DECISION MAKING IN PLANNING FOR CLIMATE CHANGE

Using CLIMACT PRIO: A decision support tool for climate change adaptation and mitigation prioritization
Climate Change Planning Process

**Mitigation**
- GHG Emissions Assessment
- Setting targets
- Assessment and selection of measures
- Implementation of measures
- Monitoring and Evaluation of Measures

**Adaptation**
- Vulnerability Assessment
- Setting objectives
- Assessment and selection of measures
- Implementation of measures
- Monitoring and Evaluation of Measures
Which sectors are the largest emitters of GHGs?

How is your city exposed to climate change today and in the future?

How sensitive are your city’s people, places and institutions to this exposure?

Who is most vulnerable and least able to adapt?

What sectors / assets / groups are most important?

Source: UN Habitat
Mitigation

GHG Emissions Assessment

Setting targets

Adaptation

Vulnerability Assessment

Setting objectives

Key Questions

How much GHG emissions reduction would you target?

Is this target for the city or municipality level or for a specific sector?

Would the objective be to increase adaptive capacity – or reduce sensitivity or exposure?

What other broader development objectives (e.g. poverty, education) can you address along with climate change adaptation?
Key Questions

Which measures (actions, policies, initiatives) can you identify to achieve the set targets or objectives?

After identifying the actions, how do you select which ones to implement first, which is a process called prioritization?
CLIMACT Prio tool
how to prioritize climate change adaptation and mitigation actions

A system to guide policy makers’ and planners’ decisions in planning for climate change
Relevance & Application of CLIMACT PRIO TOOL

Planning for Climate Change (UN Habitat, 2014)

City Development Strategy Toolkit (Cities Alliance, 2016)

Toolbox of Methodologies Climate and Energy
http://toolbox.climate-protection.eu/home/

Participatory integrated assessment of flood protection measures for climate adaptation in Dhaka (Haque et al., 2012)
CLIMACT Prio tool

CLIMACT Prio is a climate awareness, decision support, and capacity building tool for screening and prioritizing climate change actions.

By prioritizing, this refers to bringing down the climate change actions “from wish list...to a feasible and relevant short list”.

Watch the CLIMACT Prio TOOL video.
What is the workshop about?

At the end of this workshop, each group, whose members will simulate the role of multiple stakeholders, can identify, assess, prioritize, and present 6 local climate change adaptation actions to reduce vulnerability based on the selected city.
CLIMACT PRIOR TOOL: STEPS

Step 0: Identifying the most vulnerable sectors (and local problems)

Step 1: Identifying, screening, and ranking of adaptation actions

Step 2: Selection of adaptation actions

Step 3: Identification of evaluation criteria

Step 4: Scoring and standardization of actions

Step 5: Weighting of criteria

Step 6: Results of weighted scores and final ranking

Step 7: Prioritization of actions
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Step 0: Identifying the most vulnerable sectors (and local problems)

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Step 7: Prioritization of actions
<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heather Anne Elizabeth Pinnock, Kingston, Jamaica</td>
<td>Mercy Bette Dube, Lilongwe, Malawi</td>
<td>Angkeara Prak, Phnom Penh, Cambodia</td>
</tr>
<tr>
<td>Livia de Oliveira Monteiro, Belo Horizonte, Brazil</td>
<td>Anthony Kobin Sam, Sekondi – Takoradi, Ghana</td>
<td>Allan Rellon, Tagum, Philippines</td>
</tr>
<tr>
<td>Ramesh Maharjan, Kirtipur, Nepal</td>
<td>Idelcia Rebeca Mapure, Maputo, Mozambique</td>
<td>Mahesh Baral, Dhulikhel, Nepal</td>
</tr>
</tbody>
</table>
- Identify sectors/assets with highest priority for action
- Look at other possible issues or problems that the city is facing
- For each group, select the city you will use for the rest of the workshop.
CLIMACT PRIORITIZATION TOOL: STEPS

Step 0: Identifying the most vulnerable sectors (and local problems)

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Step 7: Prioritization of actions
Step 1a – Listing of 10 adaptation actions

<table>
<thead>
<tr>
<th>No</th>
<th>Adaptation actions</th>
<th>Type</th>
<th>Sector</th>
<th>Time frame of implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rainwater harvesting</td>
<td>Structural</td>
<td>Water management</td>
<td>Short term</td>
</tr>
<tr>
<td>2</td>
<td>Relocation of vulnerable households</td>
<td>Non-structural</td>
<td>Social</td>
<td>Long term</td>
</tr>
<tr>
<td>3</td>
<td>Seawall</td>
<td>Structural</td>
<td>Water management</td>
<td>Medium term</td>
</tr>
<tr>
<td>4</td>
<td>Design standards</td>
<td>Non-structural</td>
<td>Buildings</td>
<td>Medium term</td>
</tr>
<tr>
<td>5</td>
<td>Emergency medical services</td>
<td>Non-structural</td>
<td>Disaster management</td>
<td>Medium term</td>
</tr>
<tr>
<td>6</td>
<td>Water storage and conservation</td>
<td>Non-structural</td>
<td>Water management</td>
<td>Short term</td>
</tr>
<tr>
<td>7</td>
<td>Early warning systems</td>
<td>Structural</td>
<td>Disaster management</td>
<td>Short term</td>
</tr>
<tr>
<td>8</td>
<td>Water recycling</td>
<td>Non-structural</td>
<td>Water management</td>
<td>Short term</td>
</tr>
<tr>
<td>9</td>
<td>Crop diversification</td>
<td>Non-structural</td>
<td>Ecological</td>
<td>Medium term</td>
</tr>
<tr>
<td>10</td>
<td>Construction of evacuation centers</td>
<td>Structural</td>
<td>Infrastructure</td>
<td>Medium term</td>
</tr>
</tbody>
</table>
ClimateTechWiki

Technology Options

You can search for information on technologies by name, by sector, and by the service that they provide. "Ethanol Cook Stoves" can for example be found in the alphabetical list under "NAME", under "Energy supply and consumption" in "SECTOR", and under "Cooking" in "SERVICE".

The sector categorization for mitigation technologies is based on 2006 IPCC Guidelines. For adaptation technologies, sectors or categories have been derived from FCCC/GB2356/2 (Annex I).

Mitigation

- By Name -

- By Sector -

- By Category -

Adaptation

- Flood warnings

- Coastal zones / marine ecosystems
- Study the feasibility and impact criteria – and their corresponding descriptions and scoring scale.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Feasibility Criteria</th>
<th>Impact Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholders acceptability: Would local stakeholders accept this option?</td>
<td>Majority of stakeholders would accept this option</td>
<td>Low support of stakeholders would for this option</td>
</tr>
<tr>
<td>Technical feasibility: Will necessary designs, skills and competencies, maintenance support be available for this option?</td>
<td>Resources to develop designs, skills and competencies, and maintenance support are available</td>
<td>No available resources to develop designs, skills and competencies and maintenance support</td>
</tr>
<tr>
<td>Ease of implementation: Can it be implemented at the local government level, or does it depend upon state/provincial or national support?</td>
<td>City can implement this option without external support</td>
<td>City cannot implement this option without external support</td>
</tr>
<tr>
<td>Financial viability: Is it a financially realistic option? Does the city have funding or potential access to funding to cover the costs?</td>
<td>Financially realistic with available funding at city level</td>
<td>Expensive and limited funding opportunities at city level</td>
</tr>
<tr>
<td>Mainstreaming potential: Could it be integrated with existing local government planning and policy development?</td>
<td>Yes, easily and fully through many plans and strategies</td>
<td>Relatively limited potential, would require additional activities</td>
</tr>
<tr>
<td>Effectiveness: How well would this option work on reducing climate vulnerability (in relation to the other actions)?</td>
<td>Climate vulnerability will be reduced to a large extent (in relation to the other actions)</td>
<td>Climate vulnerability will be reduced to a limited extent (in relation to the other actions)</td>
</tr>
<tr>
<td>Multi-sectoral and multi-objective: Would this option address objectives in other sectors?</td>
<td>Yes, significant cross over with other sectors and objectives</td>
<td>Little cross over with other sectors and limited impact on other objectives</td>
</tr>
</tbody>
</table>
### Step 1b - Evaluate each alternative adaptation action against each of the seven feasibility and impact criteria.

#### Step 1b: Feasibility Assessment - Initial Screening of Adaptation Actions

<table>
<thead>
<tr>
<th>Adaptation Actions</th>
<th>Stakeholder Acceptability</th>
<th>Technical Feasibility</th>
<th>Ease of Implementation</th>
<th>Financial feasibility</th>
<th>Mainstreaming Potential</th>
<th>Effectiveness</th>
<th>Multi-sectoral/objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainwater harvesting</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Relocation of vulnerable households</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Seawall</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Design standards</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Emergency medical services</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Water storage and conservation</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Early warning systems</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Water recycling</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Crop diversification</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Construction of evacuation centers</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
</tbody>
</table>
Step 1c – Feasibility ranking of adaptation actions

- Observe how all the scores for each adaptation action add up as well as the over all ranking and the results of the feasibility index.

<table>
<thead>
<tr>
<th>Adaptation Actions</th>
<th>Feasibility Criteria</th>
<th>Impact Criteria</th>
<th>Total</th>
<th>Ranking</th>
<th>Feasibility Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Stakeholder Acceptability</td>
<td>Technical Feasibility</td>
<td>Ease of Implementation</td>
<td>Financial Feasibility</td>
</tr>
<tr>
<td>Rainwater harvesting</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Relocation of vulnerable households</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Seawall</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Design standards</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Emergency medical services</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Water storage and conservation</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Early warning systems</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Water recycling</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Crop diversification</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Construction of evacuation centers</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total**: sum of feasibility and impact criteria scores

**Ranking**: ranking of final scores

**Feasibility Index**: average sum of all feasibility scores
• Optional: Observe the feasibility graph. Also, examine the ranking of all adaptation actions as well check all adaptation and individual actions based on the Feasibility Index and the Total Score.
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Step 7: Prioritization of actions
## Step 2 – Selection of 6 adaptation actions

<table>
<thead>
<tr>
<th>No</th>
<th>Adaptation actions</th>
<th>Type</th>
<th>Sector</th>
<th>Time frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rainwater harvesting</td>
<td>Structural</td>
<td>Water management</td>
<td>Short term</td>
</tr>
<tr>
<td>2</td>
<td>Early warning systems</td>
<td>Structural</td>
<td>Disaster management</td>
<td>Short term</td>
</tr>
<tr>
<td>3</td>
<td>Design standards</td>
<td>Non-structural</td>
<td>Buildings</td>
<td>Medium term</td>
</tr>
<tr>
<td>4</td>
<td>Emergency medical services</td>
<td>Non-structural</td>
<td>Disaster management</td>
<td>Medium term</td>
</tr>
<tr>
<td>5</td>
<td>Water storage and conservation</td>
<td>Non-structural</td>
<td>Water management</td>
<td>Short term</td>
</tr>
<tr>
<td>6</td>
<td>Construction of evacuation centers</td>
<td>Structural</td>
<td>Infrastructure</td>
<td>Medium term</td>
</tr>
</tbody>
</table>
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Step 7: Prioritization of actions
Step 3 – Identification of 5 evaluation criteria from different categories

- Environmental
- Economic
- Social
- Climate
- Feasibility
- Governance

The criteria selected can be of a diverse nature and should relate to broader local governments’ priorities and objectives.
Evaluation Criteria need to be SMART:

- Specific, sensitive, solid
- Measurable
- Achievable, applicable, acceptable
- Relevant, reliable, realistic
- Time bound
<table>
<thead>
<tr>
<th>No</th>
<th>Criteria</th>
<th>Category of Criteria</th>
<th>Unit</th>
<th>Min/Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vulnerability reduction</td>
<td>Climate</td>
<td>&quot;1-5&quot;</td>
<td>Max</td>
</tr>
<tr>
<td>2</td>
<td>Employment generation</td>
<td>Economic</td>
<td>&quot;1-5&quot;</td>
<td>Max</td>
</tr>
<tr>
<td>3</td>
<td>Livelihood security</td>
<td>Social</td>
<td>&quot;1-5&quot;</td>
<td>Max</td>
</tr>
<tr>
<td>4</td>
<td>Public acceptance</td>
<td>Governance</td>
<td>&quot;1-5&quot;</td>
<td>Max</td>
</tr>
<tr>
<td>5</td>
<td>Biodiversity preservation</td>
<td>Environmental</td>
<td>&quot;1-5&quot;</td>
<td>Max</td>
</tr>
</tbody>
</table>

The criteria selected can be of a diverse nature and should relate to broader local governments’ priorities and objectives.

Define a unit of measurement for each criterion ("1-5") and specify the direction of preference (Min/Max).
CLIMACT PRIOR TOOL: STEPS

Step 0: Identifying the most vulnerable sectors (and local problems)
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Step 5: Weighting of criteria
Step 6: Results of weighted scores and final ranking
Step 7: Prioritization of actions
## Step 4a– Scoring of actions (Impact Assessment Matrix)

<table>
<thead>
<tr>
<th>Options/Criteria</th>
<th>Vulnerability reduction</th>
<th>Employment generation</th>
<th>Livelihood security</th>
<th>Public acceptance</th>
<th>Biodiversity preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale units</td>
<td>&quot;1-5&quot;</td>
<td>&quot;1-5&quot;</td>
<td>&quot;1-5&quot;</td>
<td>&quot;1-5&quot;</td>
<td>&quot;1-5&quot;</td>
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<td>Max</td>
<td>Max</td>
<td>Max</td>
<td>Max</td>
<td>Max</td>
</tr>
<tr>
<td>Rainwater harvesting</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Early warning systems</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Design standards</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Emergency medical services</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Water storage and conservation</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Construction of evacuation centers</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

- Assign scores for each adaptation action against the selected evaluation criteria.
- Learn more about their advantages, disadvantages, costs and benefits, and financing options.
### Step 4b - Standardized scores

<table>
<thead>
<tr>
<th>Options</th>
<th>Vulnerability reduction</th>
<th>Employment generation</th>
<th>Livelihood security</th>
<th>Public acceptance</th>
<th>Biodiversity preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainwater harvesting</td>
<td>0,8</td>
<td>0,7</td>
<td>1,0</td>
<td>1,0</td>
<td>1,0</td>
</tr>
<tr>
<td>Early warning systems</td>
<td>1,0</td>
<td>0,6</td>
<td>0,6</td>
<td>1,0</td>
<td>0,3</td>
</tr>
<tr>
<td>Design standards</td>
<td>0,8</td>
<td>1,0</td>
<td>0,8</td>
<td>1,0</td>
<td>0,3</td>
</tr>
<tr>
<td>Emergency medical services</td>
<td>1,0</td>
<td>0,8</td>
<td>0,4</td>
<td>1,0</td>
<td>0,3</td>
</tr>
<tr>
<td>Water storage and conservation</td>
<td>0,8</td>
<td>1,0</td>
<td>1,0</td>
<td>1,0</td>
<td>1,0</td>
</tr>
<tr>
<td>Construction of evacuation centers</td>
<td>0,8</td>
<td>1,0</td>
<td>0,6</td>
<td>1,0</td>
<td>0,3</td>
</tr>
</tbody>
</table>

- One must standardize the values in order to be able to compare the scores.
- This is done automatically for CLIMACT PRIO.
- The higher the numbers represent a positive outcome and lower numbers represent less positive or negative outcomes.
Optional: Standardization Graphs
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Step 7: Prioritization of actions
### Task 1

<table>
<thead>
<tr>
<th>Category of Criteria</th>
<th>Criteria</th>
<th>Units</th>
<th>Impact Range</th>
<th>Rank</th>
<th>Importance</th>
<th>Values</th>
<th>Weights</th>
<th>Rank</th>
<th>Importance</th>
<th>Values</th>
<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td>Vulnerability reduction</td>
<td>&quot;1-5&quot;</td>
<td>1.0</td>
<td>1</td>
<td>Very High</td>
<td>100</td>
<td>33.3%</td>
<td>2</td>
<td>High</td>
<td>70</td>
<td>24.1%</td>
</tr>
<tr>
<td>Economic</td>
<td>Employment generation</td>
<td>&quot;1-5&quot;</td>
<td>2.0</td>
<td>2</td>
<td>High</td>
<td>80</td>
<td>26.7%</td>
<td>3</td>
<td>Moderate</td>
<td>60</td>
<td>20.7%</td>
</tr>
<tr>
<td>Social</td>
<td>Livelihood security</td>
<td>&quot;1-5&quot;</td>
<td>3.0</td>
<td>3</td>
<td>Moderate</td>
<td>60</td>
<td>20.0%</td>
<td>4</td>
<td>Low</td>
<td>40</td>
<td>13.8%</td>
</tr>
<tr>
<td>Governance</td>
<td>Public acceptance</td>
<td>&quot;1-5&quot;</td>
<td>0.0</td>
<td>4</td>
<td>Low</td>
<td>40</td>
<td>13.3%</td>
<td>5</td>
<td>Very Low</td>
<td>20</td>
<td>6.9%</td>
</tr>
<tr>
<td>Environmental</td>
<td>Biodiversity preservation</td>
<td>&quot;1-5&quot;</td>
<td>2.0</td>
<td>5</td>
<td>Very Low</td>
<td>20</td>
<td>6.7%</td>
<td>1</td>
<td>Very High</td>
<td>100</td>
<td>34.5%</td>
</tr>
</tbody>
</table>

**Impact range**: the maximum score minus the minimum score assigned to each action in the impact matrix.
CLIMACT PRIO TOOL: STEPS

Step 0: Identifying the most vulnerable sectors (and local problems)

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Step 7: Prioritization of actions
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Category of Criteria</th>
<th>Impact Range</th>
<th>Units</th>
<th>Rank</th>
<th>Values</th>
<th>Weights</th>
<th>Degree of Convergence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vulnerability reduction</td>
<td>Climate</td>
<td>1,0</td>
<td>&quot;1-5&quot;</td>
<td>1</td>
<td>76,67</td>
<td>25,8%</td>
<td>6,8%</td>
</tr>
<tr>
<td>Employment generation</td>
<td>Economic</td>
<td>2,0</td>
<td>&quot;1-5&quot;</td>
<td>3</td>
<td>60,00</td>
<td>20,2%</td>
<td>6,7%</td>
</tr>
<tr>
<td>Livelihood security</td>
<td>Social</td>
<td>3,0</td>
<td>&quot;1-5&quot;</td>
<td>5</td>
<td>40,00</td>
<td>13,5%</td>
<td>6,7%</td>
</tr>
<tr>
<td>Public acceptance</td>
<td>Governance</td>
<td>0,0</td>
<td>&quot;1-5&quot;</td>
<td>4</td>
<td>53,33</td>
<td>17,9%</td>
<td>13,8%</td>
</tr>
<tr>
<td>Biodiversity preservation</td>
<td>Environmental</td>
<td>2,0</td>
<td>&quot;1-5&quot;</td>
<td>2</td>
<td>66,67</td>
<td>22,6%</td>
<td>14,3%</td>
</tr>
</tbody>
</table>

- Observe the final criteria weighting.
- Observe if there is low degree of convergence.
Which criteria are most valued?

- Biodiversity preservation: 22.6%
- Public acceptance: 17.9%
- Livelihood security: 13.5%
- Employment generation: 20.2%
- Vulnerability reduction: 25.8%
# Results of Weighted Scores

<table>
<thead>
<tr>
<th>Final Score</th>
<th>Options</th>
<th>Vulnerability reduction</th>
<th>Employment generation</th>
<th>Livelihood security</th>
<th>Public acceptance</th>
<th>Biodiversity preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,87</td>
<td>Rainwater harvesting</td>
<td>0,21</td>
<td>0,12</td>
<td>0,13</td>
<td>0,18</td>
<td>0,23</td>
</tr>
<tr>
<td>0,71</td>
<td>Early warning systems</td>
<td>0,26</td>
<td>0,12</td>
<td>0,08</td>
<td>0,18</td>
<td>0,08</td>
</tr>
<tr>
<td>0,77</td>
<td>Design standards</td>
<td>0,21</td>
<td>0,20</td>
<td>0,11</td>
<td>0,18</td>
<td>0,08</td>
</tr>
<tr>
<td>0,73</td>
<td>Emergency medical services</td>
<td>0,26</td>
<td>0,16</td>
<td>0,05</td>
<td>0,18</td>
<td>0,08</td>
</tr>
<tr>
<td>0,95</td>
<td>Water storage and conservation</td>
<td>0,21</td>
<td>0,20</td>
<td>0,13</td>
<td>0,18</td>
<td>0,23</td>
</tr>
<tr>
<td>0,74</td>
<td>Construction of evacuation centers</td>
<td>0,21</td>
<td>0,20</td>
<td>0,08</td>
<td>0,18</td>
<td>0,08</td>
</tr>
</tbody>
</table>

## Weights

<table>
<thead>
<tr>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>25,8%</td>
</tr>
<tr>
<td>20,2%</td>
</tr>
<tr>
<td>13,5%</td>
</tr>
<tr>
<td>17,9%</td>
</tr>
<tr>
<td>22,6%</td>
</tr>
</tbody>
</table>

## Scores

- Rainwater harvesting: 0,21
- Early warning systems: 0,26
- Design standards: 0,21
- Emergency medical services: 0,26
- Water storage and conservation: 0,21
- Construction of evacuation centers: 0,21

## Optical Character Recognition and Comprehension

The table above presents the results of weighted scores for various options. Each option is evaluated based on five criteria: vulnerability reduction, employment generation, livelihood security, public acceptance, and biodiversity preservation. The scores are then multiplied by the respective weights to obtain the final scores.

- **Final Score:** 0.87
- **Options:** Rainwater harvesting
- **Weights:** 25.8%
- **Vulnerability reduction:** 0.21
- **Employment generation:** 0.12
- **Livelihood security:** 0.13
- **Public acceptance:** 0.18
- **Biodiversity preservation:** 0.23

- **Final Score:** 0.71
- **Options:** Early warning systems
- **Weights:** 20.2%
- **Vulnerability reduction:** 0.26
- **Employment generation:** 0.12
- **Livelihood security:** 0.08
- **Public acceptance:** 0.18
- **Biodiversity preservation:** 0.08

- **Final Score:** 0.77
- **Options:** Design standards
- **Weights:** 13.5%
- **Vulnerability reduction:** 0.21
- **Employment generation:** 0.20
- **Livelihood security:** 0.11
- **Public acceptance:** 0.18
- **Biodiversity preservation:** 0.08

- **Final Score:** 0.73
- **Options:** Emergency medical services
- **Weights:** 17.9%
- **Vulnerability reduction:** 0.26
- **Employment generation:** 0.16
- **Livelihood security:** 0.05
- **Public acceptance:** 0.18
- **Biodiversity preservation:** 0.08

- **Final Score:** 0.95
- **Options:** Water storage and conservation
- **Weights:** 22.6%
- **Vulnerability reduction:** 0.21
- **Employment generation:** 0.20
- **Livelihood security:** 0.13
- **Public acceptance:** 0.18
- **Biodiversity preservation:** 0.23

- **Final Score:** 0.74
- **Options:** Construction of evacuation centers
- **Weights:** 17.9%
- **Vulnerability reduction:** 0.21
- **Employment generation:** 0.20
- **Livelihood security:** 0.08
- **Public acceptance:** 0.18
- **Biodiversity preservation:** 0.08
### Results – Ranking

<table>
<thead>
<tr>
<th>Options</th>
<th>Score</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainwater harvesting</td>
<td>0.87</td>
<td>2</td>
</tr>
<tr>
<td>Early warning systems</td>
<td>0.71</td>
<td>6</td>
</tr>
<tr>
<td>Design standards</td>
<td>0.77</td>
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</tr>
<tr>
<td>Emergency medical services</td>
<td>0.73</td>
<td>5</td>
</tr>
<tr>
<td>Water storage and conservation</td>
<td>0.95</td>
<td>1</td>
</tr>
<tr>
<td>Construction of evacuation centers</td>
<td>0.74</td>
<td>4</td>
</tr>
</tbody>
</table>
CLIMACT PRIO TOOL: STEPS

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Step 6: Results of weighted scores and final ranking

Step 7: Prioritization of actions
Step 7 – Prioritization of Actions

- How can the final ranking be explained?
- Which criteria contribute mostly to the highest ranked alternatives?
- Which criteria (objectives) will be met by the actions?
Prioritization of Actions

- Water storage and conservation
- Rainwater harvesting
- Design standards
- Construction of evacuation centers
- Emergency medical services
- Early warning systems

What does the prioritization of actions imply for the city’s climate adaptation policy?
CLIMACT PRIOR TOOL: STEPS

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Time:

Step 0: 20 mins

Step 1: 20 mins

Step 2: 10 mins

Step 3: 20 mins

Step 4: 20 mins

Step 5: 20 mins

Step 6: 10 mins

Step 7: 10 mins
Thank you very much!

Elena Marie Enseñado
Institute for Housing and Urban Development Studies
ensenado@ihs.nl