many for outdoor air; WHO global indoor air study; WB and GTZ studies; WHO CBA guideline
- **Other:** decision making approaches for sustainable energy management

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Review: Malnutrition & Food Security

- **Damage cost:** World Bank studies in MENA on costs of environmental risks
- **Adaptation cost:** agricultural costs of adapting to climate change (e.g. WB EACC study); micro studies on preventing or treating malnutrition
- **CEA:** many studies in food supplementation and fortification, and education; one guideline
- **CBA:** CBA guidelines for agricultural projects
- **Other:** several policy and planning studies

Review: Disasters and Extreme Weather Events

- **Damage cost:** media estimates of disaster costs; few academic studies focus on health
- **Adaptation cost:** WB EACC study (disasters, infrastructure)
- **CEA:** WB assessment on economics of natural disasters; very few other studies take a health angle
- **CBA:** studies tend to focus on non-health benefits of averting disasters; WB guideline
- **Other:** many review and policy studies related to disasters

In Summary

- **Damage cost:**
 - No studies examine full health damage costs of CC specifically, but some non-CC studies explore health damage costs
 - **Adaptation cost:**
 - Recent World Bank and UNFCCC studies highlight cost ranges of CC, but incomplete and quickly out-of-date
 - **Cost-Effectiveness Analysis:**
 - No CC-specific studies conducted yet
 - **Cost-Benefit Analysis:**
 - No CC-specific studies conducted yet
- Non-CC specific:
variation in CEA
evidence by health
impact



Economic evaluation challenges

- **Underlying health impact information:**
 - Absolute impact
 - Risk reductions through intervention
- **Valuation of mortality:**
 - Which valuation method to assume? Lack of solid LDC studies
 - Variation between economic levels
- **Baseline of future scenarios:**
 - What future health protection scenarios can we assume in absence of CC-specific interventions?
- **Which summary measure to use:**
 - Several CBA and CEA indicators
 - Weaknesses associated with each one – implicit assumptions



Challenges to evidence-based decision making

Progress has been slow in past decades:

- Generation of **relevant** evidence for decision making?
- Dissemination of evidence to **all levels of decision maker**?
- Decision makers knowing how to **integrate** evidence?
- **Other factors** influencing decisions (corruption, political, historical, technology- or pharma-driven)?
- **Coordination** of MOH with other sectors' health actions?

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WHO Initiative: Economic Evaluation and Evidence-Based Decision Making in CC

- Aims:
 - Improve research-to-policy links through making available tools and digestible data for decision making
 - Results enable channelling of adaptation funds to high return interventions
 - Better data & decision making will attract further resources to CCA
- Activities
 - Review of cost, CEA and CBA studies by health impact area
 - Adaptation costs: estimates based on previous studies
 - WSS: new study ongoing to estimate costs of meeting MDG
 - Filling gaps – guidelines, research on CCA-specific interventions

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