Piloting Climate Change Adaptation to Protect Human Health

A joint WHO/UNDP project funded by the Global Environment Facility (GEF)
Goal of the Proposed Project

'To implement a range of strategies, policies, and measures that will decrease health vulnerability to current climate variability and future climate change in a range of countries with different health risks'

The project will work directly with developing countries to design and implement practical measures to protect health under a rapidly changing climate.
Project Rationale

- Strong evidence of past and future climate change.
- Established links between climate change and health.
- Major health vulnerabilities to climate change, including variability in developing countries.
- Need for adaptation measures to protect human health under climate change, including variability.
Evidence of Past Climate Change

Global Temperature: Land-Ocean Index

Temperature Anomaly (°C)

-4 -2 0 0.2 0.4 0.6

1880 1900 1920 1940 1960 1980 2000

Annual Mean
5-year Mean

NASA, GISS, 2006
Variations of the Earth’s surface temperature: year 1000 to year 2100
Mapping links between Climate Change and Health

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

Human exposures
- Regional weather changes
  - Heat waves
  - Extreme weather
  - Temperature
  - Precipitation

Modifying factors
- Contamination pathways
- Transmission dynamics
- Agroecosystems, hydrology
- Socioeconomics, demographics

Health effects
- Temperature-related illness and death
- Extreme weather-related health effects
- Air pollution-related health effects
- Water and food-borne diseases
- Vector-borne and rodent-borne diseases

Based on Patz et al, 2000
Health Burden due to Climate Change in Developing Countries

Deaths from climate change

CC deaths/million

- 0 - 2
- 2 - 20
- 20 - 60
- 60 - 100
- No data

Project Pilot Countries

- Pilot with seven countries in different ecosystem zones, thus different health risks from climate change:
  - Small island developing states: Fiji and Barbados,
  - Countries with highland areas: Bhutan and Kenya,
  - Water-stressed Countries: Jordan and Uzbekistan, and
  - Countries with multiple vulnerabilities: China.
Vulnerabilities in Highland Areas

Main health risks in highland regions:

- Physical hazards from changing patterns of precipitation, snowmelt, and glacier-lake overflows,

- Increase in vector-borne diseases (e.g. malaria and dengue) due to the effects of temperature on the disease transmission cycle.
Vulnerabilities in Water-stressed Areas

Changing precipitation patterns are likely to affect the quality and quantity of water supply.

This may impact two of the largest causes of global ill health:

- Poor water and sanitation, and
- Malnutrition
Vulnerabilities in Small-Island Developing States

High priority risks in Low-lying countries include:

- Physical hazards (i.e. hurricanes, flooding)
- Infectious Diseases (water and vector borne: malaria, dengue, diarrhoeal diseases, typhoid)
- Salination of freshwater (decrease in water for drinking and hygiene)
- Poor nutrition (decrease in food supply, toxic poisoning)

Credit: Jacques Desclôtres, MODIS Rapid Response Team, NASA/GSFC
Project Timeline and Budget

- Design phase of one year, followed by implementation phase of 3 to 5 years

<table>
<thead>
<tr>
<th>DESIGN PHASE</th>
<th>IMPLEMENTATION PHASE OF FULL PROJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>3 to 5 years</td>
</tr>
</tbody>
</table>

- Total request to the GEF of US$ 6 million. In cash and in-kind co-financing also required.
Project Design Phase Activities (I)

- Identify main health vulnerabilities to climate change, including variability and for each country, e.g.
  - Diseases associated with water scarcity
  - Storms and floods
  - Changing patterns of vector-borne pathogens,
  - Malnutrition

- Examine current health policies to address these threats

- Identify strategies, policies, and measures to cope with the additional burden of climate change, including variability
Project Design Phase Activities (II)

- Identify barriers to implementation of the various strategies, policies, and measures
- Estimate the additional cost of climate change adaptation relative to current baseline
- Design a proposal to implement one or more actions for each country
- Share information across countries and develop final project proposal
Full Project Activities

- Select long-term cost-effective and sustainable adaptation:
  - Strategies (e.g. cross-sectoral fora for natural disaster prevention)
  - Policies (e.g. health sensitive water-pricing)
  - Measures (e.g. preparation and prevention of disease outbreaks through health education, and early warning)

- Implement these adaptations strategies, policies, and measures in the field

- Synthesize and share the lessons learnt.
Expected Natural Benefits

Measurable increase in "adaptive capacity":

- Reduction in the burden of climate sensitive diseases;
- Reduction of the effect of climate change on human health;
- Better Integration of planning and implementation across sectors
Expected Global Benefits

- Improved knowledge of the links between climate, health, and adaptation in the most vulnerable countries.

- Adaptation strategies that other countries can use to protect human health from the impact of climate change.
Project Partners

At the national level:

- National Government,
  - Ministries (e.g. Health, Environment, Agriculture)
  - Agencies (e.g. Meteorology Agency)
- NGOs in health and environment fields,
- Researchers,
- Health Practitioners, and
- Representatives of most vulnerable community groups.
Project Partners

- At the global level
  - Global Environment Facility (GEF)-Project Funder
  - United Nations Development Programme (UNDP)
    - GEF agency, provides broad expertise in adapting to climate change
  - World Health Organization (WHO)
    - Executing agency for the project design phase,
    - Technical support for design, selection and implementation of health protection measures.
Future

Climate change adaptation is a new field. The long term aims of the project are:

- Rolling out lessons from this pilot project to other countries facing similar stresses, but with few resources,
- Supporting broad aim of preventive approaches to protect health and,
- Widening partnerships
Project Webpage: http://www.who.int/globalchange/climate/gefproject

More information on Climate Change:
http://www.who.int/globalchange
http://www.undp.org/climatechange