



UN CC:Learn

The One UN Climate Change Learning Partnership

Resource Guide for Advanced Learning on

# Understanding the Climate Change and Health Interface

A collection of hand-drawn diagrams and equations on a blue background. It includes a diagram of a leaf pointing to a globe, which then points to three arrows labeled A, B, and C. There are also several thermodynamic equations:  $Q=0 \quad \Delta E=-W$ ,  $W=0 \quad \Delta E=Q$ ,  $\Delta E=0 \quad Q=W$ ,  $Q=W=0 \quad \Delta E=0 \quad \Delta T=$ , and  $A = \frac{1}{2} nRT$  with the word "change" below it. At the bottom, there is a formula for thermal resistance:  $R_{\text{total}} = \frac{A(T_h - T_c)}{\sum \frac{1}{k}}$ . There are also some faint sketches of a tree and a graph.

## **Acknowledgements**

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Specific inputs were provided by: Elena Villalobos and Dr. Diarmid Campbell-Lendrum, Team Leader, Climate Change and Health, WHO; Zeenah Haddad; Cristina Rekakavas, Angus Mackay, Achim Halpaap and Amrei Horstbrink, UNITAR.

## **Photo credits**

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## **Layout**

We Are Boq, Lda.

# Part I Introduction

## 1.1 About the Series of Resource Guides

This Guide is part of a series of Resource Guides developed through UN CC:Learn<sup>1</sup> to facilitate access to existing state-of-the-art materials relevant for climate change learning on particular topics. The Guides are written from the perspective of a learner seeking to obtain an understanding of the topic and consider use of relevant learning materials. The references cited in each Guide collectively contribute to the compilation of Advanced Learning Packages on Priority Topics of Climate Change (ALPs). ALPs compiled under UN CC:Learn cover selected climate change topics that have been identified as a priority from a country perspective. Based on an analysis of existing learning resources, development of further materials may be initiated in order to fill gaps.

The learning resources presented in this Resource Guide are drawn primarily from within the UN and partners to UN CC:Learn. Resources published by other recognized international and other organizations are provided in Annex 1. UN CC:Learn is not responsible for the content of these third-party resources and their mention does not imply that these have been endorsed or recommended by UN CC:Learn.

## 1.2 How to Use this Resource Guide

This Resource Guide is organized into three parts. Part I provides basic orientation for readers, including a brief introduction to the subject area and an outline of the specific learning topics to be covered. Part II lists available written learning resources as well as a number of training courses currently being offered, organized by learning topic. For each selected learning resource a hyperlink is provided through to Part III of the Resource Guide, which provides more detailed factsheets and further links to source material. Readers are advised to: (A) start by reading Part I; (B) select a preferred learning topic; (C) identify the relevant learning resources for that topic under Part II; and (D) click on the relevant hyperlinks to access the factsheets.

## 1.3 Target Groups for this Resource Guide

This Resource Guide has been designed to inform the following target groups interested in learning about the different aspects of climate change and health:

- Decision makers and technical staff in the Operational Health Sector who consider the health dimensions of climate change in developing and implementing policies, programmes or projects;
- Decision makers and technical staff in other Government sectors concerned with the health dimensions of climate-change (e.g. environment, water, agriculture, food, disaster risk reduction, transport,

<sup>1</sup> UN CC:Learn is a partnership of 33 multilateral organizations which supports Member States, UN agencies and other development partners in designing and implementing results-oriented and sustainable learning to address climate change. UN CC:Learn Partners to date include: CEB, EMG, FAO, GEF, IDB, IFAD, ILO, ITU, OCHA, UNAIDS, UNDP, UNECA, UNEP, UNESCAP, UNESCO, UNESCWA, UNFCCC, UNFPA, UNHABITAT, UNICEF, UNIDO, UNISDR, UNITAR, UNSSC, UNU, UN WOMEN, UNWTO, UPU, WFP, WHO, WMO, WTO, World Bank.

industry, labour, education);

- Stakeholders involved in the development and implementation of National Adaptation Plans (NAPs) and National Adaptation Programmes of Action (NAPAs), Nationally Appropriate Mitigation Actions (NAMAs) and National Communications;
- Representatives involved in the global UNFCCC process, such as negotiators and UNFCCC focal points;
- General Health Sector including medical staff and other professionals providing health services;
- Non-governmental organizations (NGOs) experts active in the area of climate change and/or health;
- Researchers working on health issues related to climate change;
- Interested citizens/youth/students.

## 1.4 Introduction to Climate Change and Health

Climate change is adversely impacting the health and lives of billions of people around the world<sup>2,3</sup>. Since 1970s and until the year 2004, over 140,000 excess annual deaths were caused by global warming, with an estimated USD 2-4 billion/year direct damage costs to health by 2030<sup>4</sup>.

There are several ways in which climate change can affect health; some of which are direct effects of hazards – such as heat waves, storms and floods, while others have a more complex pathway that results in the increase of infectious diseases' transmission, disrupting the ecosystem, and causing migration and displacement, as well as conflict that is caused over depleted resources, such as fertile land, water and fisheries<sup>5,6</sup>.

Health inequity and inequality, manifested through poverty, low education levels, food security, and other factors, play a major role in determining the extent of those health impacts<sup>7</sup>, as climate change exacerbates these circumstances posing an increased health risk to vulnerable populations. These same factors will also limit the ability of these populations to adapt. Through its negative effects on these social determinants of health, climate change is expected to increase health inequity, prompting a serious and urgent need for effective mitigation and adaptation measures<sup>8</sup>, which on and of their own have health co-benefits. These measures are preceded by vulnerability and adaptation assessments, and take into account early warning systems for health risks, building resilience of the health sector, as well as engaging other non-health sectors. The strategies and action plans developed and implemented are accompanied by good monitoring and evaluation measures to ensure effectiveness.

## 1.5 Learning Topics Featured in the Guide

Many organizations have developed a number of learning materials on the theme of climate change and health. However, given the wealth of existing resources, interested learners can face difficulties in identifying specific materials that match their needs. This Resource Guide aims at facilitating access to learning by providing a “guided tour” to materials that are available, focusing mainly on those available from within

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2 WHO (2003). Climate Change and Human Health. Risks and Responses. <http://www.who.int/globalchange/publications/cchhbook/en/>

3 WHO (2011). Gender, Climate Change and Health. <http://www.who.int/globalchange/GenderClimateChangeHealthfinal.pdf>

4 WHO (2013). Climate Change and Health Fact Sheet N 266. <http://www.who.int/mediacentre/factsheets/fs266/en/>

5 WHO (2003). Climate Change and Human Health. Risks and Responses. <http://www.who.int/globalchange/publications/cchhbook/en/>

6 Pachauri, R. K., & Reisinger, A. (2007). Climate Change 2007: Synthesis Report. Intergovernmental Panel on Climate Change (IPCC). [http://www.ipcc.ch/publications\\_and\\_data/publications\\_ipcc\\_fourth\\_assessment\\_report\\_synthesis\\_report.htm](http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm)

7 Akerman, M. (2009). Global Learning Device on Social Determinants of Health and Public Policy Formulation. PAHO & WHO. [http://www.paho.org/equity/index.php?option=com\\_content&view=article&id=43&Itemid=0](http://www.paho.org/equity/index.php?option=com_content&view=article&id=43&Itemid=0)

8 Costello, A., Abbas, M., Allen, A., et al. (2009). Managing the Health Effects of Climate Change. *The Lancet*, 373, 1693-733. <http://www.ucl.ac.uk/global-health/project-pages/lancet1/ucl-lancet-climate-change.pdf>

the UN System. These have been selected according to specific learning topics identified in consultation with the UN CC:Learn partners, further refined through the application of the following criteria:

- Universality: the resources featured in this package are relevant for interested learners regardless of their specific background and experiences;
- United Nations: the resources have been produced primarily by UN agencies, especially by agencies with specific expertise in the field of climate change and health<sup>9</sup>;
- Quality: the resources are comprehensive and of high quality;
- State-of-the-art: given the developments in the field, resources are recent and up-to-date;
- Learning component: the resources selected are designed to promote learning activities.

## Learning Topic 1: Health Impacts of Climate Change

In light of what studies have already shown about the past health impact of climate change, it is expected that it will adversely impact the lives and health of billions of people over the next decades<sup>10,11</sup>. Indeed, climate variability and change affects the most basic health requirements: clear air, safe water, sufficient food and adequate shelter. It also poses new challenges to the control of infectious diseases, and gradually increases the pressure on the natural, economic and social systems that sustain health<sup>12</sup>. Health impacts of climate change may differ across populations, and are dependent on several factors such as existing vulnerability and adaptive capacity to changing meteorological conditions of these populations and the associated human and social consequences, as well as a myriad of other determinants that include capacities, available resources, and existing behaviours and attitudes of these populations.

## Learning Topic 2: Health-related Vulnerability and Adaptation (V&A) Assessments

In order to adequately respond to the impacts of climate change on the health of the population and on the health system, a first critical step is to assess which populations and geographical areas are most vulnerable to different kinds of health effects as well as the capacity of health systems to manage those. This process aims at identifying weaknesses in the systems that should protect population's health as well as adaptation options. Thereby, V&A assessments do not only improve the understanding of the linkages between climate change and health, they can also serve as baseline analysis against which changes in disease risks and protective measures can be monitored. They can also provide the opportunity for building capacity and can strengthen the case for investment in health protection.<sup>13</sup>

## Learning Topic 3: Early Warning Systems for Health Risks

Climate influences the transmission of many infectious diseases, some of which being among the most important causes of death and morbidity in developing countries.<sup>14</sup> Commonly, these diseases occur as epidemics which may be triggered by variations in climatic conditions that imply higher transmission

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<sup>9</sup> Selected publications from other relevant international and other organizations have been referenced in Annex 1.

<sup>10</sup> WHO (2011). Gender, Climate Change and Health. <http://www.who.int/globalchange/GenderClimateChangeHealthfinal.pdf>

<sup>11</sup> Costello, A., Abbas, M., Allen, A., et al. (2009). Managing the Health Effects of Climate Change. *The Lancet*, 373, 1693-733. <http://www.ucl.ac.uk/global-health/project-pages/lancet1/ucl-lancet-climate-change.pdf>

<sup>12</sup> WHO (2009). Protecting Health from Climate Change: Connecting Science, Policy and People. [http://whqlibdoc.who.int/publications/2009/9789241598880\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598880_eng.pdf)

<sup>13</sup> WHO and PAHO (2011). Protecting Health from Climate Change – Vulnerability and Adaptation Assessment. [http://www.who.int/globalchange/publications/Final\\_Climate\\_Change.pdf](http://www.who.int/globalchange/publications/Final_Climate_Change.pdf)

<sup>14</sup> WHO (2005). Using Climate to Predict Infectious Disease Epidemics. <http://www.who.int/globalchange/publications/infectdiseases.pdf?ua=1>



rates.<sup>15</sup> Strengthening early surveillance and response systems (EWSR) for climate sensitive health hazards becomes fundamental under conditions of rapid global environmental change, population movements, disease vectors and infections.<sup>16</sup>

## Learning Topic 4: Building Resilience of the Health System

Building the resilience of health systems to climate change is part of a preventive approach to public health.<sup>17</sup> Existing shortfalls in providing basic public health services determine that much of the global population is exposed to climate-sensitive health hazards. Additional investment is needed to strengthen key functions, and to ensure that the health sector is ready to react to the challenges posed by climate change, including those posed by acute shocks such as natural disasters and disease epidemics but also to long term stresses.<sup>18</sup>

## Learning Topic 5: National Strategies and Action Plans on Health Adaptation to Climate Change

The Vulnerability and Adaptation assessment outcome provides information for decision makers to design their national strategies and the health component of their national adaptation plans. In addition to information related to the main health impacts of climate change and adaptation options, strategies should include relevant topics such as how to best engage other health determining sectors and how to build the institutional, organizational and technical capacity to effectively build the resilience of the health systems.

## Learning Topic 6: Monitoring and Evaluation of Programmes on Health Adaptation to Climate Change

It is important to have a clear and practical guidance on how to monitor the implementation of relevant health adaptation projects, as well as clear indicators, in order to understand the impact, and measure the scale and nature of health vulnerability to climate change, the vulnerability of the health sector and the main impacts on health as trends. Evaluation methods that allow understanding the effectiveness and cost-effectiveness of interventions are also key to gain knowledge on the best health adaptation options.

## Learning Topic 7: Engagement with Other Health-determining Sectors

In order to effectively respond to the health impacts posed by climate change, the health community has to engage several non-health sectors, including the meteorological sector, water and sanitation, as well as food, energy and housing. In addition, and as per article 4.1.f. of the UNFCCC, all mitigation and adaptation programmes or policies should consider their impact on health, using relevant tools (e.g. health impact assessment).<sup>19</sup>

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<sup>15</sup> WHO (2005). Using Climate to Predict Infectious Disease Epidemics. <http://www.who.int/globalchange/publications/infectdiseases.pdf?ua=1>

<sup>16</sup> WHO (2009). Protecting Health from Climate Change: Connecting Science, Policy and People. [http://whqlibdoc.who.int/publications/2009/9789241598880\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598880_eng.pdf)

<sup>17</sup> WHO (2009). Protecting Health from Climate Change: Connecting Science, Policy and People. [http://whqlibdoc.who.int/publications/2009/9789241598880\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598880_eng.pdf)

<sup>18</sup> WHO (2009). Protecting Health from Climate Change: Connecting Science, Policy and People. [http://whqlibdoc.who.int/publications/2009/9789241598880\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598880_eng.pdf)

<sup>19</sup> Article 4 of the UNFCCC: 1. All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall: (f) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change; [http://unfccc.int/essential\\_background/convention/background/items/1362.php](http://unfccc.int/essential_background/convention/background/items/1362.php)

## Learning Topic 8: Health Co-benefits of Mitigation and Adaptation Policies and Programmes

When implementing mitigation and adaptation policies, social or economic hurdles may arise. However, studies are increasingly showing that the implementation of these policies lead to improvement in health. Mitigation of climate change in various sectors, including housing, transportation and energy, has many health co-benefits that are reflected through substantial health gains and reduced health risks.

# Part II

## Guide to Learning Resources and Training Courses

### Learning Topic 1

#### Health Impacts of Climate Change

##### Written Resources

<b>Atlas of Health and Climate</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Decision Makers	<b>Relevance</b> This document illustrates the scale of health challenges confronting communities because of climate change by providing disease specific examples, and by demonstrating the adverse impacts of emergencies, such as floods, cyclones and droughts, as well as emerging environmental challenges (such as heat stress and air pollution) to human health.
<b>Type of Material</b> Guidance Document/ Handbook	
<b>Climate Change and Health Across Africa: Issues and Options</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Decision Makers	<b>Relevance</b> This working paper identifies potential health impacts of climate change that are cumbersome to the African population, and analyses various direct and indirect health impacts of climate change.
<b>Type of Material</b> Analytical/Technical Document	
<b>Gender, Climate Change and Health</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> General Public	<b>Relevance</b> This discussion paper thoroughly examines the interrelationship between climate change, gender and health.
<b>Type of Material</b> Other	
<b>Training Course for Public Health Professionals on Protecting Our Health from Climate Change</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners	<b>Relevance</b> This training material dedicates several chapters to discussing the health impacts of climate change, and reviews the major ones, including increases in the frequency and intensity of extreme weather events, alterations in the transmission dynamics of food-, water-, and vector-borne diseases, and changes in the concentrations of air pollutants.
<b>Type of Material</b> Training Manual/Material	
<b>Protecting Health from Climate Change: Connecting Science, Policy and People</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners; Decision Makers	<b>Relevance</b> This report discusses climate change and its impact on the fundamentals of health, manifested by infectious patterns and long-term stresses.
<b>Type of Material</b> Guidance Document/ Handbook	



## Protecting Health from Climate Change: The Global Response [Go to Factsheet](#)

### General Audience(s)

Decision Makers

### Type of Material

Other

### Relevance

This presentation explains the global health impacts of climate change through specific examples, and discusses the devastating inequity of climate change impacts that affects the most vulnerable populations.

## The Health Impact of Extreme Weather Events in Sub-Saharan Africa [Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners

### Type of Material

Other

### Relevance

This paper quantifies the impact of extreme rainfall and temperature events on the incidence of diarrhoea, malnutrition and mortality in young children in Sub-Saharan Africa.

## Global Climate Change and Child Health: A Review of Pathways, Impacts and Measures to Improve the Evidence Base [Go to Factsheet](#)

### General Audience(s)

Decision Makers

### Type of Material

Analytical/Technical  
Document

### Relevance

This paper summarizes what is known about global climate change and its link to child health through a review of the literature. It also identifies evidence at varying levels of impact and in relation to different health outcomes, and documents the disproportionate vulnerability of children's health to environmental factors, specifically those most closely related to climate change.

## How Is Climate Change Affecting Our Health? A Manual for Teachers [Go to Factsheet](#)

### General Audience(s)

General Public

### Type of Material

Training Manual/Material

### Relevance

This manual aims at highlighting the linkages between climate change and human health. The students will learn the reasons behind the changes going on, how they affect each one of us in one way or another, the current and future effects and how we can respond to them.

## Climate Change 2007: Impacts, Adaptation and Vulnerability. Contributions of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change: Human Health [Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

### Type of Material

Analytical/Technical  
Document

### Relevance

The first four sections of chapter 8 of this report describe the observed and projected health impacts of climate change, and the current and future populations at risk. The chapter also reviews the knowledge that has emerged since the Third Assessment Report (TAR).

## Ecosystems and Human Well-Being: A Health Synthesis [Go to Factsheet](#)

### General Audience(s)

Decision Makers

### Type of Material

Other

### Relevance

The first part of this document examines the current state of ecosystems and its association with human health status. It also explores critical drivers and other factors affecting future changes to health, and discusses plausible future changes in ecosystems and the health effects in different regions.

## Climate Change and Human Health. Risks and Responses [Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners

### Type of Material

Analytical/Technical  
Document

### Relevance

This document dedicates several chapters to providing a thorough analysis of the direct and indirect effects of climate change on human health, including the potential health effects of extreme climate events, highlighting several infectious diseases, temperature extremes and natural disasters. It also explains the observed and predicted effects of climate change on infectious diseases through vector and pathogen climate sensitivity.

## Learning Topic 2

### Health-related Vulnerability and Adaptation (V&A) Assessments

#### Written Resources

<p><b>Mainstreaming Gender in Health Adaptation to Climate Change Programmes</b> <a href="#">Go to Factsheet</a></p> <p><b>General Audience(s)</b> Technical Staff/Practitioners</p> <p><b>Type of Material</b> Guidance Document/ Handbook</p>	<p><b>Relevance</b> This document provides guidance to climate change and health programme managers on integrating gender as a key element in all phases of the project cycle, including vulnerability and adaptation assessment.</p>
<p><b>Protecting Human Health from Climate Change: Vulnerability and Adaptation Assessment</b> <a href="#">Go to Factsheet</a></p> <p><b>General Audience(s)</b> Technical Staff/Practitioners</p> <p><b>Type of Material</b> Guidance Document/ Handbook</p>	<p><b>Relevance</b> This guide thoroughly describes the basics and key concepts of vulnerability and adaptation assessment, and provides detailed guidance on conducting the assessment.</p>
<p><b>Heat Waves, Floods and the Health Impacts of Climate Change: A Prototype Training Workshop for City Officials</b> <a href="#">Go to Factsheet</a></p> <p><b>General Audience(s)</b> Technical Staff/Practitioners</p> <p><b>Type of Material</b> Training Manual/Material</p>	<p><b>Relevance</b> Session 10 of this training manual helps learners understand the concepts, determinants and tools of community health vulnerability and adaptive capacity.</p>
<p><b>Protecting Health from Climate Change: Global Research Priorities</b> <a href="#">Go to Factsheet</a></p> <p><b>General Audience(s)</b> Technical Staff/Practitioners; Decision Makers</p> <p><b>Type of Material</b> Guidance Document/ Handbook</p>	<p><b>Relevance</b> This report provides recommendations for the global research community on key concepts of risk assessment that would, in turn, improve vulnerability and adaptation assessments.</p>
<p><b>Climate Change: Quantifying the Health Impact at National and Local Levels</b> <a href="#">Go to Factsheet</a></p> <p><b>General Audience(s)</b> Technical Staff/Practitioners; Decision Makers</p> <p><b>Type of Material</b> Guidance Document/ Handbook</p>	<p><b>Relevance</b> This guide describes methods that can be applied to generate preliminary estimates of the disease burden from climate change on a national or sub-national level.</p>
<p><b>Climate Change and Health: A Tool to Estimate Health and Adaptation Costs</b> <a href="#">Go to Factsheet</a></p> <p><b>General Audience(s)</b> Technical Staff/Practitioners; Decision Makers</p> <p><b>Type of Material</b> Training Manual/Material</p>	<p><b>Relevance</b> This tool provides step-by-step guidance on estimating (a) the costs associated with damage to health due to climate change, (b) the costs for adaptation in various sectors to protect health from climate change and (c) the efficiency of adaptation measures.</p>

## CGE Training Materials for Vulnerability and Adaptation Assessment. Human Health

[Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

### Type of Material

Training Manual/Material

### Relevance

This training handbook provides methods, tools and data requirements for assessing the potential health impacts of both climate variability and long-term climate change. It specifically presents tools for estimating the current burden of climate-sensitive diseases and future potential health impacts attributable to climate change, as well as comparative risk assessment, qualitative assessment, and disease-specific predictive models.

## Climate Change and Human Health. Risks and Responses

[Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners

### Type of Material

Analytical/Technical  
Document

### Relevance

This document dedicates two chapters to providing methods for the quantification of disease burden due to climate change by region and specific health impact, and to discussing the role, methods, and review of national assessments on the potential health impacts of climate change.

## Learning Topic 3

### Early Warning Systems for Health Risks

#### Written Resources

<b>Atlas of Health and Climate</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Decision Makers	<b>Relevance</b> This document discusses current practices of early warning systems using maps and meteorological information for infections related to climate change as well as health impacts of extreme and hot temperatures, and gives examples and case studies that illustrate the degree of established success of these systems.
<b>Type of Material</b> Guidance Document/ Handbook	
<b>Training Course for Public Health Professionals on Protecting Our Health from Climate Change</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners	<b>Relevance</b> This training material dedicates one module to describing the use of early warning systems for health outcomes sensitive to climate variability.
<b>Type of Material</b> Training Manual/Material	
<b>Heat-Health Action Plans</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners; Decision Makers	<b>Relevance</b> This guide explains the importance of implementing heat-health early meteorological warning systems as a core element of heat-health action plans.
<b>Type of Material</b> Guidance Document/ Handbook	
<b>Heat-waves: Risks and Responses</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners; Decision Makers	<b>Relevance</b> Section 4 of this report explores methods used by heat health warning systems and heat stress indicators. It also discusses a survey of heat health warning systems in Europe and provides case studies and recommendations.
<b>Type of Material</b> Analytical/Technical Document	
<b>Using Climate to Predict Infectious Disease Epidemics</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners	<b>Relevance</b> This document evaluates the potential of climate-based disease early warning as a means of improving preparedness for, and response to, epidemics, and provides guidance on the potential of early warning systems (EWS) based on climate variations to enhance global surveillance and response to epidemic-prone diseases.
<b>Type of Material</b> Guidance Document/ Handbook	

## Learning Topic 4 Building Resilience of the Health System

### Written Resources

#### Global Climate Change: Implications for International Public Health Policy [Go to Factsheet](#)

##### General Audience(s)

Decision Makers;  
General Public

##### Type of Material

Other

##### Relevance

The second part of this article describes measures to build the capacity of the health sector to respond to risks posed by climate change.

## Learning Topic 5

### National Strategies and Action Plans on Health Adaptation to Climate Change

#### Written Resources

<b>WHO Guidance to Protect Health from Climate Change through Health Adaptation Planning</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners <b>Type of Material</b> Guidance Document/ Handbook	<b>Relevance</b> This guidance document offers a systematic process to 1) engage in the overall NAP process at the national level; 2) identify national strategic goals for building health resilience to climate change, and 3) develop a national plan with prioritized activities to achieve these goals, within a specific time period and given available resources. The guidance document also outlines the process to be followed to ensure these goals are achieved. In addition, further guidance on how to plan for building climate resilient health systems at country level is provided.
<b>Mainstreaming Gender in Health Adaptation to Climate Change Programmes</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners <b>Type of Material</b> Guidance Document/ Handbook	<b>Relevance</b> This document provides guidance to climate change and health programme managers on integrating gender as a key element in all phases of the project cycle.
<b>Heat Waves, Floods and the Health Impacts of Climate Change: A Prototype Training Workshop for City Officials</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners <b>Type of Material</b> Training Manual/Material	<b>Relevance</b> Session 11 in this training manual helps learners develop plans for public health interventions that address the health impacts of climate change.
<b>Heat-Health Action Plans</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Technical Staff/Practitioners; Decision Makers <b>Type of Material</b> Guidance Document/ Handbook	<b>Relevance</b> Section 3 in this guide explains the importance of developing heat-health action plans, their characteristics and core elements, with models for interventions and practical examples from several European countries that have begun their implementation and evaluation.
<b>Climate Change and Children. A Human Security Challenge</b> <a href="#">Go to Factsheet</a>	
<b>General Audience(s)</b> Decision Makers <b>Type of Material</b> Other	<b>Relevance</b> Section 4 in this paper describes key interventions that contribute to reductions in human security risks to children as well as participatory community development that strengthens basic public health infrastructure. It also discusses several frameworks for action.



## Climate Change 2007: Impacts, Adaptation and Vulnerability. Contributions of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change: Human Health [Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

### Type of Material

Analytical/Technical  
Document

### Relevance

This chapter describes the observed and projected health impacts of climate change, current and future populations at risk, and the strategies, policies and measures that have been and can be taken to reduce the impacts. It also reviews the knowledge that has emerged since the Third Assessment Report (TAR). The chapter highlights the need to develop and implement adaptation strategies, policies and measures at different levels and scales.

## Ecosystems and Human Well-Being: A Health Synthesis [Go to Factsheet](#)

### General Audience(s)

Decision Makers

### Type of Material

Other

### Relevance

This document explains the need for both mitigation and adaptation strategies, and outlines the importance of both these strategies in reducing the effect of ecosystem disruption on health. It examines considerations that are important when setting priorities and the role of science in informing decisions and methods to measure the size and distribution of the health effects of ecosystem changes. It also explores intervention options, priorities and stakeholders that need to be involved.

## Climate Change and Human Health. Risks and Responses [Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners

### Type of Material

Analytical/Technical  
Document

### Relevance

Chapter 11 in this document stresses that building capacity is an essential step in developing adaptation strategies, and provides real-world examples of public health adaptations to climate and a discussion of policy implications.

## Learning Topic 6

# Monitoring and Evaluation of Programmes on Health Adaptation to Climate Change

### Written Resources

<p><b>WHO Guidance to Protect Health from Climate Change through Health Adaptation Planning</b> <a href="#">Go to Factsheet</a></p> <p>General Audience(s) Technical Staff/Practitioners Type of Material Guidance Document/ Handbook</p>	<p>Relevance</p> <p>This guidance document aims at ensuring that the health sector works with partners in the environment and other related communities. It provides guidance on the reporting, monitoring and review of the health adaptation process, as outlined in Section V (D).</p>
<p><b>Development and Climate Change. Costs of Adapting to Climate Change for Human Health in Developing Countries</b> <a href="#">Go to Factsheet</a></p> <p>General Audience(s) Technical Staff/Practitioners Type of Material Guidance Document/ Handbook</p>	<p>Relevance</p> <p>This costing tool examines adaptation costs computed for conventional public health adaptation activities, with a focus on malaria and diarrhoea in developing countries.</p>
<p><b>Heat Waves, Floods and the Health Impacts of Climate Change: A Prototype Training Workshop for City Officials</b> <a href="#">Go to Factsheet</a></p> <p>General Audience(s) Technical Staff/Practitioners Type of Material Training Manual/Material</p>	<p>Relevance</p> <p>Session 8 of this training manual helps learners understand the basics, tools and nuances of monitoring health impacts of climate change.</p>
<p><b>Global Climate Change and Child Health: A Review of Pathways, Impacts and Measures to Improve the Evidence Base</b> <a href="#">Go to Factsheet</a></p> <p>General Audience(s) Decision Makers Type of Material Analytical/Technical Document</p>	<p>Relevance</p> <p>This paper describes initiatives to develop environmental health indicators for children, and outlines actions including measures to integrate indicators of children's environmental health into existing data collection systems.</p>
<p><b>Heat-Health Action Plans</b> <a href="#">Go to Factsheet</a></p> <p>General Audience(s) Technical Staff/Practitioners; Decision Makers Type of Material Guidance Document/ Handbook</p>	<p>Relevance</p> <p>Section 3 of this guide discusses real-time surveillance, and provides the basics of setting up a surveillance system for health outcomes that monitors health impacts of heat-waves and the effectiveness of the interventions to address them.</p>
<p><b>Climate Change and Human Health. Risks and Responses</b> <a href="#">Go to Factsheet</a></p> <p>General Audience(s) Technical Staff/Practitioners; Type of Material Analytical/Technical Document</p>	<p>Relevance</p> <p>Chapter 10 of this document examines general principles of monitoring, potential sources of monitoring data, and discusses issues in the analysis and interpretation of such data.</p>

## Learning Topic 7

### Engagement with Other Health-determining Sectors

#### Written Resources

#### Atlas of Health and Climate [Go to Factsheet](#)

General Audience(s)

Decision Makers

Type of Material

Guidance Document/  
Handbook

Relevance

This document explores the important role of meteorological information, such as the knowledge of seasonal patterns and weather forecasts, in adding value to health programmes facing challenges from climate changes, and advocates using these services to their full potential in order to provide more advanced warning of the risks of diseases brought on, or exacerbated, by climate change.

#### WHO Guidance to Protect Health from Climate Change through Health Adaptation Planning [Go to Factsheet](#)

General Audience(s)

Technical Staff/Practitioners

Type of Material

Guidance Document/  
Handbook

Relevance

This guidance document aims at ensuring that the health sector works with partners in the environment and other related communities, and follows a systematic process to engage in the overall NAP process at the national level, identify national strategic goals for building health resilience to climate change, and develop a national plan with prioritized activities to achieve these goals, within a specific time period and given available resources.

#### Protecting Health from Climate Change: Global Research Priorities [Go to Factsheet](#)

General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

Type of Material

Guidance Document/  
Handbook

Relevance

This report provides recommendations for the global research community on guiding health-promoting mitigation and adaptation decisions in other sectors.

#### Heat-Health Action Plans [Go to Factsheet](#)

General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

Type of Material

Guidance Document/  
Handbook

Relevance

This guide illustrates the importance of a multi-agency and inter-sectoral approach to developing emergency plans.

#### Heat-waves: Risks and Responses [Go to Factsheet](#)

General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

Type of Material

Analytical/Technical  
Document

Relevance

Section 4 of this report promotes coordination between health and meteorological agencies and the development of appropriate targeted advice and intervention measures.

## Learning Topic 8

### Health Co-benefits of Mitigation and Adaptation Policies and Programmes

#### Written Resources

#### [Our Planet, Our Health, Our Future. Human Health and the Rio Conventions. Biological Diversity, Climate Change and Desertification](#) [Go to Factsheet](#)

**General Audience(s)**

Technical Staff/Practitioners;  
Decision Makers

**Type of Material**

Analytical/Technical  
Document

**Relevance**

A sub-chapter (3.3) of this report discusses mitigation of climate change and its co-benefits for health, presenting potential health gains through mitigation in key sectors and economic gains from health co-benefits.

#### [Health in the Green Economy. Health Co-benefits of Climate Change Mitigation – Housing Sector](#) [Go to Factsheet](#)

**General Audience(s)**

Technical Staff/Practitioners;  
Decision Makers

**Type of Material**

Guidance Document/  
Handbook

**Relevance**

This report considers the scientific evidence regarding possible health gains and, where relevant, health risks of climate change mitigation measures in the residential housing sector, and documents how certain mitigation options can yield substantial co-benefits to health.

#### [Health in the Green Economy. Health Co-benefits of Climate Change Mitigation – Transport Sector](#) [Go to Factsheet](#)

**General Audience(s)**

Technical Staff/Practitioners;  
Decision Makers

**Type of Material**

Guidance Document/  
Handbook

**Relevance**

This report examines the health impacts of mitigation strategies implemented in real-life settings, as well as evidence on transport-related risk factors. It illustrates existing tools for assessing health impacts of transport decisions as well as case studies of climate and health-friendly transport policies.

#### [Health in the Green Economy. Co-benefits to Health of Climate Change Mitigation. Household Energy Sector in Developing Countries. Executive Summary.](#) [Go to Factsheet](#)

**General Audience(s)**

Technical Staff/Practitioners;  
Decision Makers

**Type of Material**

Other

**Relevance**

This report's executive summary briefly outlines opportunities for potential health and environment synergies for household energy in developing countries, and reviews the potential health impacts of mitigation strategies and technologies for the household energy sector in developing countries.

#### [Health in the Green Economy. Co-benefits to Health of Climate Change Mitigation. Health Care Facilities / Preliminary Findings – Initial Review. Executive Summary.](#) [Go to Factsheet](#)

**General Audience(s)**

Technical Staff/Practitioners;  
Decision Makers

**Type of Material**

Other

**Relevance**

This report's executive summary briefly introduces mitigation measures relevant to health care facilities, and examines these measures in terms of: their direct impacts on the delivery of health care services; on environmental and occupational health for health workers, patients and communities; and indirect benefits such as improved resilience of health care facilities and more reliable energy provision.

## Health in the Green Economy. Co-benefits to Health of Climate Change Mitigation. Occupational Health / Initial Findings – Discussion Draft. Executive Summary. [Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

### Type of Material

Other

### Relevance

This document seeks to anticipate green technologies' consequences for occupational health and safety, including hazards or risks they may present. The goal is to remove impediments to the dissemination and adoption of green technologies and to reduce avoidable risks for workers. This document identifies remediable hazards and manageable risks as well as the strategies to manage them so green technologies can be implemented without compromising worker health.

## The Health Benefits of Tackling Climate Change. An Executive Summary for the Lancet Series [Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

### Type of Material

Other

### Relevance

This article shows findings from studies analysing five different sectors where greenhouse gas emissions need to be reduced: household energy emissions, urban land transport, low-carbon electricity generation, agriculture and food, and short-lived greenhouse pollutants, each sector examined one at a time, and discusses the health implications of actions in both high-income and low-income countries designed to reduce the release of carbon dioxide and other greenhouse gases.

## Climate Change 2007: Mitigation of Climate Change. Contributions of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change: Energy Supply: Policies and Instruments: Co-benefits of Mitigation Policies [Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

### Type of Material

Analytical/Technical  
Document

### Relevance

This sub-report outlines the health, employment and industrial co-benefits of mitigation policies, with a particular emphasis on those related to energy supply. It presents many studies that show supported findings of several co-benefits.

## Taking into Account Health to Enhance Mitigation Ambition [Go to Factsheet](#)

### General Audience(s)

Decision Makers

### Type of Material

Other

### Relevance

This report summarizes evidence and proposals for consideration with regards to the health co-benefits of climate change mitigation. The report presents potential health gains through mitigation, potential economic gains from health co-benefits, and opportunities for better linkage of climate and health goals.

## Climate Change 2001: Impacts, Adaptation and Vulnerability. Contributions of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change: Human Health [Go to Factsheet](#)

### General Audience(s)

Technical Staff/Practitioners;  
Decision Makers

### Type of Material

Analytical/Technical  
Document

### Relevance

Section 12 of this chapter briefly discusses health co-benefits of climate change mitigation policies.

# Part III Factsheets

## Atlas of Health and Climate

[Go to Document](#)

<a href="#">Organization(s)</a>	<a href="#">Language</a>	<a href="#">Type of Material</a>
WHO, WMO	English	Guidance Document/Handbook
<a href="#">Year of Publication</a>		<a href="#">General Audiences</a>
2012		Decision Makers

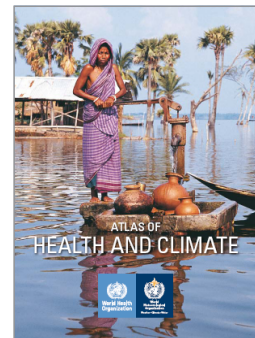
### Value of Learning Resource

This document provides a solid scientific review of the effect of weather and climate on major health outcomes, and delves into different infections, emergencies and environmental challenges. By providing a clear image of the scale of those health challenges, the document aims at highlighting the importance of collaboration between science and evidence to reduce the adverse health impacts of climate change and build resilience among the health systems and communities.

The document conveys three key messages. First, climate change affects the geographical and temporal distribution of large burdens of disease and poses important threats to the health security of different populations. Second, the relationship between health and climate change does not occur in a vacuum, and it is important to understand the effect of existing vulnerabilities in communities, that might include physiology and human behaviours, as well as socio-economic conditions and the coverage and effectiveness of health programmes. Third, climate and meteorological information is currently being used for risk reduction, preparedness and response to protect health from climate change in countries all over the world.

### Structure and Content

- Section 1 Discusses four climate-sensitive infections: malaria, diarrhoea, meningitis and dengue fever, and explores the burden and challenges of these diseases, and how to address these challenges using meteorological information;
- Section 2 Focuses on three types of climate change emergencies: floods and cyclones, drought, and airborne dispersion of hazardous materials, and explains how meteorological services can provide early warnings that in turn support health and other sectors to save lives and reduce illness and injury;
- Section 3 Looks at four different emerging environmental challenges: heat stress, UV radiation, pollens and air pollution, and explains how climate services can provide early warnings, monitoring and even track and predict these challenges.





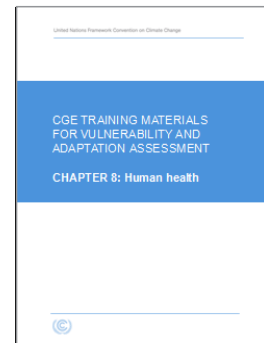
# CGE Training Materials for Vulnerability and Adaptation Assessment. Human Health

[Go to Document](#)

Organization(s)	Language	Type of Material
UNFCCC	English, French,	Training Manual/Material
Year of Publication	Spanish	General Audiences
2011		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

The training handbook, PowerPoint presentation and worksheets collectively explain potential impacts of climate variability and change by providing suggested pathways, and mapping links between climate change and health. These training materials delve into the various aspects of these impacts as they relate to different climate variability and diseases. They are excellent resources to understand health vulnerability, impact and adaptation assessment, and different methods that are required to assess the vulnerability of human health to climate change. They also provide thorough guidance to the process of vulnerability assessment. The methods presented are readily accessible and applicable and the learning process is enhanced through provision of examples and worksheets.



## Structure and Content

- Section 8.2 Discusses both climatic and non-climatic drivers of change;
- Section 8.3 Overviews potential health impacts of climate change;
- Section 8.5 Provides the methods, tools and data requirements for vulnerability and adaptation assessments. These include estimating burdens of climate-sensitive diseases and the future potential health impacts attributable to climate change, as well as comparative risk assessment, disease-specific models and qualitative assessment;
- Section 8.6 Provides guidance for adaptation, including planning, implementation, and monitoring and evaluation.

## Additional Information

The presentations include notes to presenters and provide more details on some of the methods, data sources and examples of how and where the methods have been applied. The resources are intended to be used in combination. To access those materials, please follow the directed website, and then find and open the section on Human Health.

# Climate Change 2001: Impacts, Adaptation and Vulnerability. Contributions of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change: Human Health

[Go to Document](#)

Organization(s)	Language	Type of Material
IPCC	English	Analytical/Technical Document
Year of Publication		General Audiences
2001		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This chapter provides policy makers and technical staff with a thorough assessment of how climatic changes and associated environmental and social changes are likely to affect human population health taking into account the multivariate and interactive ecological framework within which population health and disease are determined. The chapter covers a wide array of topics, from extreme events and disasters to infectious diseases, to agricultural production impact.



## Structure and Content

- Section 1 Introduction and Scope: provides a summary of the IPCC Second Assessment Report (1996), and background into human population health and its significance as an outcome of climate change;
- Section 2 Research into the Relationship between Climate Change and Health: Caveats and Challenges: presents new knowledge about climate change impacts on health, and discusses characteristics and methodological difficulties;
- Section 3 Sensitivity, Vulnerability, and Adaptation: discusses the sensitivity of many health outcomes to climate or climate-induced environmental changes, and several factors that determine population vulnerability;
- Section 4 Thermal Stress (Heat Waves; Cold Spells): discusses heat waves and decreased mortality as a result of milder winters;
- Section 5 Extreme Events and Weather Disasters: discusses floods, droughts, storms and tropical cyclones;
- Section 6 Air Pollution: discusses gases, fine particulates and the effects of air pollution, season and weather on health, as well as future changes in air quality. It also discusses aeroallergens;
- Section 7 Infectious Diseases: discusses malaria and dengue, and the modelling of the impact of climate change on these diseases. It also discusses a variety of other infectious diseases like Leishmaniasis, Chagas' disease and Plague;
- Section 8 Coastal Water Issues: discusses the contamination of coastal waters, that can affect people through algal blooms, shellfish consumption or bathing;
- Section 9 Food Yields and Nutrition: discusses how climate change affects agricultural productivity and the consequences that this has on nutrition. It also discusses options for adaptation to reduce health impacts of climate change;
- Section 10 Demographic and Economic Disruption: discusses the health impacts that are associated with population displacement;

- Section 11 Adaptation Options: discusses adaptation options for extreme events and natural disasters, as well as malaria epidemics;
- Section 12 Secondary Health Benefits of Mitigation Policies: briefly discusses health co-benefits of climate change mitigation policies;
- Section 13 Research and Information Needs, Including Monitoring: outlines particular focus research efforts needed, and discusses the importance of and mechanism for monitoring potential impacts of climate change on health;
- Section 14 Cross-cutting Issues: discusses the costs of health impacts of climate change, as well as development, sustainability and equity;
- Section 15 Conclusions: provides a brief conclusion.

# Climate Change 2007: Mitigation of Climate Change. Contributions of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change: Energy Supply: Policies and Instruments: Co-benefits of Mitigation Policies

[Go to Document](#)

[Go to New 5th Assessment Report](#)

Organization(s)

IPCC

Language

English

Type of Material

Analytical/Technical Document

Year of Publication

2007

General Audiences

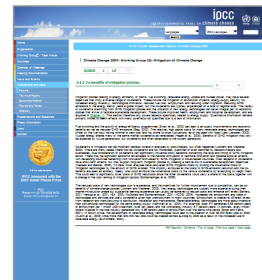
Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This section is part of a report outlining the health, employment and industrial co-benefits of mitigation policies, with a particular emphasis on those related to energy supply. It presents many studies that show supported findings of several co-benefits.

## Structure and Content

- Introduction Briefly describes the purpose of the section;
- Section 1 Presents studies showing co-benefits of fuel switching and the growth of energy-efficiency programmes;
- Section 2 Discusses these co-benefits from a policy perspective;
- Section 3 Discusses costs of these co-benefits as well as employment pattern changes.



# Climate Change 2007: Impacts, Adaptation and Vulnerability. Contributions of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change: Human Health

[Go to Document](#)

[Go to New 5th Assessment Report](#)

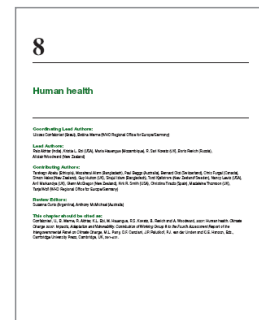
Organization(s)	Language	Type of Material
IPCC	English	Analytical/Technical Document
Year of Publication		General Audiences
2007		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This chapter describes the observed and projected health impacts of climate change, current and future populations at risk, and the strategies, policies and measures that have been and can be taken to reduce these impacts. It also reviews the knowledge that has emerged since the Third Assessment Report (TAR). The chapter highlights the need to develop and implement adaptation strategies, policies and measures at different levels and scales.

## Structure and Content

- Section 1 Introduction: provides background information that includes the state of health in the world, findings from the Third Assessment Report (TAR), key developments since the Third Assessment Report (TAR), and methods used in the report, as well as gaps in knowledge;
- Section 2 Current Sensitivity and Vulnerability: discusses different climate change direct and indirect mechanisms that impact health;
- Section 3 Assumptions about Future Trends: discusses health scenarios, and future vulnerability to climate change;
- Section 4 Key Future Impacts and Vulnerabilities: provides projections of climate change-related health impacts and identifies vulnerable populations and regions;
- Section 5 Costs: briefly discusses costs (and benefits) of climate change impacts;
- Section 6 Adaptation, Practices, Options and Constraints: provides adaptation approaches at different scales and integration of responses across scales. It also identifies limits to adaptation and the health implications of adaptation strategies;
- Section 7 Conclusions: Implications for Sustainable Development: outlines the key conclusions of the document and the health and climate protection implication of clean energy;
- Section 8 Key Uncertainties and Research Priorities: identifies gaps in knowledge and points to key research priorities.



# Climate Change and Children. A Human Security Challenge

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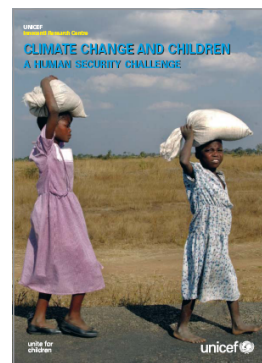
Organization(s)	Language	Type of Material
UNICEF	English	Other
Year of Publication		General Audiences
2008		Decision Makers

## Value of Learning Resource

This paper illustrates the impact of climate change on children, and the extent of their vulnerabilities, as well as the role that societies – children and young people included – can play through mitigation and adaptation strategies. The paper seeks to substantiate the need for frameworks and protocols that recognize, protect and empower children and young people in light of the effects of climate change. It aims to present evidence and analysis that would effectively influence advocacy, policy and programme development.

## Structure and Content

- Section 1 Climate Change, Human Security and the World's Children: discusses the human security risks from climate change, and the context in developing countries. It also addresses the specific vulnerability of children as well as other factors that might play a role in aggravating the impacts;
- Section 2 Impacts of Climate Change on Children: describes existing vulnerabilities and environmental health risks, key climate changes and their specific impacts, and the implications for child health and well-being;
- Section 3 The Bases for Action: Rights, Institutions and Guiding Principles: discusses a number of international and regional treaties and instruments that are relevant to issues related to climate change and children;
- Section 4 Adaptation and Mitigation: Complementary Strategies: presents key interventions that aim at reducing human security risks to children and discusses participatory approaches to community development that strengthen basic public health infrastructure. It also introduces several frameworks for action;
- Section 5 Implications and Conclusions for Policy and Practice: outlines key implications and provides conclusions for policy makers.



## Additional Information

This is a policy review paper.



# Climate Change and Health Across Africa: Issues and Options

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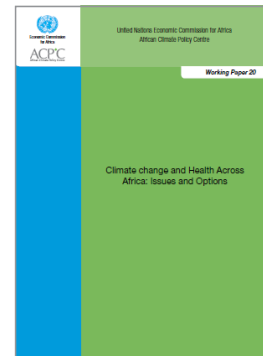
Organization(s)	Language	Type of Material
UNECA-ACPC	English	Analytical/Technical Document
Year of Publication	General Audiences	
2011	Decision Makers	

## Value of Learning Resource

This working paper provides a thorough literature review of the impacts of environmental factors on health across Africa, both direct and indirect. It discusses the increased health vulnerabilities of the populations of many African countries compared to countries in the rest of the world, and explains the implications of existing poverty, political instability and weakened health structure that in turn exacerbate the health impact of climate change.

## Structure and Content

- 1 Introduction: identifies current health issues across Africa and introduces the current understanding of climatic changes occurring around the continent. It also presents potential impacts of climate change on human health;
- 2 Indirect Impacts: analyses various indirect health impacts of climate change on African populations, including several communicable diseases;
- 3 Direct Impacts: analyses various direct health impacts of climate change on African populations, including UV related diseases as well as health stresses and disorders caused by increases in average temperatures and reduced air quality;
- 4 Gaps in Knowledge and Research: acknowledges and discusses knowledge gaps regarding the impacts of climate change on health and assesses options to move forward on the discussion;
- 5 Africa's Response to Climate Change and Health: introduces activities undertaken in Africa to address the impact of climate change on health;
- 6 Options for Consideration: presents a series of options that may be considered by African governments, coordinating bodies and other relevant organizations to address climate change and health.



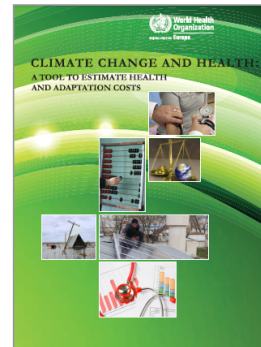
# Climate Change and Health: A Tool to Estimate Health and Adaptation Costs

[Go to Document](#)

<a href="#">Organization(s)</a>	<a href="#">Language</a>	<a href="#">Type of Material</a>
WHO	English	Training Manual/Material
<a href="#">Year of Publication</a>		<a href="#">General Audiences</a>
2013		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This economic analysis tool is intended for use by health or environment managers and stakeholders in estimating the health damage due to climate change and in developing relevant adaptation measures. It provides step-by-step guidance on estimating (a) the costs associated with damage to health due to climate change, (b) the costs for adaptation in various sectors to protect health from climate change and (c) the efficiency of adaptation measures, i.e. the cost of adaptation versus the expected returns, or averted health costs. The tool consists of a document describing the methods step-by-step and a manual with an Excel spread sheet, which is a visual aid for calculating costs.



## Structure and Content

- Section 1 Introduction: introduces the aims of this tool and why it was prepared. It also discusses the information that can be generated, the economic components, the inputs required, as well as the structure;
- Section 2 Manual for Calculating Health and Adaptation Costs:
  - Section 2.1 Define the Scope: provides main questions to be answered before initiating the analysis.
  - Section 2.2 Methods, Data and Sources and Analysis: describes the mechanics and the types of input required to apply the method for estimating health damage costs and adaptation costs.
    - Section 2.2.1 Estimating the Cost of Damage to Health.
    - Section 2.2.2 Estimating the Cost of Adaptation.
  - Section 2.3 Comparing the Costs and Benefits of Adaptation Measures: presents the benefit-cost ration of damage costs and adaptation costs;
  - Section 2.4 Presenting Results: describes several ways to present results derived with the tool.

## Additional Information

Several types of technical knowledge are needed to use the tool, including economics, epidemiology, public health and health information. The user should be prepared to seek information from several ministries and from public health and health care institutions.

## Climate Change and Human Health. Risks and Responses

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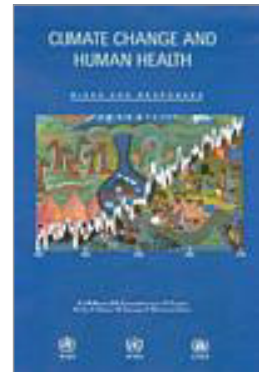
Organization(s)	Language	Type of Material
WHO	English	Analytical/Technical Document
Year of Publication		General Audiences
2003		Technical Staff/Practitioners

### Value of Learning Resource

This is a comprehensive document on the topic of climate change and its impact on human health. It provides sound analysis and thorough literature review, as well as examples and case studies to illustrate several topics, including basic science, impacts, assessments, monitoring, adaptation, and responses.

### Structure and Content

- Chapter 1 Global Climate Change and Health: An Old Story Writ Large: provides an introduction to the interconnectedness of climate change and human health;
- Chapter 2 Weather and Climate: Changing Human Exposures: provides information to understand weather, climate, climate variability and climate change, including discussion of the greenhouse effect and anthropogenic climate change;
- Chapter 3 International Consensus on the Science of Climate and Health: The IPCC Third Assessment Report: discusses the IPCC Third Assessment Report, and gives an overview of the IPCC and conclusions made regarding the direct and indirect effects of climate change on human health, including assessments of health impacts by region;
- Chapter 4 Looking to the Future: Challenges for Scientists Studying Climate Change and Health: investigates further research required by public health scientists and other researchers to better understand the health effects of climate change and the effectiveness of adaptation options;
- Chapter 5 Impacts on Health of Climate Extremes: provides an analysis of potential health effects of extreme climate events, highlighting several infectious diseases, temperature extremes and natural disasters;
- Chapter 6 Climate Change and Infectious Diseases: explains the observed and predicted effects of climate change on infectious diseases through vector and pathogen climate sensitivity;
- Chapter 7 How Much Disease Could Climate Change Cause?: provides methods for the quantification of the disease burden due to climate change by region and specific health impact;
- Chapter 8 Stratospheric Ozone Depletion, Ultraviolet Radiation and Health: highlights the role of ozone depletion and UV radiation on health, including an analysis of the role of climate change in this process;
- Chapter 9 National Assessments of Health Impacts of Climate Change: A Review: discusses the role, methods, and review of national assessments on the potential health impacts of



climate change;

Chapter 10 Monitoring the Health Effects of Climate Change: provides an examination of principles of monitoring, potential sources of data, and a discussion of issues in the analysis and interpretation of data;

Chapter 11 Adaptation and Adaptive Capacity in the Public Health Context: provides a definition of adaptation and adaptive capacity and a mapping of these concepts in the realm of public health prevention;

Chapter 12 From Science to Policy: Developing Responses to Climate Change: presents real-world examples of public health adaptations to climate and a discussion of policy implications;

Chapter 13 Conclusions and Recommendations for Action: provides a conclusion of each preceding chapter and concluding remarks.

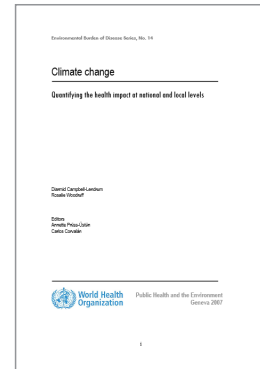
# Climate Change: Quantifying the Health Impact at National and Local Levels

[Go to Document](#)

Organization(s)	Language	Type of Material
WHO	English	Guidance Document/Handbook
Year of Publication		General Audiences
2007		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This guide presents a general approach to quantifying the health impact of climate change, and describes how different methods can be applied to generate preliminary estimates of the disease burden from climate change on a national or sub-national level. It contains a detailed step-by-step regional assessment of Australasia as an example, and outlines future work needed to refine assessment methods. Generating estimates of the health impacts of climate change can help to better understand the consequences of mitigation as well as identify vulnerabilities among different populations, and as such inform policies and allocate resources accordingly.



## Structure and Content

- Chapter 1 Introduction to the Risk Factor: explores the quantification of the health impacts from climate change;
- Chapter 2 General Method: provides guidance on selecting the scenarios and the time period, obtaining measurements of the exposure, choosing health outcomes for assessment, quantifying the relationship between climate and each health outcome, linking the exposure measurement to the climate-health model, and calculating the climate change attributable burden of specific diseases;
- Chapter 3 Detail of the Method for Five Health Outcomes: provides a detailed description on how to quantify health impacts from selected diseases assessed in either the global or Australasian assessments;
- Chapter 4 Estimating Climate Change Impacts at a Country Level: Worked Examples from the Australasian Assessment: explores temperature-related deaths, risk of death from inland flooding, dengue, malaria and diarrhoeal disease from the example of the Australasian assessment;
- Chapter 5 Discussion and Policy Relevance of Estimates: discusses the importance of quantifying health impacts of climate change, the limitations of the assessments, and necessary next steps.

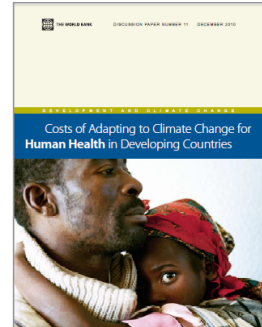
# Development and Climate Change. Costs of Adapting to Climate Change for Human Health in Developing Countries

[Go to Document](#)

<a href="#">Organization(s)</a>	<a href="#">Language</a>	<a href="#">Type of Material</a>
The World Bank	English	Guidance Document/Handbook
<a href="#">Year of Publication</a>		<a href="#">General Audiences</a>
2010		Technical Staff/Practitioners

## Value of Learning Resource

This guide provides an analysis of the financial costs of adapting to climate change using malaria and diarrhea as examples, and focuses on developing countries and demographics within. It builds on prior studies by WHO on the health impacts of climate change and by UNFCCC on the cost to prevent and treat these impacts, and provides analysis that systematically examines the various sources of uncertainty in order to identify the most important factors affecting the cost of adaption to climate change in developing countries.



## Structure and Content

- Section 1 Introduction: outlines the content of the document and provides background information and analysis of the current methodology;
- Section 2 Methodology and Data: describes the methodology and data used to determine adaptation costs, highlighting any differences in methods and updates in data with respect to Ebi (2008);
- Section 3 Sensitivity Analysis: analyses the sensitivity of the results to various assumptions;
- Section 4 Discussion: discusses the results and the findings of the study.

# Ecosystems and Human Well-Being: A Health Synthesis

[Go to Document](#)

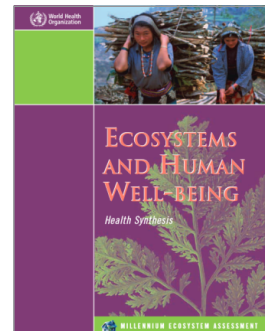
Organization(s)	Language	Type of Material
WHO	English	Other
Year of Publication		General Audiences
2005		Decision Makers

## Value of Learning Resource

This document discusses climate change from the perspective of ecosystems, and explores linkage between ecosystems, like fresh water, food, timber, fibre and fuel, and human health. It examines the drivers of ecosystem change that would have health implications, and explores actions, priorities and policies to address those implications.

## Structure and Content

- Section 1 Why Do Ecosystems Matter to Human Health?: provides an introduction and examines the current state of ecosystems and associated human health status;
- Section 2 How Have Ecosystems Changed and What Are the Health Implications?: provides facts supported by numbers that reflect the extent of climate change and its effects, and offers a brief discussion on each of those facts;
- Section 3 How Might Ecosystems Change and What Would Be the Health Implications?: explores critical drivers and other factors affecting future changes to health, and discusses plausible future changes in ecosystems and the health effects in different sectors and regions, as well as possible thresholds, regime shifts or irreversible changes;
- Section 4 What Actions Are Required to Address the Health Consequences of Ecosystem Change?: discusses vulnerability reduction and the Millennium Development Goals;
- Section 5 How Can Priorities Be Established for Actions to Address the Health Consequences of Ecosystem Change?: examines considerations that are important when setting priorities as well as the role of science in informing decisions and methods to measure the size and distribution of the health effects of ecosystem changes. It also explores intervention options, priorities and stakeholders that need to be involved;
- Section 6 What Are the Policy Implications of the Most Robust Findings and Key Uncertainties?: explores policy implications of the most robust findings as well as of key uncertainties.





# Gender, Climate Change and Health

[Go to Document](#)

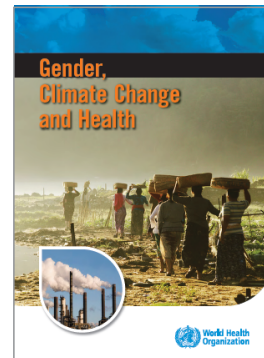
Organization(s)	Language	Type of Material
WHO	English	Other
Year of Publication		General Audiences
2011		General Public

## Value of Learning Resource

This discussion paper examines the interrelationship between climate change, gender, and health. It provides a background of the connection between these three topics and discusses existing and potential impacts and responses through mitigation and adaptation.

## Structure and Content

- Section 1 Background: provides background information on the gender impacts of climate change, health and climate change, and the intersection of health, gender and climate change;
- Section 2 Impacts: Health: explores health impacts of extreme events, including direct and indirect consequences;
- Section 3 Impacts: Social and Human Consequences of Climate Change: explores several social and human impacts of climate change, such as migration and displacement, shifts in farming and land use, and increased livelihood, household and caring burdens;
- Section 4 Response to Climate Change: promotes the design and assessment of specific policies, including mitigation and adaptation actions;
- Section 5 Conclusions, Gaps in Understanding and Issues for Urgent Action: briefly summarizes the document and provides conclusions and recommendations.



# Global Climate Change and Child Health: A Review of Pathways, Impacts and Measures to Improve the Evidence Base

[Go to Document](#)

Organization(s)	Language	Type of Material
UNICEF	English	Analytical/Technical Document
Year of Publication		General Audiences
2009		Decision Makers

## Value of Learning Resource

This paper summarizes what is known about global climate change and its link to child health through a review of the literature. It also identifies evidence at varying levels of impact and in relation to different health outcomes, and documents the disproportionate vulnerability of children's health to environmental factors, specifically those most closely related to climate change. It then describes initiatives to develop environmental health indicators for children, and outlines actions including measures to integrate indicators of children's environmental health into existing data collection systems.



## Structure and Content

- Section 1 Needs for Increased Knowledge as a Guide to Action: outlines the importance of more research and increased knowledge on the effect of climate change on children;
- Section 2 Global Climate Change and Impacts on Child Health: explores how climate change affects the health of children through several mechanisms, including natural disasters, water, air pollution, nutrition and vector-borne diseases;
- Section 3 Monitoring and Addressing Health Impacts on Children: discusses an action framework and initiatives to develop environmental health indicators for children, and outlines actions.

# Global Climate Change: Implications for International Public Health Policy

Go to Document

Organization(s)	Language	Type of Material
WHO	English	Other
Year of Publication		General Audiences
2009		Decision Makers; General Public

## Value of Learning Resource

This article highlights the importance of intensifying efforts on climate change mitigation and health adaptation, and explains the need for a more proactive – rather than a reactive – approach, focusing on political commitment and financial resources as means for successful implementations.

## Structure and Content

- 1 Introduction: outlines four key characteristics of the health impacts of climate change;
- 2 Rethinking Health in a Changing Environment: explains the importance of developing a comprehensive strategy to support a public health response to climate change that includes preventive environmental health interventions, infectious disease surveillance and response, addressing environmental health in emergencies, building capacity for health sector responses, as well as strengthening alliances for sustainable development;
- 3 Protecting Climate, Improving Health: advocates a proactive - rather than a reactive approach, and explains the importance of mitigation strategies;
- 4 Conclusions: provides a conclusion.

## Additional Information

This article appears in the Bulletin of the World Health Organization (WHO).



# Health in the Green Economy. Co-benefits to Health of Climate Change Mitigation. Health Care Facilities / Preliminary Findings – Initial Review. Executive Summary.

Go to Document

Organization(s)	Language	Type of Material
WHO	English	Other
Year of Publication		General Audiences
2011		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This report reviews mitigation measures relevant to health care facilities, and examines these measures in terms of: their direct impacts on the delivery of health care services; on environmental and occupational health for health workers, patients and communities; and indirect benefits such as improved resilience of health care facilities and more reliable energy provision.

## Structure and Content

- Section 1 Key Messages: outlines the scope and methods of the report, and briefly discusses health gains/risks, “win-win” strategies for health care services and mitigation, as well as health equity;
- Section 2 Background and Rationale: reviews the health co-benefits, and risks, of key mitigation strategies relevant to health care facilities;
- Section 3 Summary of Initial Findings: summarizes key points in the report, and discusses several mitigation strategies applicable to the health care sector.

## Additional Information

The report is one in a Health in the Green Economy series led by WHO’s Department of Public Health and Environment. Other reports in the series focus on transport, housing, agriculture and health care facilities.



# Health in the Green Economy. Health Co-benefits of Climate Change Mitigation – Housing Sector

[Go to Document](#)

Organization(s)	Language	Type of Material
WHO	English	Guidance Document/Handbook
Year of Publication		General Audiences
2011		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This report considers the scientific evidence regarding possible health gains and, where relevant, health risks of climate change mitigation measures in the residential housing sector. The report documents how certain mitigation options can yield substantial co-benefits to health. Some choices, however, may be better than others in terms of health impacts, or reducing health risks. New and sometimes overlooked opportunities are also examined where health gains and sustainability objectives can be mutually reinforcing.



## Structure and Content

Introduction	Outlines the background and rationale for the report, and its scope and methods;
Chapter 1	Overview of Housing and Climate/Environment Linkages: examines the climate and environmental impact of housing;
Chapter 2	Review of Housing and Health Risks: examines how housing impacts health with respect to building siting and land use, choices of construction materials, design features, ventilation and energy, and also inhabitant behaviour;
Chapter 3	Evaluating Health Co-benefits and Risks of IPCC-Reviewed Mitigation Strategies: examines specific mitigation measures considered by IPCC alongside the body of evidence about the health impacts of housing;
Chapter 4	GAP Analysis: Optimizing Health Benefits and Correcting Risks of Mitigation Strategies: undertakes a “gap analysis” to explore where health and mitigation strategies can be enhanced or fine-tuned, and where new and complementary strategies can be proposed for mutual benefit;
Chapter 5	Tools to Assess, Plan and Finance Healthy and Climate-friendly Housing: examines a broad range of tools that assess, plan and finance healthy, climate-friendly housing, and their most relevant uses;
Chapter 6	Case Studies of Good Practice: focuses on examples of effective housing interventions that reduce energy consumption and CO2 emissions and result in improved health for the inhabitants;
Chapter 7	Conclusions and Recommendations: outlines this report’s conclusions and provides specific recommendations, for both policy measures for which sufficient evidence exists to take action and issues requiring further research/evaluation to develop and fine-tune policies.

## Additional Information

The report is one in a Health in the Green Economy series led by WHO’s Department of Public Health and Environment. Other reports in the series focus on transport, household energy in developing countries, agriculture and health care facilities.

# Health in the Green Economy. Co-benefits to Health of Climate Change Mitigation. Household Energy Sector in Developing Countries. Executive Summary.

Go to Document

Organization(s)	Language	Type of Material
WHO	English	Other
Year of Publication		General Audiences
2011		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This report aims at proposing important health co-benefits for sector and health policy makers as it identifies opportunities for potential health and environment synergies for household energy in developing countries. This report's executive summary reviews the potential health impacts of mitigation strategies and technologies for the household energy sector in developing countries. It assesses mitigation options in terms of health benefits and risks, using two approaches and drawing on an extensive review of laboratory and field testing. It also discusses supportive policies and decision making tools that include the use of health impact assessments (HIA) to estimate potential health gains from improved technologies, and financial instruments such as carbon finance, which is an important way to help poor communities access cleaner fuels and technologies.



## Structure and Content

- Section 1 Key Messages: outlines the scope and methods of the report, and briefly discusses health co-benefits, "win-win" strategies for health and mitigation;
- Section 2 Background and Rationale: reviews the health co-benefits of key energy efficiency mitigation strategies;
- Section 3 Summary of Initial Findings: summarizes key points in the report, and discusses several IPCC strategies to reduce cooking energy needs.

## Additional Information

The report is one in a Health in the Green Economy series led by WHO's Department of Public Health and Environment. Other reports in the series focus on transport, housing, agriculture and health care facilities.

# Health in the Green Economy. Co-benefits to Health of Climate Change Mitigation. Occupational Health / Initial Findings – Discussion Draft. Executive Summary.

Go to Document

Organization(s)	Language	Type of Material
WHO	English	Other
Year of Publication		General Audiences
2011		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This document seeks to anticipate green technologies' consequences for occupational health and safety, including hazards or risks they may present. The goal is to remove impediments to the dissemination and adoption of green technologies and to reduce avoidable risks for workers. This document identifies remediable hazards and manageable risks as well as the strategies to manage them so green technologies can be implemented without compromising worker health.

## Structure and Content

- Section 1 Key Messages: briefly discusses potential health gains as well as risks for workers in a green economy, including mitigation and management;
- Section 2 Improving Health Equity: outlines some mitigation measures and their respective health co-benefits;
- Section 3 Background and Rationale: outlines the scope and methods of the report, and gives a brief introductory background;
- Section 4 Summary of Initial Findings: summarizes key points in the report;
- Section 5 Conclusions: outlines the report's conclusions;
- Appendix Summary Table: Appraisal of Occupational Health Implications of Selected Mitigation Strategies Assessed by IPCC: discusses several mitigation strategies.

## Additional Information

The report is one in a Health in the Green Economy series led by WHO's Department of Public Health and Environment. Other reports in the series focus on transport, housing, agriculture and health care facilities.





# Health in the Green Economy. Health Co-benefits of Climate Change Mitigation – Transport Sector

[Go to Document](#)

Organization(s)	Language	Type of Material
WHO	English	Guidance Document/Handbook
Year of Publication		General Audiences
2011		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

Cycling, walking and rapid transit systems are associated with a wide range of potential health benefits that climate assessment needs to consider more systematically. This report draws on an extensive review of nearly 300 peer-reviewed and health-relevant scientific articles and reports examining the health impacts of mitigation strategies implemented in real-life settings, as well as evidence on transport-related risk factors. Existing tools for assessing health impacts of transport decisions are illustrated as well as case studies of climate and health-friendly transport policies. The review was limited to land transport, which has the greatest impacts on health as well as the largest share of transport's GHG emissions.



## Structure and Content

Introduction	Discusses background and rationale for the report, its outline, and its scope and methods;
Chapter 1	The Transport Sector, Climate and Environmental Change: gives an overview of the transport sector's contributions to climate and environmental change;
Chapter 2	Summary of Health Impacts of Transport: discusses key pathways by which transport can affect health;
Chapter 3	Evaluating Health Benefits of Transport-related Greenhouse Gas Reduction Strategies: reviews the health co-benefits, or risks, of key transport mitigation strategies, focusing on the IPCC's three main categories of transport mitigation strategies;
Chapter 4	Achieving Win-win Health and Transport Mitigation Strategies: summarizes strategies that appear to have the best potential to achieve win-win outcomes for both health and climate;
Chapter 5	Tools for Assessing, Planning and Financing Healthy Transport Interventions: reviews tools for assessing, planning and financing healthy, low-emission transport systems;
Chapter 6	Case Studies: describes case studies of transport strategies that pursue both health and climate objectives;
Chapter 7	Conclusions and Recommendations: discusses opportunities to improve health through healthy transport systems, gaps in IPCC analysis, tools and strategies for healthy transport, and future work.

## Additional Information

The report is one in a Health in the Green Economy series led by WHO's Department of Public Health and Environment. Other reports in the series focus on transport, household energy in developing countries, agriculture and health care facilities.

# Heat Waves, Floods and the Health Impacts of Climate Change: A Prototype Training Workshop for City Officials

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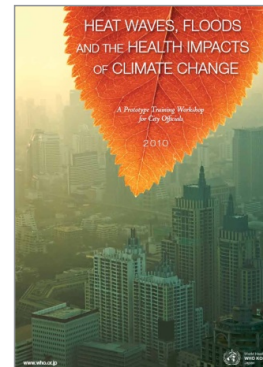
Organization(s)	Language	Type of Material
WHO	English	Training Manual/Material
Year of Publication		General Audiences
2010		Technical Staff/Practitioners

## Value of Learning Resource

This training manual serves as a prototype training workshop for city officials and is used in conjunction with the WHO book *Climate Change and Human Health: Risks and Responses*. It is divided into 11 sessions, covering the interconnectedness of climate change and human health, monitoring of effects, assessment of vulnerability and adaptive capacity, and planning of public health interventions to address climate change and its health impacts. It offers diverse learning tools that include quizzes, activities and worksheets.

## Structure and Content

- Session 1 An Overview of Climate Change and Human Health: Risks and Responses: helps learners understand key terms and concepts on climate change and human health;
- Session 2 Health Situation in Cities: helps learners understand data on local health situations, and analyse climate change factors that affect health;
- Session 3 Weather, Climate and Climate Change: helps learners understand the Greenhouse effect, and recognize changes in the climate in the past, present and future;
- Session 4 Health Impacts of Climate Extremes: helps learners identify potential health impacts of climate extremes;
- Session 5 Climate Change and Infectious Diseases: helps learners understand the link between climate change and infectious diseases;
- Session 6 How Much Disease Could Climate Change Cause?: helps learners determine the magnitude of health impacts of climate change;
- Session 7 Stratospheric Ozone Depletion: helps learners understand interactions between ozone depletion and greenhouse gas-induced warming, and the effects that ozone depletion and increased exposure to ultraviolet radiation have on health;
- Session 8 Monitoring Health Impacts of Climate Change: helps learners understand the basics, tools and nuances of monitoring health impacts of climate change;
- Session 9 Public Health Research Focus in Studying Climate Change: helps learners understand public health research studying the health impacts of climate change;
- Session 10 Assessing Community Vulnerability and Adaptive Capacity: helps learners understand the concepts, determinants and tools of community vulnerability and adaptive capacity;
- Session 11 Planning Public Health Interventions to Address Climate Change and Its Health Impacts: helps learners develop plans for public health interventions that address health impacts of climate change.



## Additional Information

The learner will also be using resources from the Intergovernmental Panel on Climate Change (IPCC), and reports from the World Health Organization (WHO).

## Heat-Health Action Plans

[Go to Document](#)

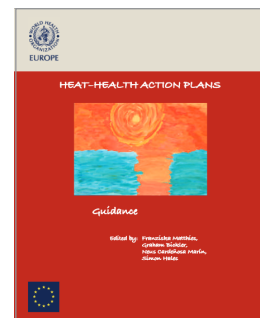
<a href="#">Organization(s)</a>	<a href="#">Year of Publication</a>	<a href="#">Type of Material</a>
WHO Regional Office for Europe	2008	Guidance Document/Handbook
	<a href="#">Language</a>	<a href="#">General Audiences</a>
	English	Technical Staff/Practitioners; Decision Makers

### Value of Learning Resource

The guide is a result of the EuroHEAT project on improving public health responses to extreme weather/heat-waves. It explains the importance of the development of heat–health action plans, their characteristics and core elements, with models for interventions and practical examples from several European countries that have begun their implementation and evaluation.

### Structure and Content

- Section 1 Introduction: discusses climate change, heat-waves and public health responses, and explains how to use this guide;
- Section 2 Heat and Health: discusses short-term relationships between temperatures and health outcomes as well as the interaction between heat and air pollution, and identifies vulnerable population groups;
- Section 3 Heat-health Action Plans: provides general principles for the development of heat-health action plans and explains core elements that are important for successful implementation of such plans.



# Heat-waves: Risks and Responses

[Go to Document](#)

Organization(s)	Year of Publication	Type of Material
WHO Regional Office for Europe	2004	Analytical/Technical Document
	Language	General Audiences
	English	Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This report reviews current knowledge about the effects of heat-waves, including the physiological aspects of heat illness and epidemiological studies on excess mortality, explores potential strategies to reduce vulnerability to thermal stress, and makes recommendations for preventive action.

## Structure and Content

- Section 1 Introduction: briefly describes the purpose of this report;
- Section 2 Climate Change and Temperature Extremes: discusses observed changes in the frequency and intensity of heat-waves, and explores heat-waves in the context of future climate change;
- Section 3 The Impact of Heat on Human Health: explores the physiological aspects of temperature regulation, and explains the epidemiological studies of heat;
- Section 4 Heat Health Warning Systems: explores methods used by heat health warning systems, discusses heat stress indicators and public health responses, presents a survey of heat health warning systems in Europe and provides case studies and recommendations;
- Section 5 Urban Bioclimatology: explores urban planning, design and architecture as measures to reduce urban heat islands, and the heat stress on individuals living in cities. It also discusses several other climate change mitigation approaches;
- Section 6 Conclusions and Recommendations: provides recommendations and conclusions for the research community, public health agencies and meteorological services and sectors involved in housing and urban planning and design.



## Additional Information

This publication summarizes the main findings of reviews carried out within the cCASHh (Climate Change and Adaptation Strategies for Human Health) project, coordinated by the WHO Regional Office for Europe.

# How Is Climate Change Affecting Our Health? A Manual for Teachers

## Go to Document

Organization(s)	Year of Publication	Type of Material
WHO Regional Office for South-East Asia	2008	Training Manual/Material
	Language	General Audiences
	English	General Public

### Value of Learning Resource

This manual intends to raise awareness of the linkages between climate change and human health. Students learn the reasons behind the changes going on, how they affect each human being in a way of the other, the current and future effects and how to respond to them. This manual is designed for teachers and is a training resource to support spreading the information via interactive classroom activities. It is complemented by a manual for students. This is for students to take home, study and share information about climate change and its impact on human health with their families.



### Structure and Content

- 1 Introduction: briefly describes the purpose of the document;
- 2 Climate Change in Our Region: provides quick facts about climate change and health and introduces key definitions and concepts, and the major health impacts of climate change;
- 3 Impacts of Climate Change: How Does It All Relate to Me?: describes the impacts of climate change on health, and provides reasons why health should be at the heart of climate change discussions;
- 4 What Can We Do to Make a Difference?: provides examples of mitigation measures to adopt at local levels.

### Additional Information

Additional chapters in this manual are annexes with “Food for Thought” questions, case studies, activities and a glossary. A version of this manual designed to be used by youngsters with their families, including additional activities that could be carried out outside school hours, is available at the following link: <http://www.unclearn.org/sites/www.unclearn.org/files/inventory/WHO04.pdf>

# Our Planet, Our Health, Our Future. Human Health and the Rio Conventions. Biological Diversity, Climate Change and Desertification

[Go to Document](#)

Organization(s)	Language	Type of Material
WHO	English	Analytical/Technical Document
Year of Publication		General Audiences
2012		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This discussion paper reviews the scientific evidence for the linkages between health and biodiversity, climate change and desertification, the representation of health in the corresponding Rio Conventions, and the opportunities for more integrated and effective policy. Drawing on this analysis, the report concludes with a series of recommendations, for the Conventions and to the health sector, to enhance recognition of the relationships between human health and environmental change. A sub-chapter (3.3) of this report discusses mitigation of climate change and its co-benefits for health, presenting potential health gains through mitigation in key sectors, and economic gains from health co-benefits.



## Structure and Content

- Section 1 Introduction: Healthy Planet, Healthy People: provides background information on human health and the environment, and presents determinants of health in the context of the Rio Conventions;
- Section 2 Convention on Biological Diversity (CBD): presents inter-linkages between biodiversity and health, discusses the value of ecosystems for health, the status of health in the CBD, and its operational mechanisms, and opportunities for better linkage of biodiversity and health goals;
- Section 3 United Nations Framework Convention on Climate Change (UNFCCC): discusses the impacts of climate change on health, mitigation of climate change and its co-benefits for health, the status of health in the UNFCCC process, and its operational mechanisms, as well as opportunities for better linkage of climate and health goals;
- Section 4 Convention to Combat Desertification (UNCCD): discusses desertification and its interactions with sustainable development, the effects of desertification, land degradation and drought on human health, and health within the UNCCD highlighting opportunities to improve health and address desertification;
- Section 5 Integrating Health and Global Environmental Change into Sustainable Development: discusses the role of the Rio Conventions in health, the unfinished agenda of the Millennium Development Goals, and opportunities for the future of sustainable development.

# Mainstreaming Gender in Health Adaptation to Climate Change Programmes

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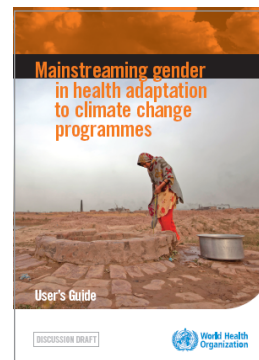
<a href="#">Organization(s)</a>	<a href="#">Language</a>	<a href="#">Type of Material</a>
WHO	English	Guidance Document/Handbook
<a href="#">Year of Publication</a>		<a href="#">General Audiences</a>
2012		Technical Staff/Practitioners

## Value of Learning Resource

This guide targets programme managers who work in climate change and health adaptation, providing them with practical information and concrete guidance to mainstream gender throughout all four phases of the project cycle: identification, formulation and design, implementation, and monitoring and evaluation.

## Structure and Content

- Section 1 What Is Gender and Why Does It Matter?: explains key gender concepts and discusses how they intersect with health;
- Section 2 Understanding Gender Dimensions of Health and Climate Change: discusses the health impacts of climate change, and how gender is a factor in those impacts, as well as its relation to vulnerability and adaptive capacity to climate change;
- Section 3 Mainstreaming Gender in Health Adaptation to Climate Change Programmes: introduces gender analysis, and provides practical guidance to mainstream gender within the climate change and health adaptation programme cycle.





# Protecting Health from Climate Change: Connecting Science, Policy and People

[Go to Document](#)

<a href="#">Organization(s)</a>	<a href="#">Language</a>	<a href="#">Type of Material</a>
WHO	English	Guidance Document/Handbook
<a href="#">Year of Publication</a>		<a href="#">General Audiences</a>
2009		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This report provides an overview of the science of climate change and human health, and describes the most recent evidence on health risks caused by climate change, potential risks of climate change, and the most vulnerable populations. The report also summarizes necessary steps to put health at the heart of the climate change agenda and create healthy, low-carbon communities.



## Structure and Content

- Section 1 What Are the Risks?: discusses climate change in the past and future, and its impact on the fundamentals of health, including infections and long-term stresses;
- Section 2 Who Is at Risk?: identifies vulnerable regions and populations;
- Section 3 What Needs to Be Done?: describes actions that need to be done to put health at the heart of the climate change agenda, and create healthy, low-carbon communities.

# Protecting Health from Climate Change: Global Research Priorities

[Go to Document](#)

<a href="#">Organization(s)</a>	<a href="#">Language</a>	<a href="#">Type of Material</a>
WHO	English	Guidance Document/Handbook
<a href="#">Year of Publication</a>		<a href="#">General Audiences</a>
2009		Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This report aims at providing guidance on the most important contributions that the global research community can make to help protect human health from the impacts of climate change. It describes the results of an international consultation with researchers, research donors, public health practitioners and representatives of partner agencies within and outside the United Nations system.

## Structure and Content

- Section 1 Recommendations for the Global Research Community: describes risk assessment, identifies the most effective interventions to address health risks arising from climate change, provides guidance on health-promoting mitigation and adaptation decisions in other sectors, describes decision-support tools, and discusses the costs of protecting health from climate change;
- Section 2 Implementing the Agenda: Partnerships for Climate Change and Health Research: explains the importance of multidisciplinary research and collaboration for a better understanding of climate change and health, and provides suggested steps for research and implementation.

## Additional Information

This report provides recommendations for the global research community on key concepts of risk assessment that would, in turn, improve vulnerability and adaptation assessments.



# Protecting Health from Climate Change: The Global Response

[Go to Document](#)

Organization(s)	Language	Type of Material
WHO	English	Other
Year of Publication		General Audiences
2009		Decision Makers

## Value of Learning Resource

This presentation aims at explaining the role of health in pushing effective adaptation and mitigation measures. It uses specific examples illustrated by figures and graphics to explain the global health impacts of climate change, and explores the important role of health in the mitigation of and adaptation to climate change.

## Structure and Content

- Section 1 Why Do We Need a Global Health Response?: explains the impacts of climate change on global health;
- Section 2 What Can Health Bring to the Climate Change Table?: explores several areas where health can contribute to climate change adaptation and mitigation.



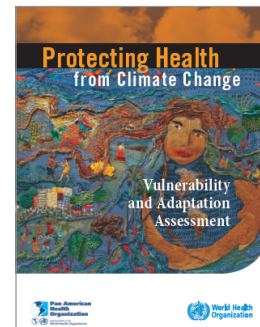
# Protecting Human Health from Climate Change: Vulnerability and Adaptation Assessment

[Go to Document](#)

Organization(s)	Language	Type of Material
WHO	English	Guidance Document/Handbook
Year of Publication		General Audiences
2012		Technical Staff/Practitioners

## Value of Learning Resource

This document aims at providing basic and flexible guidance on conducting a national or sub-national assessment of current and future vulnerability (i.e. the susceptibility of a population or region to harm) to the health risks of climate change, and of policies and programmes that could increase resilience, taking into account the multiple determinants of climate-sensitive health outcomes. It details the process of conducting a vulnerability and adaptation assessment including the initial framing, assessing, implementing interventions, and monitoring.



## Structure and Content

- Section 1 Introduction: provides background information on the adverse health effects of climate change, discusses climate change as one of many determinants of health, and introduces a framework for conducting V&A assessments;
- Section 2 Steps in Conducting a Vulnerability and Adaptation Assessment:
- Step 1 - Frame and Scope the Assessment: provides the basics of framing and scoping that include understanding the geographical, health outcome, and the policy context of the assessment, as well as identifying key questions to be addressed, establishing a project team, a stakeholder process, a management and a communication plan.
  - Step 2 - Conducting the Vulnerability and Adaptation Assessment: describes the human health risks of current climate variability and recent climate changes, and the public health policies and programmes to address the risks.
  - Step 3 - Understanding Future Impacts on Health: projects future health risks and impacts under climate change.
  - Step 4 - Adaptation to Climate Change: Prioritizing and Implementing Health Protection: identifies and prioritizes policies and programmes to address current and projected health risks.
  - Step 5 - Establish an Iterative Process for Managing and Monitoring the Health Risks of Climate Change: presents the key components of an iterative management process of climate-related health risks.
- Section 3 Conclusion: discusses the document and provides a conclusion.

# Taking into Account Health to Enhance Mitigation Ambition

Go to Document

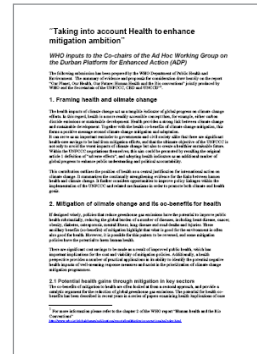
Organization(s)	Language	Type of Material
WHO	English	Other
Year of Publication		General Audiences
2012		Decision Makers

## Value of Learning Resource

This is a submission to the UNFCCC prepared by the WHO providing a summary of evidence and proposals for consideration with regards to the health co-benefits of climate change mitigation. The report presents potential health gains through mitigation, potential economic gains from health co-benefits, and opportunities for better linkage of climate and health goals.

## Structure and Content

- Section 1 Framing Health and Climate Change: briefly summarizes the link between human health and climate change;
- Section 2 Mitigation of Climate Change and Its Co-benefits for Health: discusses health and cost co-benefits of mitigation policies;
- Section 3 Potential Health Gains through Mitigation in Key Sectors: briefly presents co-benefits of mitigation from different sectoral perspectives;
- Section 4 Economic Gains from Health Co-benefits: presents supporting studies on economic gains from health co-benefits;
- Section 5 Opportunities for Better Linkage of Climate and Health Goals: discusses opportunities and recommendations for better linkage of climate and health goals by linking health to mitigation and adaptation efforts, and through health impact assessments.



# The Health Benefits of Tackling Climate Change. An Executive Summary for the Lancet series

[Go to Document](#)

## Organization(s)

WHO, Department of Health, National Institute for Health Research; the Royal College of Physicians; The Academy of Medical Sciences; The Economic and Social Research Council; The US National Institute of Environmental Health Sciences; Wellcome Trust.

## Language

English

## Type of Material

Other

## Year of Publication

2009

## General Audiences

Technical Staff/Practitioners; Decision Makers

## Value of Learning Resource

This article combines studies undertaken by an international team of public health, environmental, and other researchers, studying five different sectors where greenhouse gas emissions need to be reduced: household energy emissions, urban land transport, low-carbon electricity generation, agriculture and food, and short-lived greenhouse pollutants, and examines the health implications of actions in both high-income and low-income countries designed to reduce the release of carbon dioxide and other greenhouse gases. The findings of the article show that measures to restrict output of greenhouse gases may also result in benefits to public health, and that these co-benefits will offset at least some of the costs of climate change mitigation.



## Structure and Content

- Section 1 Introduction: briefly describes the purpose of the article;
- Section 2 Household Energy Emissions: discusses household energy use in rich and poor settings, presents studies conducted in the UK and in India designed to improve household energy efficiency, and discusses their findings in terms of health benefits;
- Section 3 Urban Land Transport: presents analyses of transport patterns in London and Delhi, and discusses benefits for health of emissions reduction through less motor vehicle use;
- Section 4 Low-carbon Electricity Generation: presents a study that uses a method of anticipating energy demand by region, and discusses its benefits for health;
- Section 5 Agriculture and Food: presents a study implementing changes in farming practices to reduce emissions, and discusses its benefits for health;
- Section 6 Short-lived Greenhouse Pollutants: discusses the health benefits of reducing short-lived greenhouse pollutants;
- Section 7 Policy Implications and Call to Action: summarizes findings of the article, presents limitations and recommendations.

# The Health Impact of Extreme Weather Events in Sub-Saharan Africa

Go to Document

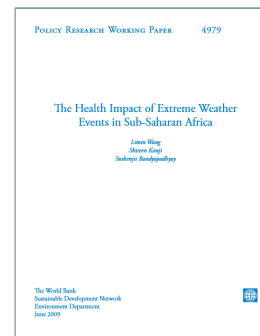
Organization(s)	Language	Type of Material
The World Bank	English	Other
Year of Publication		General Audiences
2009		Technical Staff/Practitioners

## Value of Learning Resource

This paper quantifies the impact of extreme rainfall and temperature events on the incidence of diarrhoea, malnutrition and mortality in young children across 19 countries in Sub-Saharan Africa in the period between 1992 and 2001.

## Structure and Content

- Section 1 Introduction: provides background information and research about the existing understanding of the health impacts of climate change as well as an outline of the paper;
- Section 2 Previous Research on the Effects of Weather on Health Outcomes: presents some of the existing evidence on how climate change and its variations impact the health indicators used in this study;
- Section 3 Data and Methods: describes the data and the variables;
- Section 4 Analytical Framework: describes the analytical strategy;
- Section 5 Summary Statistics: discusses variable descriptive statistics and weather patterns;
- Section 6 Results and Interpretations: presents the results of study analyses of the effects of extreme climate events on child health outcomes;
- Section 7 Health Impact Simulation for 2020: simulates the economic cost of a projected increase in weather variability in terms of cases of diarrhoea;
- Section 8 Conclusion: concludes with some policy recommendations based on the results of the study.



## Additional Information

This is a policy research working paper, a product of the Environment Department, Sustainable Development Network, and is part of a larger effort in the department.



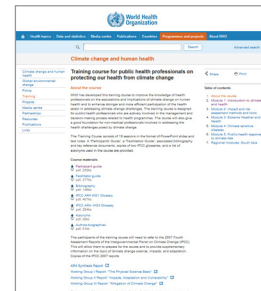
# Training Course for Public Health Professionals on Protecting Our Health from Climate Change

[Go to Document](#)

<a href="#">Organization(s)</a>	<a href="#">Year of Publication</a>	<a href="#">Type of Material</a>
WHO Regional Office for South-East Asia	2011	Training Manual/Material
	<a href="#">Language</a>	<a href="#">General Audiences</a>
	English	Technical Staff/Practitioners

## Value of Learning Resource

This training material aims to improve the knowledge of health professionals on the associations and implications of climate change on human health, and to enhance stronger and more efficient participation of the health sector in addressing climate change challenges. It also gives a good foundation for non-medical professionals involved in addressing the health challenges posed by climate change.



## Structure and Content

The course consists of 19 sessions in the format of PowerPoint slides and text notes. A “Participants’ Guide”, a “Facilitators’ Guide”, associated bibliography and key reference documents, copies of two IPCC glossaries, and a list of acronyms used in the course are provided.

- Chapter 1 Climate Change and Health: Introduction and Overview: provides an introduction to global environmental change and the issues that will be covered in the course;
- Chapter 2 Weather, Climate, Climate Variability and Climate Change: defines terms, discusses climate change and how it has been determined that humans are influencing the climate, shows some of the climatic changes that have occurred to date and how climate change will affect the weather for decades to centuries;
- Chapter 3 Population’s Health and Climate Change in South-East Asia: explores South East Asia’s disposition to disaster, exacerbating the current burden of disease;
- Chapter 4 Overview of the Health Impacts of Climate Change: reviews the major health impacts of climate change, including increases in the frequency and intensity of extreme weather events, alterations in the transmission dynamics of food-, water-, and vector-borne diseases, and changes in the concentrations of air pollutants;
- Chapter 5 Policy Responses to Address the Risks of Climate Change: reviews adaptation and mitigation policies to manage the risks of climate change;
- Chapter 6 Analysing the Health Impacts of Weather, Climate and Climate Change: provides epidemiologic methods for analysing associations between weather and weather patterns and health outcomes;
- Chapter 7 Modelling the Health Impacts of Climate Change: defines and discusses the scenarios used for projecting climate change, and reviews the approaches taken for modelling the potential health impacts of climate change;
- Chapter 8 Estimating the Burden of Disease from Climate Change: outlines steps involved in estimating the burden of disease from climate change and presents worked examples for several of the health impacts described in the WHO global assessment of the burden of disease from climate change. It also presents overall results from this assessment, and describes their usefulness, and limitations, for informing policy;

- Chapter 9 Thermal Extremes: describes key concepts on how to identify thermal extremes, who is vulnerable during thermal extremes, methods for assessing the health risk and impacts of thermal extremes, the current health impact of thermal extremes, the potential impact of climate change, and the potential for adaptation to minimize future health risks and impacts;
- Chapter 10 Extreme Weather Events: explores categories of extreme weather events considered, how extreme weather events threaten public health, the nature of public health impacts with extreme weather events, current health risks and impacts from extreme weather events in South East Asia, and future risks and potential health impacts;
- Chapter 11 Water Stress, Water- and Food-borne Diseases: discusses water quantity and quality, the burden of diarrhoeal disease, and how climate and weather affect diarrhoeal diseases and food and waterborne pathogens;
- Chapter 12 Vector Borne Diseases and Climate Change: explores vector borne and zoonotic diseases of concern, the current burden of disease, exposure-response relationships, the evidence that the risks have been changing with climate change, and projections of future changes in risk;
- Chapter 13 Food Security and Malnutrition: defines terms, explores food insecurity and its causes, how climate change is likely to affect crop production and food security, how climate change and other forms of global change are likely to affect future crop production and food security, how climate change is already affecting food security, the burden of disease due to under-nutrition, and causes of food insecurity;
- Chapter 14 Global Change, Air Quality and Human Health: provides an introduction to climate and air quality, explores the characteristics and health effects of major anthropogenic air pollutants, exposure-response relationships, the global burden of disease due to air pollution, the effect of climate change on air pollution, observed trends, integrated modelling, and co-benefits assessment;
- Chapter 15 What Makes Individuals and Populations Vulnerable to the Effects of Climate Change?: defines terms, discusses the causes of vulnerability to disease and injury resulting from climate change, describes current and past examples of vulnerability to effects of heat, famine and storms, and points to opportunities to reduce vulnerability and improve population health;
- Chapter 16 Public Health Adaptation to the Health Risks of Climate Change: explores public health approaches to manage the risks of climate change;
- Chapter 17 Early Warning Systems: describes the use of early warning systems for health outcomes sensitive to climate variability;
- Chapter 18 Regional Action Plan for South-East Asia: describes the vulnerability of South-East Asia (SEA) countries and the regional consensus on need for climate action, as well as the national climate action plans;
- Chapter 19 Role of the Health Sector in International Climate Change Negotiations: discusses the UNFCCC and the Nairobi Work Plan, National Adaptation Programmes of Action or NAPAs, Bali Action Plan, The Global Environment Facility or GEF, Health in the Climate Change Negotiations, and the WHO Global Action Plan 2009.

#### Additional Information

The participants of the training course will need to refer to the 2007 Fourth Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC). This will allow them to prepare for the course and to provide supplementary information on the topic of climate change science, impacts, and adaptation.

# Using Climate to Predict Infectious Disease Epidemics

[Go to Document](#)

<a href="#">Organization(s)</a>	<a href="#">Language</a>	<a href="#">Type of Material</a>
WHO	English	Guidance Document/Handbook
<a href="#">Year of Publication</a>		<a href="#">General Audiences</a>
2005		Technical Staff/Practitioners

## Value of Learning Resource

This document evaluates the potential of climate-based disease early warning as a means of improving preparedness for, and response to, epidemics, and provides guidance on the potential of early warning systems (EWS) based on climate variations to enhance global surveillance and response to epidemic-prone diseases. This document also provides a conceptual framework for constructing and evaluating climate-based EWS. The authors identify the climate-sensitive diseases of major public health importance and review the current state of the art in climate-based modelling of these diseases, as well as future requirements and recommendations.



## Structure and Content

- Section 1 Introduction: provides background information on the epidemic of infectious diseases and its relation to climate, and introduces three principal pathways by which climate directly impacts infectious diseases;
- Section 2 Lessons from Historical Early Warning Systems: discusses historical early warning systems studies, and gives examples of famine early warning systems and their geographical coverage;
- Section 3 Conceptual Framework for Developing Climate-based Early Warning Systems for Infectious Diseases: explains the different phases and steps to develop climate-based early warning systems;
- Section 4 Identifying Candidate Diseases for Early Warning Systems: examines some diseases that have been selected for further examination following the preliminary steps outlined in this document;
- Section 5 Climate-based Early Warning Systems for Infectious Diseases: presents an overview of the diseases highlighted in section 4 with respect to their climate sensitivity and the existence of or potential for the development of EWS following the framework previously presented;
- Section 6 General Discussion and Conclusions: summarizes the document, and provides a number of likely explanations for why climate-based systems are not widely used and reported, and proposes ways to address these issues. It also provides a conclusion.

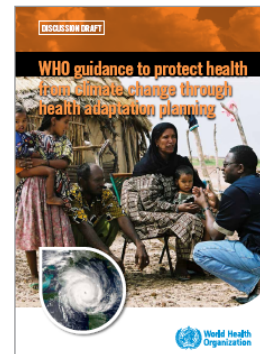
# WHO Guidance to Protect Health from Climate Change through Health Adaptation Planning

[Go to Document](#)

<a href="#">Organization(s)</a>	<a href="#">Language</a>	<a href="#">Type of Material</a>
WHO	English	Guidance Document/Handbook
<a href="#">Year of Publication</a>		<a href="#">General Audiences</a>
2013		Technical Staff/Practitioners

## Value of Learning Resource

This guide targets decision makers in charge of planning adaptation actions for health protection from climate variability and change. It aims at ensuring that the health and environment sector follows a systematic process to: 1. Engage in the overall National Adaptation Plan (NAP) process at the national level; 2. Identify national strategic goals for building health resilience to climate; 3. Develop a national plan with prioritized activities to achieve these goals, within a specific time period and given available resources. The guidance also outlines the process to be followed to ensure these goals are achieved. In addition, further guidance on how to plan for building climate resilient health systems at country level is provided.



## Structure and Content

- Section I Overview of the NAP Process and Purpose of the Guidance: provides an overview of the National Adaptation Plan (NAP) process;
- Section II Health within the NAP Process: the Health National Adaptation Process (HNAP): explains the process that has to be put in place in order to ensure that health sector's response to the adverse health impacts of climate change is designed and implemented in a systematic and coordinated way within the overall national adaptation process;
- Section III Principles of the Health Adaptation Process: outlines 9 principles stated in the Least-developed Countries Expert Group (LEG) guidance for the overall NAP process as followed by the HNAP process;
- Section IV Key Concepts in Health Adaptation to Climate Change: presents key concepts concerning health adaptation to climate change;
- Section V The Health Adaptation Process: Elements and Steps: describes four elements and a number of proposed steps for the health adaptation process, through laying groundwork, stock-taking and addressing gaps in adaptation capacity, preparatory elements, implementation strategies, as well as reporting, monitoring and review.

# ANNEX 1

## Selected Non UN Written Resources and Training Courses

### Learning Topic 1

### Health Impacts of Climate Change

#### Accounting for Health Impacts of Climate Change

Asian Development Bank (ADB) & Swedish International Development Cooperation Agency (SIDA), 2011

This report, which is based on a study of the impacts of climate change on health in several countries in Asia, highlights the vulnerability to projected adverse impacts of climate change of Asian and Pacific population at a local, national and global level.

<http://www.adb.org/publications/accounting-health-impacts-climate-change>

#### Climate Change and Health: Framing the Issue

Accenture, GlaxoSmithKline & Oxford, 2011

This report summarizes what is already known in the field about the impact of climate change on health, especially in the developing world, and elicits more research to bridge the knowledge gaps in understanding these issues.

<http://www.gsk.com/content/dam/gsk/globals/documents/pdf/climate-change.pdf>

#### Climate Change Futures. Health, Ecological and Economic Dimensions

The Center for Health and the Global Environment & Harvard Medical School, 2006

This report examines an array of risks people face (both physical and biological) as a result of climate change. The report highlights the fact that climate changes have an effect on health, which in turn would have economic consequences.

[http://coralreef.noaa.gov/aboutcrcep/strategy/reprioritization/wgroups/resources/climate/resources/cc\\_futures.pdf](http://coralreef.noaa.gov/aboutcrcep/strategy/reprioritization/wgroups/resources/climate/resources/cc_futures.pdf)

#### A Human Health Perspective on Climate Change. A Report Outlining the Research Needs on the Human Health Effects of Climate Change

Environmental Health Perspectives and the National Institute of Environmental Health Sciences, 2010

This report is organized around 11 broad human health categories likely to be affected by climate change, and in each category, a brief synopsis of what is known about the relationship between climate change; mitigation, and adaptation; effects on the risk, incidence, severity, or characteristics of the specific diseases or disorders; the major research needs and questions that must be addressed; and in some cases, an indication of the specific skills and capacities that will be needed to facilitate the research.

[http://www.niehs.nih.gov/health/assets/docs\\_a\\_e/climaterreport2010.pdf](http://www.niehs.nih.gov/health/assets/docs_a_e/climaterreport2010.pdf)

## Human Health and Global Environmental Change

HarvardX

This online course is open to anyone interested. It explores global environmental changes, and examines their causes and the health consequences. It attempts to engage students in thinking about their solutions. Upon completion of the course, students will be awarded certificates.

<https://www.edx.org/course/harvard-university/ph278x/human-health-and-global/573>

## Climate Change and Health

next GenU.org

This Climate Change and Health Certificate teaches about the effects of climate change on human health through online didactics in the form of an online study and peer-to-peer activities. One of the four modules featured in this course provides an overview of how climate change is affecting public health.

<https://www.nextgenu.org/course/view.php?id=73#>

## Learning Topic 2

# Health-related Vulnerability and Adaptation (V&A) Assessments

### Climate Change and Health

next GenU.org

This Climate Change and Health Certificate teaches about the effects of climate change on human health through online didactics in the form of an online study and peer-to-peer activities. One of the four modules featured in this course provides some strategies to predict and communicate climate change, with a look into vulnerability and adaptation assessments.

<https://www.nextgenu.org/course/view.php?id=73#>



## Learning Topic 5

# National Strategies and Action Plans on Health Adaptation to Climate Change

### Accounting for Health Impacts of Climate Change

Asian Development Bank (ADB) & Swedish International Development Cooperation Agency (SIDA), 2011

The report, which is based on a study of the impacts of climate change on health in several countries in Asia, presents several key messages, which include a discussion on the importance of planning adaptation investments in the health sector when strategizing climate change adaptation, accounting for health benefits of adaptation investments in agriculture, water and disaster risk reduction in the design and economic analysis of investments, and lastly the importance of communication by climate experts, health experts, and economists to ensure better project integration.

<http://www.adb.org/publications/accounting-health-impacts-climate-change>

### Climate Change and Health

Commission on Climate Change and Development, 2009

This paper provides solid recommendations for adaptation planning that accounts for both short term climate variability, and for long term consideration by ensuring system resilience and adaptability to changing risk, as well as mitigation.

<http://www.climatecentre.org/downloads/Climate%20change%20and%20health.pdf>

### Conveying the Human Implications of Climate Change. A Climate Change Communication Primer for Public Health Professionals

Maibach, E., Nisbet, M & Weathers, M; George Mason University, Center for Climate Change Communication, 2011

This primer was developed to help public health professionals communicate the health implications of climate change to the public, to policy makers and to other professionals whose work is – or will be – affected by climate change. Its three main sections address the WHY, with WHOM and HOW to most effectively communicate these issues.

<http://www.climatechangecommunication.org/images/files/4C%20Communication%20Primer%20-%20Conveying%20the%20Human%20Implications%20of%20Climate%20Change.pdf>

### Adapting to Climate Change. Public Health

Samet, JM., Resources for the Future, 2009

This paper addresses the projected health consequences of climate change, reviewing the projected adverse effects, the diverse strategies that might mitigate these effects, and the potential effectiveness of these strategies. It addresses temperature, aeroallergens and allergic diseases, air pollution, and infectious diseases.

<http://www.rff.org/RFF/Documents/RFF-Rpt-Adaptation-Samet.pdf>



## Climate Change and Health

next GenU.org

This Climate Change and Health Certificate teaches about the effects of climate change on human health through online didactics in the form of an online study and peer-to-peer activities. One of the four modules featured in this course provides suggestions on how we can adapt to and mitigate the effects of climate change.

<https://www.nextgenu.org/course/view.php?id=73#>

## Learning Topic 7

# Engagement with Other Health-determining Sectors

### Public Health Benefits of Strategies to Reduce Greenhouse Gas Emissions

Professor Sir Andy Haines, London School of Hygiene & Tropical Medicine, 2009

This publication examines policies aimed at mitigation, and the health implications of those policies. It provides assessments of mitigation strategies in the household energy, transport, food and agriculture, and electricity generation domains, and the significant effect that reducing greenhouse gas emissions can have on human health.

[http://unfccc.int/files/methods\\_and\\_science/research\\_and\\_systematic\\_observation/application/pdf/09\\_haines\\_public\\_health.pdf](http://unfccc.int/files/methods_and_science/research_and_systematic_observation/application/pdf/09_haines_public_health.pdf)



# About UN CC:Learn

UN CC:Learn is a partnership of 33 multilateral organizations which supports Member States in designing and implementing results-oriented and sustainable learning to address climate change. The Secretariat for UN CC:Learn is provided by the UN Institute for Training and Research (UNITAR). One of the objectives of UN CC:Learn is to facilitate access to existing climate change learning materials and to support the development of complementary learning resources, as appropriate. The publication of Advanced Learning Packages on Priority Topics of Climate Change (ALPs) contributes to this objective. ALPs are compiled for selected topics of climate change that have been identified as important topics from a country perspective. Core funding for the 2011-2013 implementation phase of UN CC:Learn is provided by the Swiss Government. For further information please contact: [uncclearn@unitar.org](mailto:uncclearn@unitar.org)

[www.uncclearn.org](http://www.uncclearn.org)

Funding for the 2011-2013 UN CC:Learn pilot implementation phase is provided by the Government of Switzerland.



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Swiss Confederation

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and Cooperation SDC

