WHO Approach & Methods
Vulnerability, Impact, and Adaptation Assessment

- Show linkages
- Understand local conditions
- Build evidence
- Identify gaps
- Help prioritize problems and actions
Overview of Steps

- **STEP 1**: Frame and Scope the Assessment
- **STEP 2**: Assess current climate-sensitive health risks, and capacity to manage them
- **STEP 3**: Project future health risks and impacts under climate change
- **STEP 4**: Identify and prioritize measures to address future health risks
- **STEP 5**: Establish an iterative process to monitor and manage risks
STEP 1: Frame and Scope the Assessment

- Define the geographic region and health outcomes of interest
- Identify the questions to be addressed and steps to be included
- Identify the policy context for the assessment
- Establish a project team and a management plan
- Establish a stakeholder process
- Develop a communications plan
Who are the stakeholders, and why work with them?

Stakeholders are the individuals and groups affected by and capable of influencing the development and implementation of proposals.

- **Ownership**: Gives a sense of owning a stake in the initiatives and obligation to help deliver shared objectives.

- **Relevance to Audience**: Can help to make policies and their delivery more focused on actors, and those affected.

- **Sustainability**: Helps allow ideas to be tried, tested and refined throughout implementation cycle.

- **Risk Management**: Helps early identification and effective response to project risks.
Identification of Key Stakeholders (examples)

- Political and civil society representatives of vulnerable regions, population groups, patients
- Private sector and labour groups that may deliver, or be affected by, planned interventions
- Information providers: Meteorological services, University researchers
Considerations when engaging with stakeholders

**Those that are most interested:**

Degree of legitimate interest in policy objectives, irrespective of degree of awareness or view expressed. E.g. representatives of vulnerable groups typically have high interest.

**Those that are most able to influence:**

Ability to implement or influence the policy objectives, through ability to influence upstream events, level of strategic oversight, political, regulatory or financial control. E.g. line ministries and donors typically have high influence.
# Stakeholder Mapping

1. **INFORM** - Proactively provide information to keep stakeholder informed

2. **CONSULT** - Get feedback on formulated plans, proposals or decisions

3. **INVOLVE** - Allow stakeholder to participate in shaping and planning activities

4. **PARTNER** - Collaborate consistently with stakeholder in decisions, as well as planning and activities.

0. **NO ACTION** - No need to pay attention to the stakeholder (unlikely unless stakeholder selection was poorly done, or their stake is represented by another organization)
## Stakeholder Engagement and Communication

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. INFORM</strong></td>
<td>Material on web /emails, Press release/ conferences</td>
</tr>
<tr>
<td><strong>2. CONSULT</strong></td>
<td>Briefings/ workshops, Market Research/ surveys</td>
</tr>
<tr>
<td><strong>3. INVOLVE</strong></td>
<td>1 to 1 meetings, Progress reports, Representatives on boards</td>
</tr>
<tr>
<td><strong>4. PARTNER:</strong></td>
<td>Joint ventures, Ministerial working groups, Shared delivery planning</td>
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STEP 2: Assess current climate-sensitive health risks, and capacity to manage them

- Describe Current Risks of Climate-Sensitive Health Outcomes, Including the Most Vulnerable Populations and Regions

- Describe the Current Capacity of Health and Other Sectors to Manage the Risks of Climate-Sensitive Health Outcomes
Climate Change and Impacts upon Health

Climate change

Environmental conditions

Social conditions
('upstream' determinants of health)

Direct exposures

Indirect exposures
(through changes in water-, air-, food quality; vector ecology; ecosystems, agriculture, industry and settlements)

Social & economic disruption

Health system conditions

Health impacts

* Modifying influence
### How important are climate-sensitive diseases now?

<table>
<thead>
<tr>
<th>Disease</th>
<th>Annual Deaths</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>World</td>
<td>EMR</td>
<td></td>
</tr>
<tr>
<td>Diarrhoeal diseases</td>
<td>1,797,972</td>
<td>258,718</td>
<td></td>
</tr>
<tr>
<td>Malaria</td>
<td>1,272,393</td>
<td>58,331</td>
<td></td>
</tr>
<tr>
<td>Leishmaniasis</td>
<td>51,134</td>
<td>5,209</td>
<td></td>
</tr>
<tr>
<td>Trypanosomiasis</td>
<td>47,774</td>
<td>1,160</td>
<td></td>
</tr>
<tr>
<td>Dengue</td>
<td>18,561</td>
<td>866</td>
<td></td>
</tr>
<tr>
<td>Schistosomiasis</td>
<td>15,371</td>
<td>9,336</td>
<td></td>
</tr>
<tr>
<td>Japanese encephalitis</td>
<td>13,957</td>
<td>2,390</td>
<td></td>
</tr>
<tr>
<td><strong>Total deaths from Water/ vector-borne</strong></td>
<td><strong>3,217,161</strong></td>
<td><strong>336,010</strong></td>
<td><strong>% of Total Deaths</strong></td>
</tr>
<tr>
<td></td>
<td><strong>5.6%</strong></td>
<td><strong>8.1%</strong></td>
<td></td>
</tr>
</tbody>
</table>

How sensitive are these diseases to direct effects of climate?

Incidence of diarrhoeal disease is related to variations in temperature and precipitation, over both space and time. In Lima, Peru, diarrhoea increased 8% for every 1°C temperature increase.

(Checkley et al, Lancet, 2000)
How sensitive are these diseases to indirect effects of climate?

Water consumption versus diarrhoea incidence in Jordan: CEHA, 2005
Vulnerability to Climate-Sensitive Health Outcomes by Location

Using geographical information systems (GIS) to identify populations vulnerable to malaria in Manaus, Brazil
Vulnerability to Climate-Sensitive Health Outcomes by Subpopulation

<table>
<thead>
<tr>
<th>Groups with Increased Vulnerability</th>
<th>Climate-Related Vulnerabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants and Children</td>
<td>Heat stress, ozone air pollution, waterborne and foodborne illnesses, vector-borne disease, malnutrition</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>Heat stress, extreme weather events, water and foodborne illnesses, vector-borne disease</td>
</tr>
<tr>
<td>Elderly / chronic medical conditions</td>
<td>Heat stress, air pollution, extreme weather events, water and foodborne illnesses, vector-borne disease</td>
</tr>
<tr>
<td>Impoverished / low socioeconomic status</td>
<td>Heat stress, extreme weather events, air pollution, vector-borne infectious diseases, waterborne and foodborne diseases</td>
</tr>
<tr>
<td>Outdoor workers</td>
<td>Heat stress, air pollution, vector-borne infectious diseases, UV exposure.</td>
</tr>
</tbody>
</table>
What is the current capacity to manage climate-sensitive health risks?
What are the opportunities to improve health protection?

- How effective are health systems in controlling the current health risks?

- What are the main limits on effectiveness? Human and financial resources, technologies, coordination mechanisms?

- How robust are core health system functions (such as human resource planning, disease surveillance, and emergency preparedness and response) to extreme weather events?

- What is the management structure for the programme, and how easily can changes be made?

- What human and financial resources are available to support changes?
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Project future health risks and impacts under climate change

- 3.1 Describe How the Risks of Climate-Sensitive Health Outcomes, Including the Most Vulnerable Populations and Regions, May Change over Coming Decades, Irrespective of Climate Change

- 3.2 Estimate the Possible Additional Burden of Adverse Health Outcomes due to Climate Change
Changes in the absence of climate change

Example of qualitative scoping of non-climate effects on health in Tashkent, Uzbekistan.

- Older and more urbanized population
- Increased traffic and industry, increasing air pollution and ozone
- More solid waste production, contamination of soil and water.
- Expansion of urban centres which reduces agricultural land could lower the capacity to produce local foods.
- Associated increase in risks of ARI and other infectious disease, road traffic accidents, CVD and other NCDs, demands on health system.
- Hopefully offset by increasing wealth and access to health services
Projecting effects of climate change

Can use:

- Qualitative assessment (as previous slide)
- Quantitative risk assessment method:
  - hazard identification;
  - exposure assessment;
  - dose-response assessment;
  - risk characterization
Changing patterns of heat exposure in Australia

Figure 1: Average seasonal and annual warming ranges (°C) for around 2030 and 2070, relative to 1990 (shaded bars show ranges of change for areas with corresponding shades in the maps).

Examples of heat-mortality relationships

Estimated change in heat attributable deaths in Brisbane in 2030
Conclusions: Part I

- **Framing and scoping assessment** includes understanding of overall linkages from climate to health, policy context, and stakeholders.

- **Describing current vulnerability** includes understanding current disease burdens, climate sensitivity, vulnerable populations, and health system capacity to respond.

- **Projecting future impacts** includes qualitative and quantitative understanding of how climate and other factors may affect disease over future decades.