DECISION MAKING IN PLANNING FOR CLIMATE CHANGE

Using CLIMACT PRIO: A decision support tool for climate change prioritization

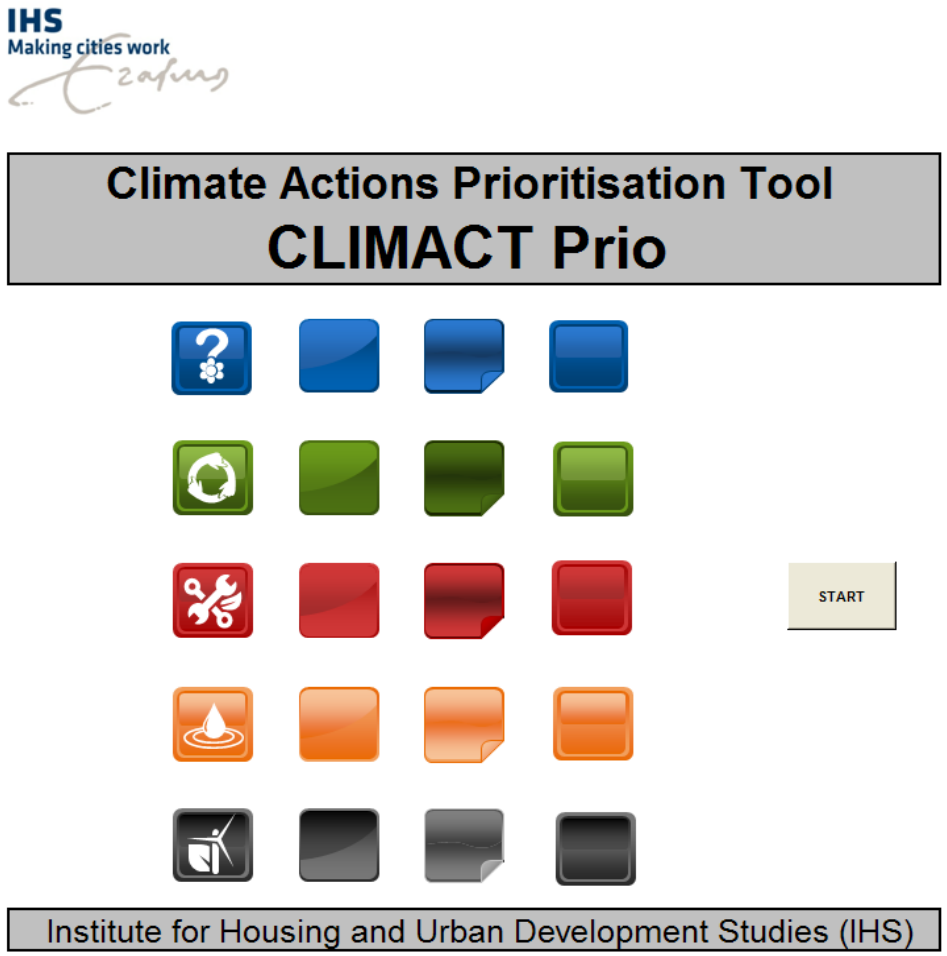
IHS
Making cities work

WHAT IS CLIMACT PRIO?

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.



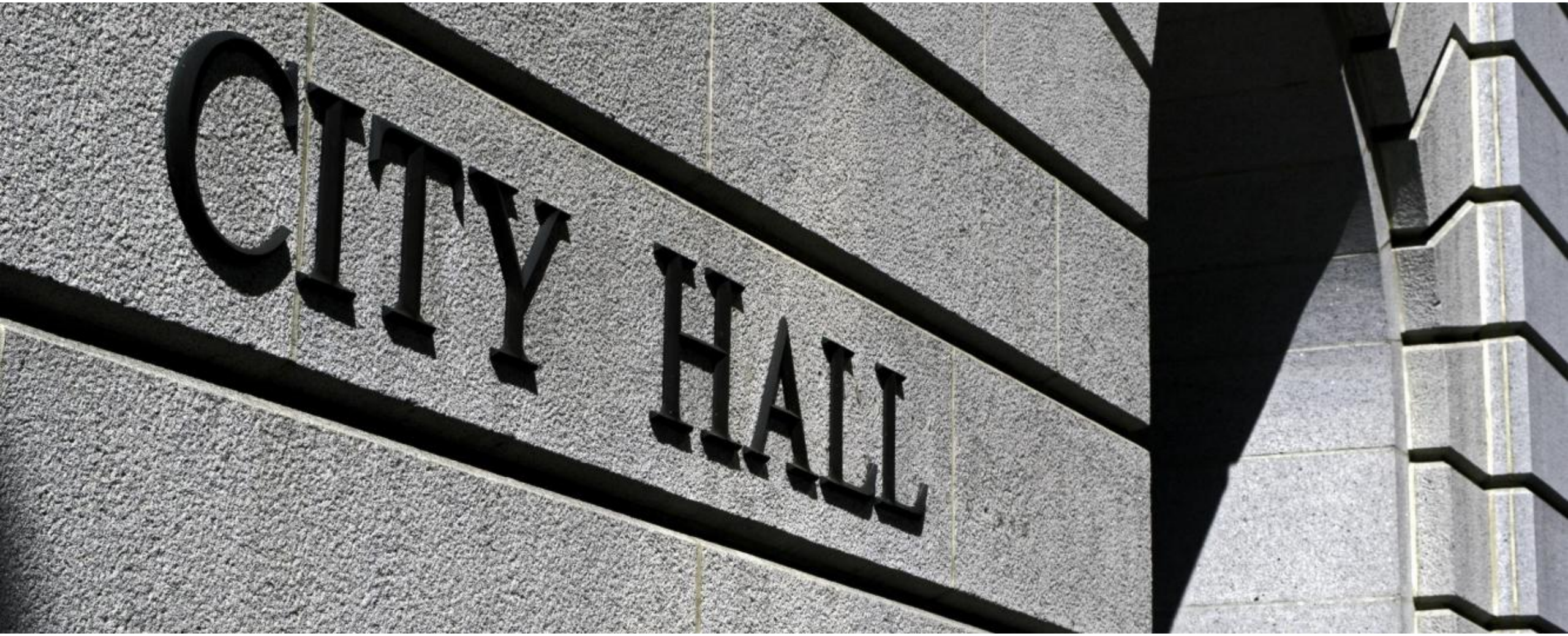
WHAT ARE THE OBJECTIVES OF CLIMACT PRIO?

1. Prioritize Climate Change Actions
2. Inform and Guide Decision Making
3. Integrate Multiple Objectives (MCA)
4. Enhance Stakeholders' Engagement
5. Facilitate Learning
6. Stimulate Knowledge Generation

CLIMATE CHANGE PLANNING PROCESS

Decision making is a key phase in planning for climate change.

CLIMACT PRIO helps key decision making phases, such as in option identification and option assessment.



WHO IS THE CLIMACT PRIO FOR?

The tool is aimed for local governments, urban planners, municipality officials, city managers, and academic and research institutions in the field of climate change in urban areas.

GROUPING:

Group 1	Group 2	Group 3
Lovelyn Kins Matawakeni, Solomon Island	Khanh Le, Vietnam	Reuben Ngeti, Kenya
Ralston Frazer, Belize	Roshan Shrestha, Nepal	Nwachan Jacob Ngock, Cameroon
Danilo Fuentebella, Philippines	Bharat Dangar, India	Uy-Tan, Philippines

WHAT MATERIALS DO YOU NEED?

1. Each group will use the CLIMACT PRIO TOOL which is available in Microsoft Excel.
2. For further information, you can read the accompanying CLIMACT PRIO TOOL Manual (Optional).
3. Study the six steps of the CLIMACT PRIO Tool in this presentation.
4. Watch the following CLIMACT PRIO Tutorial Videos in this order:
   - *From initial list of adaptation actions to feasibility assessment*
   - *How to choose criteria and assess impacts*
   - *From weighting the criteria to final results*
5. Each group should bring a laptop for the exercise.

WHAT ARE THE STEPS OF CLIMACT PRIO?

1. Examination of the city's vulnerability profile
2. Selection of climate change adaptation actions
3. Identification of evaluation criteria
4. Scoring of actions
5. Weighting of criteria
6. Prioritization of actions

STEP 1: EXAMINATION OF THE CITY'S VULNERABILITY PROFILE

Individual Assignment:

- Which sectors and social groups should be the target of climate change adaptation actions in your city?
- Which are the most vulnerable sectors or assets that are likely to be affected by climate change impacts?
- Look at other possible issues and problems (e.g. poverty, housing, water and sanitation) that the city is facing.

Group Exercise:

- Decide as a group during the workshop which city will you focus on in carrying out the CLIMACT PRIO Tool Exercise.

STEP 2: SELECTION OF CLIMATE CHANGE ADAPTATION ACTIONS

List of Adaptation Actions

Type in each action's name, type and sector, time frame of implementation. Then, proceed further to the prioritization assessment

No	Adaptation actions	Type	Sector	Time frame
1	**Retrofitting of drainage system**	Structural	Infrastructure	Long term
2	**Raised road**	Structural	Infrastructure	Medium term
3	**Embankment**	Structural	Flood management	Medium term
4	**Flood wall**	Structural	Flood management	Medium term
5	**Protection of water retention areas**	Structural	Water management	Short term
6	**Canal Improvement**	Structural	Water management	Medium term

- As a group, start using the CLIMACT PRIO Tool. Go to "List of Actions".
- List down six actions for climate change adaptation.
- Determine the type, sector, and time frame for each action.

Feasibility Assessment - Initial Screening of Adaptation Actions							
	Feasibility criteria					Impact Criteria	
Adaptation Actions	Stakeholder Acceptability	Technical Feasibility	Ease of Implementation	Financial feasibility	Mainstreaming Potential	Effectivenes	Multi-sectoral/objective
Retrofitting of drainage system	Low	Low	Low	Low	Low	Low	Low
Raised road	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Embankment	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Flood wall	High	High	High	High	High	High	High
Protection of water retention areas	High	High	High	High	High	High	High
Canal Improvement	High	High	High	High	High	High	High

- Study the feasibility and impact criteria and their corresponding descriptions and scoring scale. See next slide.
- Under "Feasibility Assessment" on the CLIMACT PRIO TOOL, evaluate each alternative adaptation action against each of the seven (7) feasibility and impact criteria.
- Provide a score using the following scale: high, medium, or low.
- Check CLIMATE TECH WIKI for more information about climate change actions.

FEASIBILITY AND IMPACT ASSESSMENT CRITERIA

	Criteria	High	Medium	Low
Feasibility Criteria	Stakeholder acceptability: Would local residents accept it?	Majority of residents in area	Limited majority	Low support
	Technical feasibility: Will necessary design, implementation and maintenance support be available for the option?	Design available	Resources to develop design, implement and maintain	No available resources to develop, design, implement and maintain
	Ease of implementation: Can it be implemented at the local government level, or does it depend upon state/provincial or national support?	City can implement this without external support	City can implement this with some support	City cannot implement this without external support
	Financial viability: Is it a financially realistic option? Does the city have funding or potential access to funding to cover the costs?	Financially realistic with available funding	More limited funding opportunities	Expensive and limited funding opportunities
	Mainstreaming potential: Could it be integrated with existing local government planning and policy development?	Yes, easily and fully through many plans and strategies	Yes, partly but with more time and through more limited plans and strategies	Relatively limited potential, would require additional activities
Impact Criteria	Effectiveness: How well would it work on reducing vulnerability (in relation to the other actions)?	Vulnerability will be reduced to a large extent (in relation to the other actions)	Vulnerability will be reduced to a moderate extent (in relation to the other actions)	Vulnerability will be reduced to a limited extent (in relation to the other actions)
	Multi-sectoral and multi-objective: Would it address objectives in other sectors?	Yes, significant cross over with other sectors and objectives	Some cross over with other sectors and objectives	Little cross over with other sectors and limited impact on other objectives

ClimateTechWiki
A CLEAN TECHNOLOGY PLATFORM

Technology Information

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/SB/2009/2 (Annex II).

Mitigation

browse
- By Name -

browse
- By Sector -

browse
- By Service -

Adaptation

browse
- By Name -

- By Name -
Agro-forestry (adaptation)
Artificial Sand Dunes and Dune Rehabilitation
Beach nourishment
Biotechnology for climate change adaptation of crops
Biotechnology for Climate Change Adaptation of Crops
Climate Change Monitoring System
Coastal setbacks
Community-based Agricultural Extension Agents
Conservation tillage
Crop diversification and new varieties
Crop Diversification and New Varieties
Decentralised Community-run Early Warning Systems
Desalination
Domestic water supply during drought
Drip irrigation
Ecological pest management
Ecological Pest Management
Farmer field schools
Floating agricultural systems

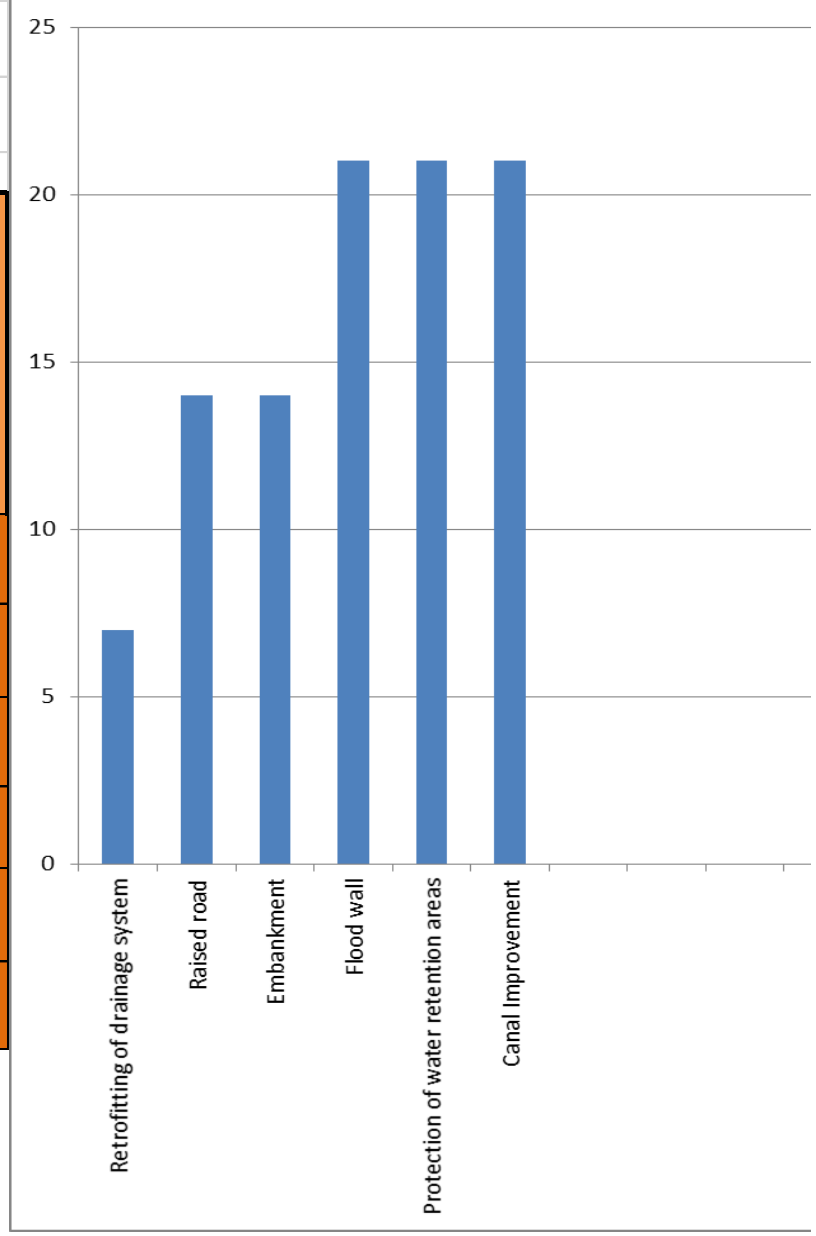
INTERESTING READS

- Ocean energy: Wave energy
- Biodiesel
- Electronic Road Pricing

Feasibility Ranking of Adaptation Actions

Observe the rankings of the adaptation actions in the feasibility assessment.
What are the highest ranked actions?

	Feasibility criteria					Impact Criteria				
Adaptation Actions	**Stakeholder Acceptability**	**Technical Feasibility**	**Ease of Implementation**	**Financial feasibility**	**Mainstreaming Potential**	**Effectivenes**	**Multi-sectoral/objective**	**Total**	**Ranking**	**Feasibility Index**
Retrofitting of drainage system	1	1	1	1	1	1	1	*7*	***6***	*0,3*
Raised road	2	2	2	2	2	2	2	*14*	***4***	*0,7*
Embankment	2	2	2	2	2	2	2	*14*	***4***	*0,7*
Flood wall	3	3	3	3	3	3	3	*21*	***1***	*1,0*
Protection of water retention areas	3	3	3	3	3	3	3	*21*	***1***	*1,0*
Canal Improvement	3	3	3	3	3	3	3	*21*	***1***	*1,0*



- Go to "Feasibility Ranking" and observe how all the scores for each alternative adaptation action add up, as well as the overall ranking of the adaptation actions and the feasibility index.
- Screen out options that rank the lowest (with the lowest Feasibility Index).

Adaptation Actions

Instructions: select up to 4 of the highest ranked adaptation actions for further assessment and copy/paste them in the cells below

No	Adaptation actions	Type	Sector	Time frame	Description	Source
1	**Retrofitting of drainage system**	**Structural**	Infrastructure	Long term		
2	**Raised road**	**Structural**	Infrastructure	Medium term		
3	**Embankment**	**Structural**	Flood management	Medium term		
4	**Flood wall**	**Structural**	Flood management	Medium term		

- Go to "Adaptation Actions" on the CLIMACT PRIO Tool.
- Based on the feasibility assessment results select four (4) adaptation actions to carry on for the rest of the exercise.

STEP 3: IDENTIFICATION OF EVALUATION CRITERIA

CRITERIA identification

1. Define **evaluation criteria**
2. Specify their respective **category**
3. Specify the **unit of measurement**
4. Specify the **direction of preference** (Min/Max)

	Task 1	Task 2	Task 3	Task 4
	Criteria	**Category of Criteria**	**Units**	**Min/Max**
1	Vulnerability reduction	Climate	%	Max
2	Cost	Economic	euros	Min
3	Institutional and technical capacity	Feasibility	"1-5"	Min
4	Acceptance	Social	"1-5"	Max
5	Achievement of Millenium Development Goals	Social	"1-5"	Max
6	Employment	Economic	"1-5"	Max
7	Enhancement of Ecological Condition	**Environmental**	"1-5"	Max

- Go to "Criteria" on the CLIMACT PRIO TOOL.
- The criteria selected can be of a diverse nature and should relate to broader local governments' priorities and objectives (the latter should be informed, among others, by the feasibility index).
- It should be SMART:

  S pecific, sensitive, solid;

  M easurable;

  A chievable, applicable, acceptable;

  R elevant, reliable, realistic; and

  T ime bound
- At the same time, it should be sensitive to change; clear and understandable; cost – effective; based on accessible data; and systemic!

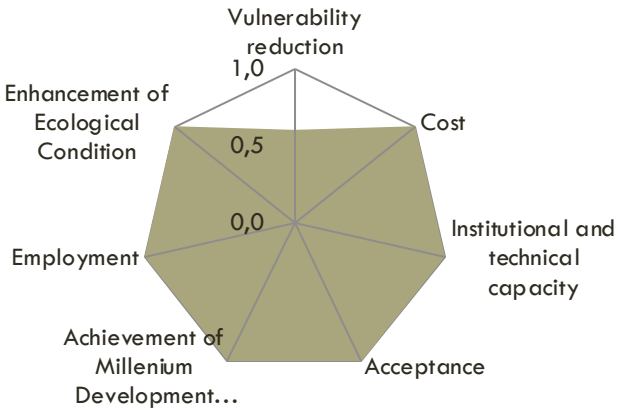
STEP 4: SCORING OF ACTIONS

Scoring - Impact Assessment Matrix

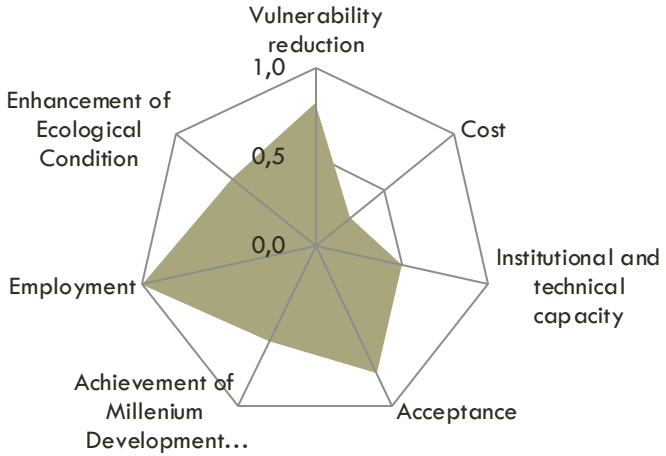
Actions/Criteria	Vulnerability reduction	Cost	Institutional and technical capacity	Acceptance	Achievement of Millenium Development Goals	Employment	Enhancement of Ecological Condition
Scale units	"1-5"	"1-5"	"1-5"	"1-5"	"1-5"	"1-5"	"1-5"
	Max	Min	Min	Max	Max	Max	Max
Retrofitting of drainage system	3	4	4	5	5	4	5
Raised road	4	1	2	4	3	4	3
Embankment	4	2	2	3	3	4	3
Flood wall	5	1	3	4	3	4	3

- Go to "Scoring – Impact Assessment Matrix" on the CLIMACT PRIO Tool.
- Indicate the scores for each alternative on every criterion.
- The criterion of cost should be minimized and therefore, the lowest cost option should be scored 5 (best performance) while the highest cost option should be scored 1 (worst performance).

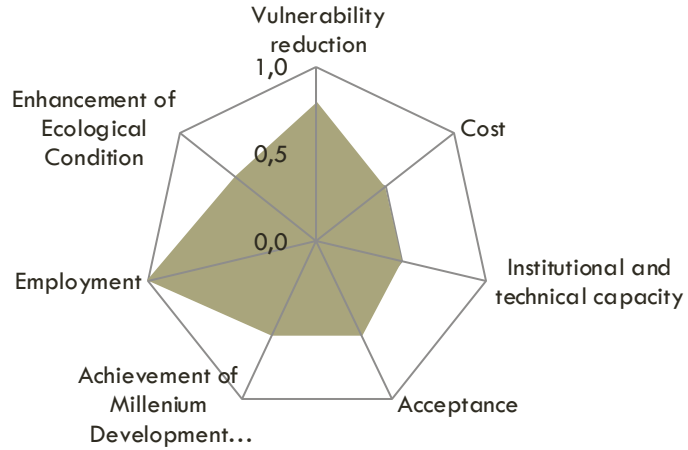
Retrofitting of drainage system



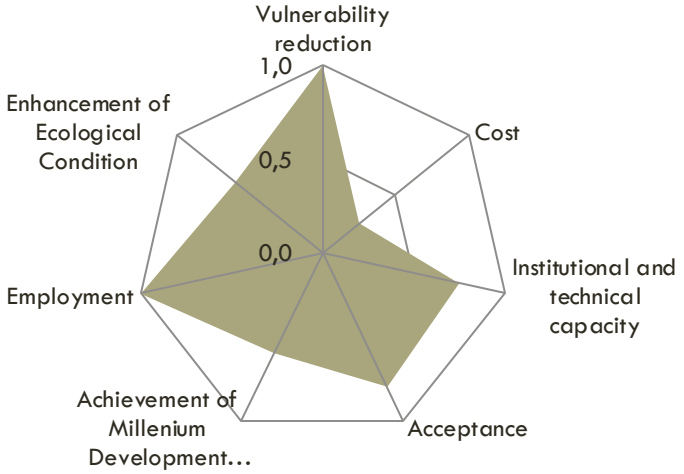
Raised road



Embankment



Flood wall



- Which action scores best according to the seven evaluation criteria?
  - Retrofitting of drainage system
  - Raised road
  - Embankment
  - Flood wall

Correct answer: Retrofitting of drainage system

STEP 5: WEIGHTING OF CRITERIA

Criteria Weighting

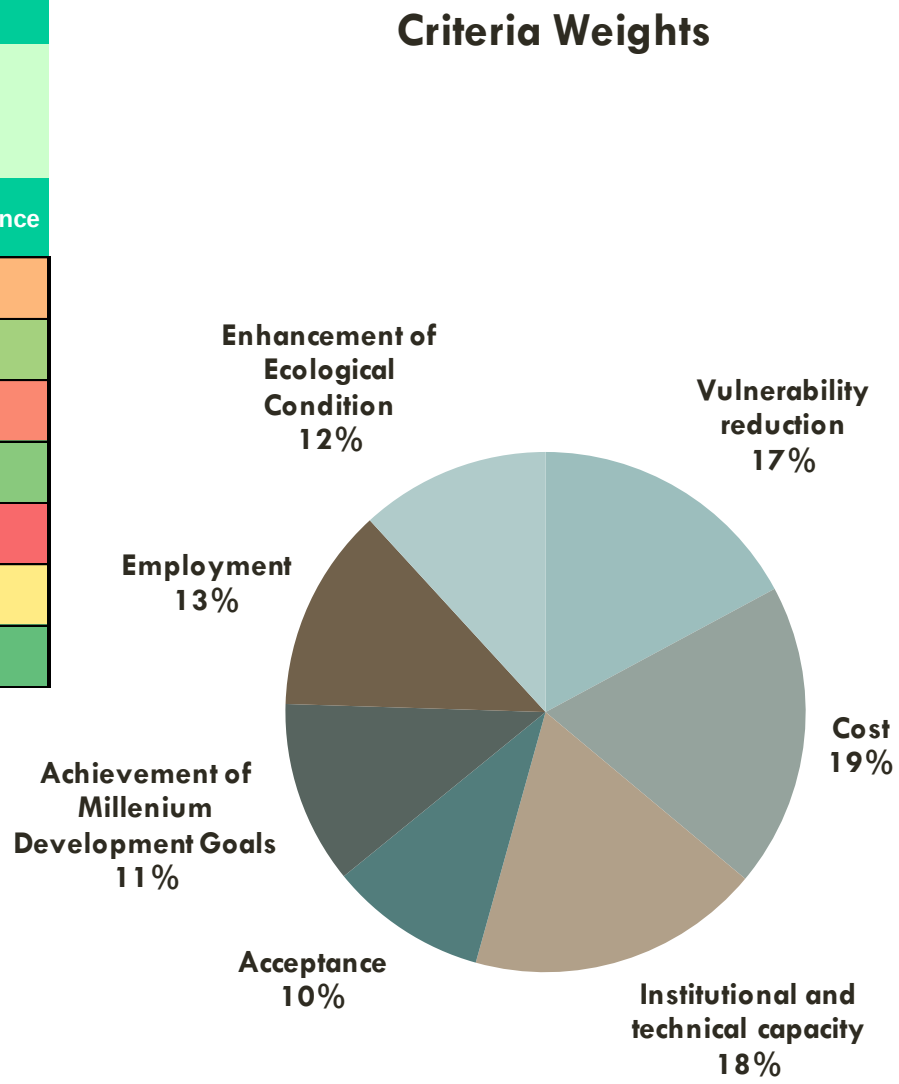
				Stakeholder 1				Stakeholder 2			
				Task 1	Task 2	Task 3		Task 1	Task 2	Task 3	
Category of Criteria	Criteria	Units	Impact Range	Rank	Importance	Values	Weights	Rank	Importance	Values	Weights
Climate	Vulnerability reduction	"1-5"	2	5	High	80	14,3%	3	Very High	90	20,0%
Economic	Cost	"1-5"	3	1	Very High	100	17,9%	2	Very High	90	20,0%
Feasibility	Institutional and technical capacity	"1-5"	2	4	High	80	14,3%	1	Very High	100	22,2%
Social	Acceptance	"1-5"	2	6	Moderate	60	10,7%	6	Low	40	8,9%
Social	evement of Millenium Development G	"1-5"	2	2	Very High	90	16,1%	7	Low	30	6,7%
Economic	Employment	"1-5"	0	3	High	80	14,3%	4	Moderate	50	11,1%
Environmental	Enhancement of Ecological Conditior	"1-5"	2	5	High	70	12,5%	5	Moderate	50	11,1%

- Go to "W-Stakeholders" on the CLIMACT PRIO Tool.
- Each stakeholder should rank the criteria from most important to least important.
- Provide the relative importance verbally and arithmetically.

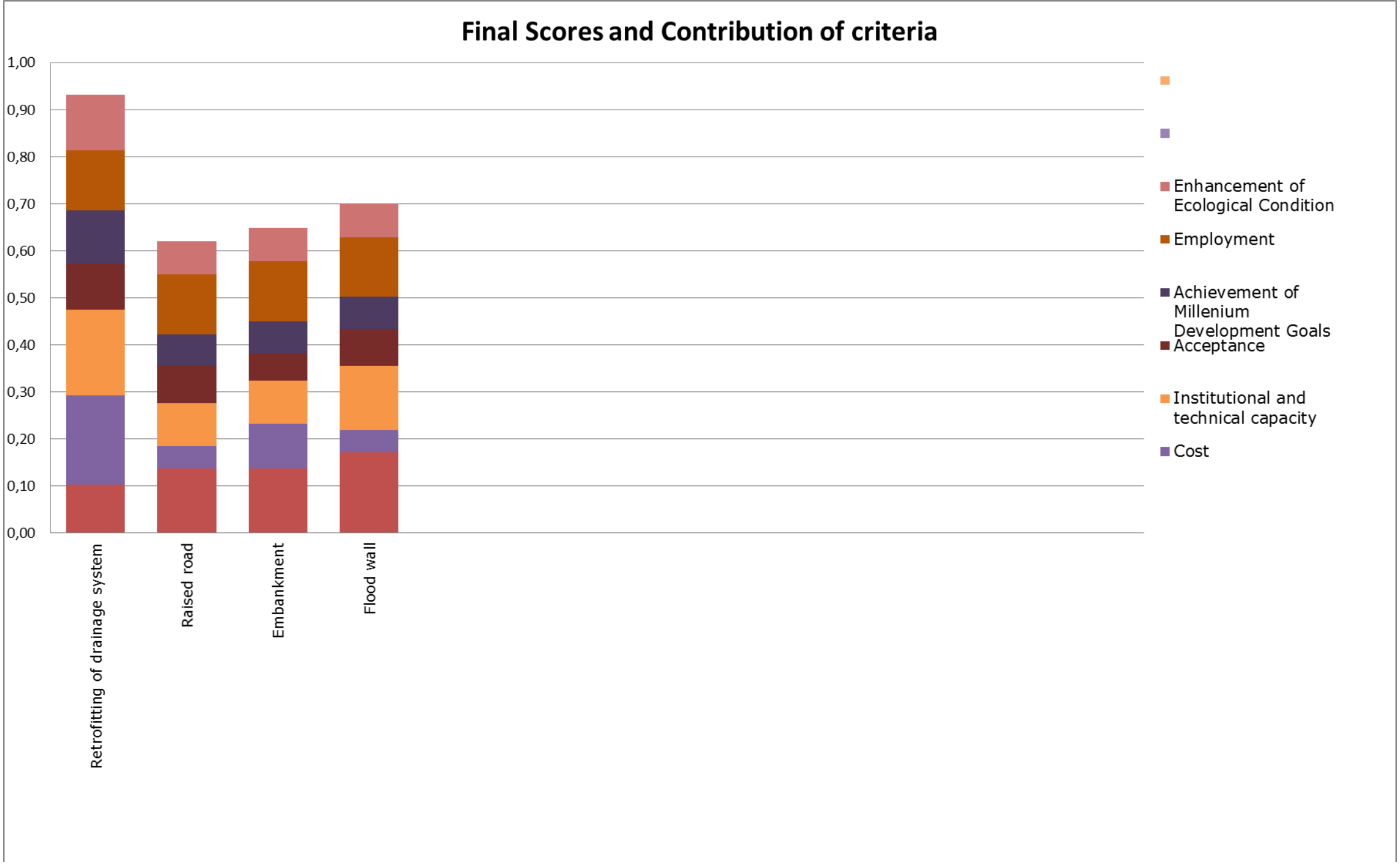
Criteria Weighting

1. Indicate the level of importance of criteria verbally from "very low" to "very high"
2. Assign a value denoting relative importance of criteria

Category of Criteria	Criteria	Impact Rang	Units	Rank	Values	Weights	Degree of Convergence
Climate	Vulnerability reduction	2,0	"1-5"	3	85	17,1%	4,0%
Economic	Cost	3,0	"1-5"	1	95	18,9%	1,5%
Feasibility	Institutional and technical capacity	2,0	"1-5"	2	90	18,3%	5,6%
Social	Acceptance	2,0	"1-5"	7	50	9,8%	1,3%
Social	Achievement of Millenium Development Goals	2,0	"1-5"	6	60	11,4%	6,7%
Economic	Employment	0,0	"1-5"	4	65	12,7%	2,2%
Environmental	Enhancement of Ecological Condition	2,0	"1-5"	5	60	11,8%	1,0%



STEP 6: PRIOTIZATION OF ACTIONS


Final Scores and Contribution of criteria
1,00
0,90
0,80
0,70
0,60
0,50
0,40
0,30
0,20
0,10
0,00
Retrofitting of drainage system
Raised road
Embankment
Flood wall
Enhancement of Ecological Condition
Employment
Achievement of Millenium Development Goals
Acceptance
Institutional and technical capacity
Cost

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THANK YOU!

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