Climate Change and Health in Cambodia

A Vulnerability and Adaptation Assessment

20-23 July 2010
San José, Costa Rica
Population: 13.395 M inhabitants
Life expectancy at birth (years): 62
Healthy Average Life Expectancy (years): 48
Maternal Mortality: 461/100,000 live births
Neonatal Mortality Rate: 60/1000 live births
Under 5 mortality rate: 48/1000 live births
Children (<5yrs) stunted for age: 44%
Brief overview of Assessment

Goal
- To build capacity and strengthen health systems in countries and at the regional level to protect human health from current and projected risks due to climate change.

Objective
- Increase awareness of health consequences of climate change;
- Strengthen the capacity of health systems to provide protection from climate-related risks and substantially reduce the health system’s greenhouse gas emissions;
- Ensure that health concerns are addressed in decisions to reduce risks from climate change in other key sectors.
Brief overview of Assessment

Approach
- The process has been led by the Department of Preventative Medicine, Ministry of Health and facilitated by external WHO public health consultants

Technical Scope
- Cambodians are highly Vulnerable to the Health Impacts of Climate Change
- Most regions in Cambodia have limited adaptive capacity to respond positively to the impacts of climate change given high levels of poverty, low educational levels, technological and infrastructure limitations and issues of governance
Brief overview of Assessment

Major Findings

- Cambodia is highly vulnerable to the environmental impacts of climate change
- Current burden of climate-sensitive disease is high
- Climate change is likely to alter the burden of climate-sensitive disease
- Particular populations will be at increased risk
- The main impacts of climate change on health in Cambodia have been identified to be greatest in climate sensitive areas:
  1. Vector-borne diseases (e.g. malaria, dengue fever);
  2. Food Security;
  3. Water and Food borne diseases; and
  4. Health consequences of extreme weather events.
Monthly distribution of dengue cases, 2005 – 2007

(Source: National Centre for Malaria)
## Cambodian Millennium Development Goal

### indicators and targets

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline (Year)</th>
<th>2005 Target</th>
<th>2005 Actual</th>
<th>2015 Target</th>
<th>2010 Target</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Malaria case fatality rate reported by public health sector (%)</strong></td>
<td>0.4 (2000)</td>
<td>0.3</td>
<td>0.36</td>
<td>0.25</td>
<td>0.1</td>
<td>C</td>
</tr>
<tr>
<td><strong>Population at high risk who slept under impregnated treated bed nets during previous night (%)</strong></td>
<td>24 (2000)</td>
<td>80</td>
<td>49</td>
<td>95</td>
<td>98</td>
<td>C</td>
</tr>
<tr>
<td><strong>Public health facilities able to confirm malaria diagnosis according to national guidelines with 95% accuracy (%)</strong></td>
<td>60 (2002)</td>
<td>70</td>
<td>N/A</td>
<td>80</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td><strong>Number of malaria cases treated in the public health sector per 1000 population</strong></td>
<td>11.4 (2000)</td>
<td>9</td>
<td>7.3</td>
<td>7</td>
<td>4</td>
<td>A</td>
</tr>
</tbody>
</table>
Comparison of Undernourished Population compared with Asia and the Pacific

Proportion of undernourished, 2003-05

- Cambodia
- Southeast Asia
- Asia and the Pacific

(Source: Food and Agriculture Organization)
## Cambodian Millennium Development Goal

**Eradicating Extreme Poverty and Hunger**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline (Year of Estimate)</th>
<th>2005 Target</th>
<th>2005 Actual</th>
<th>2010 Target</th>
<th>2015 Target</th>
<th>Status¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population below food poverty line (%)</strong></td>
<td>20 (1993)</td>
<td>16</td>
<td>19.7</td>
<td>13</td>
<td>10</td>
<td>C</td>
</tr>
<tr>
<td><strong>Underweight children (&lt;5yrs) %</strong></td>
<td>45.2 (2000)</td>
<td>36</td>
<td>28</td>
<td>24</td>
<td>19</td>
<td>B#</td>
</tr>
<tr>
<td><strong>Stunting (Children &lt;5 yrs) %</strong></td>
<td>44.6 (2000)</td>
<td>35</td>
<td>44</td>
<td>35</td>
<td>25</td>
<td>C#</td>
</tr>
<tr>
<td><strong>Wasting (Children &lt; 5 yrs) %</strong></td>
<td>15 (2000)</td>
<td>13</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>A#</td>
</tr>
<tr>
<td>Households using iodised salt (%)</td>
<td>14 (2000)</td>
<td>80</td>
<td>73</td>
<td>81</td>
<td>90</td>
<td>C</td>
</tr>
</tbody>
</table>
Flood prone areas in Cambodia based on vulnerability to floods
Drought prone areas in Cambodia based on vulnerability to droughts
Assessment Methods

The method undertaken for this V&A assessment was adapted from recent WHO guidelines for conducting primarily qualitative assessment in resource poor settings.

The steps undertaken in this assessment were:

- Identification of relevant stakeholders;
- Description of current burden of climate-sensitive health outcomes, including the populations and regions that are most vulnerable;
- Description of how current burden of climate-sensitive health outcomes are likely to change over coming decades irrespective of climate change;
- Description of the effectiveness of current programs and activities;
- Estimation of the possible additional burden of adverse health outcomes due to climate change;
- Identification and prioritization of public health and health care interventions to reduce likely future health burdens; and
- Identification of strategies to implement, monitor and evaluate the burden of climate-sensitive health outcomes and interventions to address these burdens, ensuring continued effectiveness in a changing climate.
Assessment Methods

- Insufficient capacity for assessment, research and communication on climate-sensitive health risks
- Inadequate specific steps of a literature
- A focus on lowering background rates of disease and illness will ultimately ensure absolute future health impacts of climate change will also be constrained
Major Challenges & Quality of Assessment

- Programs to reduce the current burden of climate-sensitive disease are prioritised by Government and non-governmental organisations, but there are limitations and programmatic gaps.
- There are limited data and research capacity to facilitate study of the impact of climate change on health.
- There is a need for increased training within the health sector of the potential impacts of climate change on health.
- To date, the health sector’s role and involvement in strategic planning to mitigate and adapt to climate change has been limited.
Major Challenges & Quality of Assessment

- This V&A assessment marks an important first step for the health sector in Cambodia in meeting the many challenges posed by climate change.
- The NAPA identified 39 adaptation projects, but contributing to this has been a perception that climate change related issues are primarily an environmental concern rather than a development or health issue.
- Further work on prioritisation of these projects and cost-benefit analyses will need to be undertaken prior to submission for funding.
# Hierarchy of Public Health Adaptation Responses

<table>
<thead>
<tr>
<th>Adaptation Response</th>
<th>Definition</th>
<th>Example</th>
<th>Enabling Agencies / Tools</th>
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</table>
| Zero-order¹         | Mitigation of greenhouse gas emissions | • Mandating improved fuel efficiency of new cars  
• Reduce reliance on fossil fuel derived energy | • International agreements  
• Government Policy  
• Private industry |
| Primary             | Reducing exposure of populations to climate change and its environmental impacts | • Redesign/modification of cities to lessen the urban heat island effect  
• Improving barriers against floods  
• Improving irrigation | • Government policy  
• Regional governments  
• Development partners |
| Secondary           | Reducing the health impact of climate change exposures | • Strengthening surveillance and eradication programs for vector borne infections  
• Early warning and response systems for floods and storms  
• Improving education of villagers for prevention and management of common diseases  
• Improved services to urban poor | • Government ministries  
• Development partners  
• Academia  
• Community level health and education centres |
| Tertiary            | Managing the adverse health outcomes of climate change | • Effective management and treatment programs for disease (i.e. malaria)  
• Rapid emergency response capability for natural disaster or disease outbreak | • Government ministries  
• Community level health facilities  
• Development partners |
Adaptation Strategies for Specific Health Outcomes

Vector-borne disease
- International cooperation (Secondary)
- Surveillance and Research (Secondary)
- Vector control (Secondary)
- Epidemic Preparedness (Secondary)
- Early Diagnosis and treatment (Secondary)

Food security
- International cooperation (Primary)
- Agricultural diversification and improved land use (Primary)
- Research and Modelling (Secondary)
- Access to markets (Secondary)
- Education (Secondary)
- Poverty Reduction (Secondary)
- Response to Malnutrition or Famine (Tertiary)
Adaptation Strategies for Specific Health Outcomes

Extreme Weather
- Improvements to Buildings and infrastructure (Primary)
- Coastal and River Defence (Primary)
- Modelling (Primary/Secondary)
- Early warning Systems (Secondary)
- Disaster Preparedness (Secondary)
- Disaster Response (Tertiary)

Water- and food-borne infection
- Improving water supply and access (Primary)
- Improving Sanitation (Primary)
- Education (Secondary)
- Treatment (Tertiary)
Utility of Assessment & Meeting Decision Needs

- Population health will be affected both by direct and indirect effects of climate change, including via extreme weather events, exacerbation of food and water insecurity, poverty and disruptions to civil and health infrastructure and programs.
- Health outcomes are considered in the future planning across all sectors.
- The responsibility for reducing the health impacts of climate change should therefore be shared by all government agencies.
- Health should be seen as a cross-cutting issue of sustainable development that is ‘mainstreamed’ into all public policy decision-making processes.
Utility of Assessment & Meeting Decision Needs

- Establish an institutional framework to coordinate response
- Health as a cross-cutting theme in policy decisions across all sectors
- Establish a research agenda
- Increase the role of and capacity within the ministry of health to meet the challenge of climate change and health
- Commence work on prioritisation and implementation of adaptation options