

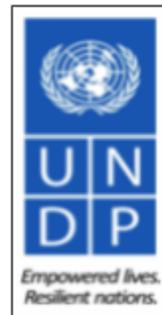


**Macedonia's Fourth National Communication and Third Biennial Update Report  
on Climate Change under the UNFCCC (UNDP Project no. 00110592)**

**GUIDELINE FOR  
CROSS-SECTORAL  
PRIORITIZATION OF THE  
MITIGATION AND  
ADAPTATION MEASURES**

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Natasa Markovska, Chief Technical Adviser  
[natasa@manu.edu.mk](mailto:natasa@manu.edu.mk)



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## Abstract

This document presents a participatory prioritization methodology for capturing different perspectives and views of the stakeholders regarding the criteria which are to be taken into account, their level of importance and specific project performance against the given criterion. The presented methodology is of a general nature – applicable for prioritization of a given set of projects of any area, including climate change mitigation and climate change adaptation, or combination of two or more areas, so called cross-sectoral prioritization, including cross-sectoral prioritization of mitigation and adaptation projects. Also, it can be applied for projects, both, at local and at national level. The final result is a priority list of projects generated in a participatory manner.

# 1. Introduction

## 1.1. Aim of the assignment

Nowadays, the need for multi-criteria prioritization of projects, activities, measures and policies based on participatory approach is substantially increasing. More and more priority lists of projects are needed as a part of the action plans and programs in many areas, which incorporate substantial buy-in from the relevant stakeholders from different sectors (government, public, private, non-government, academic, citizens). The stakeholders usually have different perspectives and views about

- Which criteria should be taken into account?
- What is the importance of each of the selected criteria?
- How the specific project performs against a given criterion?

The aim of this assignment is to present a methodology for capturing the different perspectives and views of the stakeholders regarding the three questions above and producing a ranking list of the given projects. This methodology should be of a general nature – applicable for prioritization of a given set of projects of any area (referred to as project area) or combination of two or more areas (cross-sectoral prioritization), be it at local or national level. As such, it could be applied for prioritization for the mitigation action plans, adaptation action plans, as well as general climate change action plans where prioritization should be made for projects from both areas, mitigation and adaptation.

## 1.2. Setting the stage

The process should start with a rapid **stakeholder analyses** – identifying the relevant stakeholders and gathering and analyzing qualitative information to determine their interests, power and influence. The stakeholder analyses should be conducted by a person who has skills for participatory engagement and profound knowledge of the project area, in cooperation with the entity which organizes or benefits from the prioritization (be it a ministry, municipality, donor, funding institution, etc.).

The identified stakeholders should be invited to a **prioritization workshop** which should be led by a **moderator**, the same person who conducted stakeholder analyses and is prepared to engage and communicate adequately with the participants. As a minimum, **a participation of at least one representative of various stakeholder groups** – government (different ministries), public, private, non-government, academic sectors and citizens should be ensured, but the more participating stakeholders, the better. The invitation letter should include the agenda of the prioritization workshop and the list of projects which are to be prioritized.

# 2. Criteria

## 2.1. Selection

The selection of criteria strongly depends on the purpose of prioritization – is it for compilation of a priority list of projects to be proposed to some financing institution, or is it development of action plan or programs in the given area(s). In the first case, almost all financing institutions have their criteria for selection of the projects, so that those criteria should be taken to base the prioritization upon. In the second case, the moderator should introduce a set of criteria which, as a best practise, usually are used for prioritization of

projects in the given area. The best practice criteria should be presented one by one, focusing on its relevance and quantitative or qualitative values for the specific situation. Then, through interactive discussion and voting, the stakeholders should select the criteria they will apply. **Best practice criteria for Mitigation and Adaptation** include:

- Environmental effectiveness (M)
- Economic effectiveness (M)
- Investments (A, M)
- Affected population (human or species) (A)
- Spatial range of influence (A)
- Difficulty to implementation (A, M)
- Availability of funding options (A, M)
- Monitoring (A, M)
- Measurability of results (A, M)
- Co-benefits (A, M)

The number of selected criteria should be discussed with the stakeholders. In order to reduce complexity and avoid going into unnecessary details, it is recommended **the set of selected criteria to include not more than five criteria**. For explanation of the prioritizing procedure, the number of selected criteria is assumed to be 5. Then, each of the presented best practice criteria is put on a separate paper sheet and stakeholders are given 5 stickers and asked to put them to 5 criteria sheets they think should be selected. **First five criteria with highest number of stickers are selected as prioritization criteria**. The moderator facilitates the discussion and decision made by stakeholders in case more than five have equal number of stickers. They could organize second round of voting, selecting only among the criteria with equal number of stickers as many criteria as needed, so the total number of selected criteria is 5.

In case of **cross-sectoral prioritization** it is recommended to conduct prioritization of mitigation and adaptation projects separately, and then the top X mitigation and the top Y adaptation projects (X and Y are decided by stakeholders in a facilitated discussion by the moderator) are prioritized applying the following **criteria**:

- Urgency
- Contribution to EU accession
- Difficulty to implementation
- Availability of funding options

The moderator can discuss this recommended set of criteria for cross-sectoral prioritization of mitigation and adaptation projects with the stakeholders and revise/amend as found appropriate.

## 2.2. Weighting

Once the five criteria are agreed, the stakeholders should reflect their views about what is the importance of each of the selected criteria. The moderator should explain the stakeholders that for each selected criterion they should associate one of the three options:

1 – if they think the criterion is of low importance

2 – if they think that the criterion is of medium importance

3 – if they think that the criterion is of high importance

Each stakeholder should be given a sheet of paper with the following table and asked to fill it.

**Table 1: Importance of the criteria as seen by the Stakeholder x**

Selected criteria	level of importance: 1 - low; 2 - medium; 3 - high
C1	
C2	
C3	
C4	
C5	

Based on the collected tables, **weights associated to the selected criteria** should be calculated summing across all participating stakeholders the respective level of importance for a given criterion and then, dividing that sum by a double sum of level of importance across all stakeholders and across all criteria.

$$W_i = \frac{\sum_{x=1}^S \text{level of importance}_{xi}}{\sum_{i=1}^5 \sum_{x=1}^S \text{level of importance}_{xi}}$$

where

$i$  is the given criterion,

$W_i$  is the weight of the criterion  $C_i$ ,

$S$  is number of participating stakeholders.

As a control check, the sum of the calculated weights should equal 1:

$$W_1 + W_2 + W_3 + W_4 + W_5 = 1$$

### 3. Evaluation

Once the criteria are selected and the associated weights determined, the stage is set for evaluation of the initial set of  $N$  projects. **Each stakeholder evaluates each project against each criterion.** The recommended marks are 1 to 5, with 5 denoting the highest performance.

Each stakeholder should be given a sheet of paper with the following table (**evaluating table**) and asked to fill her/his marks for each project against each criterion, explaining that the marks range from 1 to 5, 1 – poor, 2 – sufficient, 3 – good, 4 – very good, 5 – excellent.

**Table 2: Evaluating table of the Stakeholder x**

Stakeholder x	C1	C2	C3	C4	C5
Project 1	mark <sub>11</sub>				
Project 2			mark <sub>32</sub>	mark <sub>42</sub>	
Project n		mark <sub>2n</sub>			

Based on the evaluating tables, for each stakeholder, the score for each project is calculated applying the following formula:

$$Score_{xi} = \sum_{y=1}^5 mark_{yi} * W_y$$

As a result, a **scoring table** of each stakeholder can be compiled, as presented below:

**Table 3: Scoring table of the Stakeholder x**

Stakeholder x	Score
Project 1	Score <sub>x1</sub>
Project 2	Score <sub>x2</sub>
Project n	Score <sub>xn</sub>

## 4. Ranging

Once the scoring table is compiled for each of the stakeholders, the score for each of the projects is calculated summing the respective scores of all stakeholders:

$$Score_i = \sum_{x=1}^S Score_{xi}$$

The final result is a Ranking table, where a rank is assigned to each project as per its score. Rank 1 is assigned to the project with the highest Score, while the project with the lowest score is of a Rank n.

	<b>Score</b>	<b>Rank</b>
<b>Project 1</b>	Score <sub>1</sub>	
<b>Project 2</b>	Score <sub>2</sub>	1=max (Score <sub>i</sub> )
		n=min (Score <sub>i</sub> )
<b>Project n</b>	Score <sub>n</sub>	

## 5. Examples

### 5.1. Hypothetical case

Six participating stakeholders (S1, S2, ..., S6) selected five criteria for evaluation (C1, C2, ..., C5) and indicated their opinion on the level of importance as presented in the table below.

	S1	S2	S3	S4	S5	S6	Σ	<b>Wi</b>	
C1	3	3	2	3	3	1	15	0.25	
C2	2	3	1	2	2	2	12	0.20	
C3	2	1	1	1	3	1	9	0.15	
C4	1	1	1	1	1	1	6	0.10	
C5	3	3	3	3	3	3	18	0.30	
							Σ	60	1.00

The allocated importance for each criterion is a sum of the level of importance each stakeholder assigned to that criterion - 15 for C1, 12 for C2, ... 18 for C5. The total level of importance is 60 (sum of the allocated importance to the criteria). The weight of each criterion is a ratio between its allocated importance and total level of importance – W1=15/60=0.25, W2=12/60=0.2, ..., W5=18/60=0.30. The sum of the five weights equals 1, confirming that the weights are calculated correctly.

Example:  $3 \times 0.25 + 5 \times 0.20 + 3 \times 0.15 + 1 \times 0.10 + 5 \times 0.30 = 3.80$

The evaluating and scoring tables for each stakeholder are presented below.

Stakeholder 1						
Criterion	C1	C2	C3	C4	C5	
Weight	<b>0.25</b>	<b>0.20</b>	<b>0.15</b>	<b>0.10</b>	<b>0.30</b>	Score
project 1	3	4	5	2	3	<b>3.40</b>
project 2	2	5	4	2	3	<b>3.20</b>
project 3	5	5	2	4	2	<b>3.55</b>
project 4	3	5	3	1	5	<b>3.80</b>
project 5	1	4	3	3	3	<b>2.70</b>
project 8	2	2	2	3	1	<b>1.80</b>
project 7	4	4	2	4	3	<b>3.40</b>
project 8	5	4	5	4	4	<b>4.40</b>

Stakeholder 2						
Criterion	C1	C2	C3	C4	C5	
Weight	<b>0.25</b>	<b>0.20</b>	<b>0.15</b>	<b>0.10</b>	<b>0.30</b>	Score
project 1	2	3	5	3	2	<b>2.75</b>
project 2	3	4	5	3	4	<b>3.80</b>
project 3	4	4	2	5	2	<b>3.20</b>
project 4	5	4	4	2	5	<b>4.35</b>
project 5	2	3	3	2	4	<b>2.95</b>
project 8	3	3	1	3	2	<b>2.40</b>
project 7	1	5	1	3	2	<b>2.30</b>
project 8	4	4	4	4	5	<b>4.30</b>

Stakeholder 3						
Criterion	C1	C2	C3	C4	C5	
Weight	<b>0.25</b>	<b>0.20</b>	<b>0.15</b>	<b>0.10</b>	<b>0.30</b>	Score
project 1	1	5	5	5	3	<b>3.40</b>
project 2	2	5	4	4	5	<b>4.00</b>
project 3	4	4	2	4	3	<b>3.40</b>
project 4	4	4	4	3	4	<b>3.90</b>
project 5	3	2	2	1	5	<b>3.05</b>
project 8	4	3	2	4	3	<b>3.20</b>
project 7	4	5	3	5	4	<b>4.15</b>
project 8	3	4	3	4	4	<b>3.60</b>

Stakeholder 4						
Criterion	C1	C2	C3	C4	C5	
Weight	<b>0.25</b>	<b>0.20</b>	<b>0.15</b>	<b>0.10</b>	<b>0.30</b>	Score
project 1	5	3	5	3	4	<b>4.10</b>
project 2	3	4	5	3	3	<b>3.50</b>
project 3	4	5	2	5	4	<b>4.00</b>
project 4	3	4	3	3	5	<b>3.80</b>
project 5	3	5	4	2	4	<b>3.75</b>
project 8	1	2	1	2	2	<b>1.60</b>
project 7	4	3	2	4	3	<b>3.20</b>
project 8	4	4	4	5	5	<b>4.40</b>

Stakeholder 5						
Criterion	C1	C2	C3	C4	C5	
Weight	<b>0.25</b>	<b>0.20</b>	<b>0.15</b>	<b>0.10</b>	<b>0.30</b>	Score
project 1	3	2	4	3	1	<b>2.35</b>
project 2	4	3	5	2	4	<b>3.75</b>
project 3	4	4	2	4	2	<b>3.10</b>
project 4	5	4	4	1	5	<b>4.25</b>
project 5	2	3	3	2	4	<b>2.95</b>
project 8	3	3	1	4	2	<b>2.50</b>
project 7	1	5	1	4	2	<b>2.40</b>
project 8	4	3	4	3	5	<b>4.00</b>

Stakeholder 6						
Criterion	C1	C2	C3	C4	C5	
Weight	<b>0.25</b>	<b>0.20</b>	<b>0.15</b>	<b>0.10</b>	<b>0.30</b>	Score
project 1	2	4	4	5	2	<b>3.00</b>
project 2	2	4	3	4	4	<b>3.35</b>
project 3	3	3	2	5	3	<b>3.05</b>
project 4	3	4	3	3	5	<b>3.80</b>
project 5	2	2	2	1	4	<b>2.50</b>
project 8	4	4	2	5	3	<b>3.50</b>
project 7	5	4	3	4	3	<b>3.80</b>
project 8	3	4	3	5	4	<b>3.70</b>

Overall, the project 8 has the highest score, so it is the highest priority project followed by project 4 and project 2.

Example: **20.30** = 3.55+3.20+3.40+4.00+3.10+3.05

	Score	Rank		Score	Rank
project 1	<b>19.00</b>	<b>6</b>	project 5	<b>17.90</b>	<b>7</b>

project 2	21.60	3	project 6	15.00	8
project 3	20.30	4	project 7	19.25	5
project 4	23.90	2	project 8	24.40	1

## 5.2. Real application

Participatory prioritization conducted within the study “Climate Change Mitigation Potential of the National Transport Sector” under the project “Third National Communication to UNFCCC”

### *Input list of actions to be prioritized*

All the mitigation policies and measures analysed in to the study were grouped into five strategies as follows:

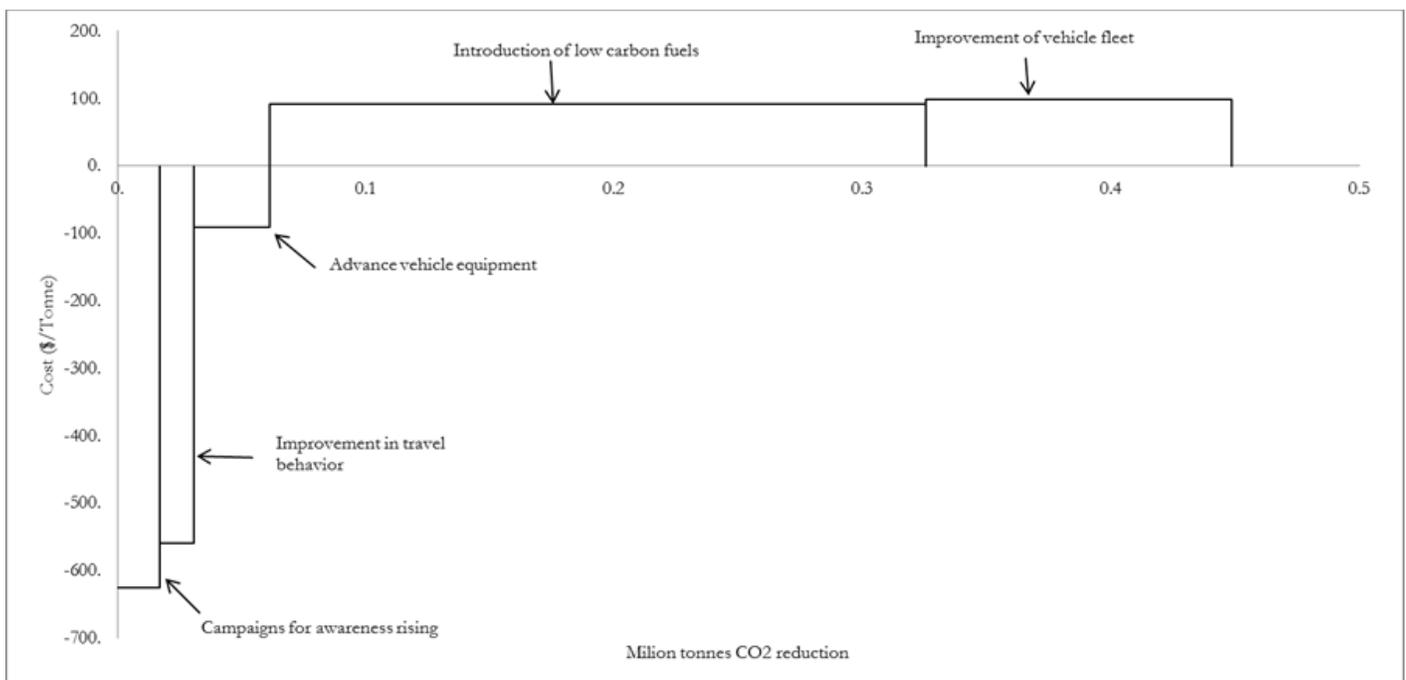
1. Improvement of vehicle fleet
2. Introduction of low carbon fuels
3. Improvement of travel behavior
4. Advance vehicle equipment
5. Campaigns for awareness rising

These strategies are actions to be prioritized by the stakeholders.

### *Empowering the stakeholders*

The moderator presented the activities and discussed various aspects with the stakeholders, i.e available data, possible barriers for implementation, financial options, economic, environmental and social impacts, measurability of their outcomes and why is that important, investments required, etc.

Particularly, Mitigation Marginal Cost Curve, one of the results of the analytical work, was presented and explained in an interactive manner, so the stakeholders gathered adequate knowledge to utilize in the next phase. Some best practices mitigation criteria were discussed in light of their applicability in the concrete case.



## Marginal cost curve of the transport mitigations strategies

### *Prioritization criteria*

By voting, the following five criteria were selected to base the prioritization upon:

- Economic effectiveness (price of reduction)
- Environmental effectiveness (volume of reduction)
- Feasibility (difficulty of implementation)
- Measurability (difficulty of measuring and verification of the achieved emissions reductions)
- Co-benefits (health benefits, diversification of income, new jobs, life quality)

The weighting exercise produced the following results

<b>Weighting: Results</b>		
	Criterion	Weight
C1	Economic effectiveness	0.21
C2	Environmental effectiveness	0.20
C3	Feasibility	0.22
C4	Measurability	0.19
C5	Co-benefits	0.18
	$\Sigma$	1

Although with relatively close weights (meaning that in view of the stakeholders, all the criteria are almost equally important) the stakeholders assigned a leading role to the “feasibility” as the strongest determinant of the “quality” of the mitigation strategy, followed by economic and environmental effectiveness. Although with slightly lower weights, the measurability of the achieved GHG emissions reduction and associated co-benefits remain almost equally important determinants of the mitigation strategy quality.

### *Evaluation and ranking list*

The stakeholders were asked to evaluate each of the five mitigation strategies with marks 1 (lowest) to 5 (highest) against each criterion. The analytical phase of this assignment provided quantified values for the first two criteria (environmental effectiveness and economic effectiveness), so the evaluation according to these two criteria was straightforward. With regards to the remaining three criteria the participants performed the evaluation on the basis of their personal understanding and knowledge. The evaluation results were as follows:

<b>Evaluation: Results</b>		
Mitigation strategy/Rank	Score	Rank
Improvement of vehicle fleet	7.72	4
Introduction of low carbon fuels	8.57	1
Improvement of travel behavior	7.78	3
Advancement of vehicle equipment	7.10	5
Campaigns for awareness rising	8.03	2

Owing to its highest environmental effectiveness, considerable health and socio-economic co-benefits and relatively good measurability and feasibility, the introduction of low carbon fuels is the winning mitigation strategy in transport sector. This is also in line with the EU target for the share of biofuels in total energy consumption of the transport sector which should be also implemented in the country as EU candidate country.

Definitely, the lowest specific cost (or highest economic effectiveness) accompanied with easiness of implementation was the decisive factor for the second score of the awareness rising campaigns. However, the achieved emission reduction is difficult, if not impossible, to measure.

For the same reasons plus the associated health co-benefits, the improvement of travel behaviour took the third place in the ranking list. Quantification and measurement is a burning problem of this mitigation strategy also.

Although with relatively high environmental effectiveness and specific costs similar to the ones of the introduction of low carbon fuels, the improvement of vehicle fleet took the lower part of the ranking list. The possible reasons should be looked at the decision-making at car-owner level, so harmonized action is difficult to implement, as well as at the fact that the investment comes from the families' budget, which directly affects the decision about purchasing a new vehicle. The measurability of the achieved emissions reductions could be an issue since detailed and disaggregated data are needed about the vehicles, fuel consumption, and kilometres passed.

Finally, the last on the ranking list is the mitigation strategy related to advancement of vehicle equipment. This can be explained with the moderate or low scores of this strategy against the all criteria. Here again the measurability of the achieved reductions is a burning problem, since it is difficult to record the individual actions along this mitigation strategy.

## 6. Conclusion and recommendations

Instead of conclusion, the prioritization process and capacity (human and technical) needs are presented in the table below, including also some recommendations which will help increasing the level of inclusiveness and efficiency.

	<p><b>Start with a Stakeholder analyses.</b></p> <p>The process should start with a rapid stakeholder analyses – identifying the relevant stakeholders and gathering and analyzing qualitative information to determine the stakeholders’ interests, power and influence.</p> <p><b>Recommendation:</b> As a first step, decide which stakeholder groups are relevant. The groups could include, but not limited to: government (different ministries), public, private, non-government, academic sectors and citizens.</p>
	<p><b>Conduct a participatory workshop.</b></p> <p>The participatory workshop will enable capturing different perspectives and views of the stakeholders regarding the criteria which are to be taken into account for prioritization, their level of importance and specific project performance against the given criterion.</p> <p><b>Recommendation:</b> As a minimum, ensure a participation of at least one representative of the identified stakeholder groups, but the more participating stakeholders, the better.</p>
	<p><b>Designate a knowledgeable and skillful moderator.</b></p> <p>The moderator should present and discuss various aspects of the projects subjected to prioritization, answer questions, present good examples and best practices, motivate and brainstorm. Specifically, the moderator should:</p> <ul style="list-style-type: none"> <li>● Present the best practice criteria in the project area and discuss them in the specific context</li> <li>● Present “what and how to the do” for every step of the prioritization process</li> <li>● Support the stakeholders during prioritization process</li> </ul> <p><b>Recommendation:</b> The moderator should have skills for participatory engagement and profound knowledge of the project area.</p>



**Engage the stakeholders.**

Ask the Stakeholders to provide their views about:

- Criteria to base prioritization on (prioritization criteria)

**Recommendation:** Keep it simple – no more than five criteria.

Introduce a coffee break once the stakeholders select the prioritization criteria. During the break, prepare the table for level of importance (Table 1) and evaluating table (Table 2) and print them in a sufficient number of copies.

Distribute the tables to stakeholders and ask them to provide their views about:

- Level of importance of the prioritization criteria
- Performance of the projects against selected criteria

**Recommendation:** Collect the filled-in tables for level of importance and calculate the weights while the stakeholders fill-in the evaluating tables.



**Calculate the scores.**

Based on the Stakeholder response, calculate

- Project scores for each stakeholder
- Overall project score for each project

**Recommendation:** Compile a ranking list of projects, present and discuss it with the stakeholders. Keep the spirit of mutual respect and cooperation.



**Develop prioritization app.**

It should not be a difficult task for an ICT expert to implement the prioritization process in a software application. Instead of paper sheets and pens, the stakeholders would use their mobile phones to provide the requested inputs. And the calculation of the projects score is immediate!

**Recommendation:** Go to e-prioritization and save everybody's time and paper. That would be a gain in efficiency and CO<sub>2</sub> sinks.