

cc.alps

DEVELOPING EVALUATION SCHEME

WORKING PAPER



Bruno Abegg, Zurich, August 6th, 2008

The cc.alps project is borne by the International Commission for the Protection of the Alps (CIPRA) and financed by the MAVA Foundation for Nature. Through the Project, CIPRA aims at contributing towards climate response measures that are in line with the principles of sustainable development.

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1 TASK

According to the proposal for the cc.alps project, the following objectives were given for the development of an evaluation scheme:

Activities
<p>The adaptation and mitigation measures have to be evaluated. With the evaluation we want to check if a measure is ecologically sound and if the funds have been used in a goal oriented and efficient way.</p> <p>As almost no literature exists on this topic an evaluation system needs to be developed. This is to be done by a small team of qualified and creative persons.</p> <p>Many measures will have positive and negative effects at the same time. Additionally, some effects cannot be predicted but only estimated. A final evaluation therefore is not easy. For this reason a reference system is to be created. This reference system has to be fair and transparent. Not only the criteria but also their weighting is to be published.</p>
Results: Reference system
<p>Transparent reference system in the form of guidelines, a criteria catalogue and/or an evaluation scheme.</p> <p>This scheme can also be used for the evaluation of the contributions to the competition.</p>
Indicators for the evaluation
<p>Scientifically sound reference system</p>
Benchmark for success
<p>The reference system is approved by the experts of the enlarged project team</p>

2 BASIC INFORMATION

General remarks

The evaluation scheme should be

- easy to handle (e.g. time constraints), but scientifically sound
- applicable with the information provided by competition and research
- able to deal with qualitative and quantitative data
- able to make a comparative assessment of heterogeneous climate response measures, that is to compare “apples and pears”

Impacts of climate response measures

First-order impacts:

Adaptation measures: moderate harm or exploit beneficial opportunities of climate change. That is to enhance resilience and/or reduce vulnerability.

Mitigation measures: reduce anthropogenic greenhouse gas emissions or enhance natural sinks. That is to engage in “climate protection”.

Second-order impacts:

Within the context of cc.alps we are asking for the side effects resulting from the implementation of climate response measures. In particular, we are interested in the “social, economic and environmental externalities” (good or bad) of implementing climate response measures.

Very brief literature review (climate change literature)

The following evaluation criteria are often mentioned in the climate change literature: benefits, costs, net benefits (benefits exceed costs), “no regrets” (net benefits independent of climate change), efficiency, equity, urgency, and implementability.

In addition, there is a rather significant body of literature dealing with “tools”. The United Nations Framework Convention on Climate Change (UNFCCC), for example, is publishing a “Compendium on methods and tools to evaluate impacts of, and vulnerability and adaptation to, climate change”. The so-called decision tools might be of interest: they range from expert judgment to multi-criteria analysis and cost-benefit analysis etc.

Most examples, however, focus on the costs and/or the selection of appropriate measures for policy initiatives without mentioning second-order impacts.

More insight can be obtained by studying the general literature on evaluation schemes: e.g. assessment and planning literature. Interesting link: <http://ivm5.ivm.vu.nl/sat/>

Multiple criteria evaluation framework

The analysis of climate response measures should be guided by overall goals. It is not sufficient to state that adverse impacts should be avoided, reduced or eliminated. One example of an overall goal commonly propounded is the promotion of sustainable development. However, sustainable development is such a broad term that specific objectives and evaluation criteria are needed.

Overall goal of cc.alps: “CIPRA aims at contributing towards climate response measures that are in line with the principles of sustainable development.”

Example of a multiple criteria evaluation framework

Overall Goal	Specific Objectives	Evaluation Criteria
Climate response measures that are in line with the prin-	1) Climate	1) Mitigation

<p>principles of sustainable development</p>	<p>2) Sustainability</p> <p>3) “Add-ons”</p>	<p>2) Adaptation</p> <p>3) Impact on environment</p> <p>4) Impact on society</p> <p>5) Impact on economy</p> <p>6) PR impact and awareness</p> <p>7) Transferability</p> <p>8) Comprehensive strategy</p>
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To remember

Aim is not to make a final judgment whether a certain climate response measure is sustainable or not, but to differentiate between more and less sustainable measures (“to weigh up the pros and cons”) etc.

3 SPECIFIC OBJECTIVES

The overall goal of cc.alps can be further divided into three objectives:

- 1) “Climate”: cc.alps is dealing with climate response measures. We are particularly interested in the performance of these measures, e.g. their explicit contribution to adaptation and mitigation.
- 2) “Sustainability”: We are focusing on the “side effects”. That is the social, economic and environmental externalities (good or bad) of implementing CRMs. Therefore, we are also highly interested in the “sustainability performance” of these measures.
- 3) “Add-ons”: This objective encompasses additional aspects such PR impact/awareness raising, transferability and comprehensive climate strategy which are thought to be important in order to make a broader evaluation of the CRMs performance.

4 EVALUATION CRITERIA

“General criteria” for selecting the criteria

- Value relevance: The criteria are linked to the fundamental goals of cc.alps.
- Applicability/practicability: The criteria must be applicable to as many CRMs as possible (literally: to all).
- Clarity/comprehensibility: The concept behind each criterion is clear and there is a common view about the preferred direction of the CRMs performances.
- Measurability: The performance of the CRMs can be expressed on either a quantitative or a qualitative scale. Within the context of cc.alps, it will be a qualitative scale.
- Completeness: The set of criteria covers the important aspects of the CRMs while still being concise and operational.
- Non-redundancy: No criterion reflects the same concept as another, thus avoiding double counting and over-rating the importance of a single aspect.

Furthermore, the number of criteria should not exceed a reasonable limit. Within socio-economic programmes of the EU, for example, 8 (!) criteria are usually applied (MCA).

Criteria for evaluating the CRMs

In setting up the templates for the competition and the data acquisition we (sort of) pre-defined the criteria. Here's a list of the criteria, including a few words of what could be considered while evaluating the CRMs:

1) Mitigation: contribution to climate protection, reduction of greenhouse gas emissions in absolute numbers (e.g. in tons of CO₂), in relative numbers (e.g. savings in %), or per economic output in CHF/EURO, enhancement of (natural) sinks, carbon sequestration, question of persistency, “verification” of the data received (e.g. reasonable numbers) etc.

2) Adaptation: reducing the vulnerability of an affected system, enhancing the resilience of an affected system or taking advantage of new opportunities, adaptation to current climate variability and/or future climate change (time horizon), distinctions: autonomous vs planned adaptation, reactive vs anticipatory adaptation, short-term vs long-term adaptation, localized vs widespread adaptation etc.,

3) Impact on nature (positive, neutral or negative)

Landscape: e.g. enhancement or degradation (natural and cultural landscapes), change of land use, multi-functionality, diversity, ecotone, change in landscape aesthetics

Alpine ecosystems/biodiversity: e.g. enhancement or degradation, multi-functionality (e.g. protection function)

Water, soil and air: e.g. enhancement or degradation

Others: production and consumption of natural resources

4) Impact on society (positive, neutral or negative)

Social justice: e.g. equity, equal opportunities for all individuals, gender equality, promotion of mutual understanding and co-operation between populations, quality of life

Participation: e.g. bottom-up approaches, empowerment, subsidiarity, transparency

Regional/cultural identity: e.g. strengthening regional cohesion

5) Impact on economy (positive, neutral or negative)

Employment: e.g. creation of (qualified) regional jobs

Added value/income: e.g. regional income, strengthening of local/regional economy, multiplier effects etc.

Know-how and competitiveness: e.g. promoting education and training, dissemination of knowledge and innovation, implementation of modern technologies, future economic potential of the corresponding innovation/technology etc.

6) Publicity and awareness raising: e.g. mix of pr-activities, media coverage, circulation and reach of the respective media (from local to international), target groups etc.

7) Transferability: kind of possible transfers (CRM as a whole, methods, strategies, technologies etc.), nature and scope of transfer (sectoral, spatial etc.)

8) Comprehensive climate strategy: CRM is part of a comprehensive climate strategy, components of this strategy (climate relevant activities, measures and methods), fields of action, CRM serves as a “fig-leaf” to cover up unsustainable practices etc.

5 EVALUATION SCHEME

Evaluation = assess the performance or degree of fulfillment of each climate response measure with respect to the stated criteria.

5.1 GENERAL REMARKS

This evaluation scheme is based on the methodology of Multiple Criteria Analysis (MCA). It was developed by the participants of the Vienna meeting on July 24th/25th 2008 and approved by the participants of the Feldkirch meeting on August 4th 2008. Both, the participants of the Vienna meeting and the participants of the Feldkirch meeting tested the evaluation scheme with several competition entries.

5.2 SCORING SCALE

The participating experts of the Vienna meeting (July 24th/25th, 2008) agreed on a scoring scale that ranges from minus 2 to plus 2.

Description of the scores

Criteria 1–5 (Mitigation and Adaptation plus “Sustainability” Criteria)

+ 2	CRM has a very positive impact
+ 1	CRM has a positive impact
0	CRM has no or neutral or irrelevant impact
– 1	CRM has negative impact
– 2	CRM has very negative impact

Criteria 6 and 8 (PR impact/awareness and comprehensive climate strategy)

+ 2	CRM fulfils the criterion very well
+ 1	CRM fulfils the criterion
0	CRM fulfils the criterion partly
– 1	CRM does not fulfil the criterion very well
– 2	CRM does not fulfil the criterion at all

Criterion 7 (Transferability)

+ 2	CRM is very well transferable
+ 1	CRM is transferable
0	CRM is (at least) partly transferable
– 1	CRM is hardly transferable (only under certain circumstances)
– 2	CRM is not transferable at all

Missing data

1) Competition: The contestants were asked to fill in the competition form completely. Without any explanatory comment, missing data means a score of –2.

2) Research: On one hand, the national contact points were also asked to fill in the research form completely. On the other hand, they were told about the possibility of missing data. In this case, they were asked to use the corresponding textbox for explanatory comments (see Guidelines for Data Acquisition, p. 6). Given reasonable comments, missing data means a score of zero (0).

5.3 VETO THRESHOLDS (for competition entries only)

The participating experts of the Vienna meeting (July 24th/25th, 2008) agreed on the following veto thresholds (for competition entries only!):

- Criteria 1a (mitigation for mitigation measures): score of –2
- Criteria 2a (adaptation for adaptation measures): score of –2
- Criteria 3 (impact on environment): score of –2
- Criteria 4 (impact on society): score of –2
- Criteria 8 (comprehensive climate strategy): score of –2

Any CRM scoring –2 in one of the above mentioned criteria is out of the top 30 (number to be determined). In other words: CRMs scoring –2 in one of the above mentioned criteria are not eligible for winning a prize! See also Memo of 2nd meeting of the expert team in Vienna.

There are no veto thresholds for criteria 5, 6 and 7, respectively.

5.4 WEIGHTING OF CRITERIA

The 8 evaluation criteria are not equally important. At the 1st expert meeting in Lausanne, for example, the experts were talking about the comprehensive climate strategy. Criterion 8 can be either a “bonus-criteria” (“extra point” if climate response measure is part of a comprehensive climate strategy) or a “killer-criteria” (e.g. adaptation does not make sense without mitigation). Therefore, each criterion must be weighted. In addition, some of the objectives may conflict with one another.

The participating experts of the Vienna meeting (July 24th/25th, 2008) agreed on the following weighting (see also Memo of 2nd meeting of the expert team in Vienna):

Criterion	Weight
1) Mitigation	2,0 ^a /1,0 ^b
2) Adaptation	2,0 ^c /1,0 ^d
3) Impact on environment	1,0
4) Impact on society	1,0
5) Impact on economy	1,0
6) PR impact and awareness	0,5
7) Transferability	1,0
8) Comprehensive climate strategy	1,0

The different weights for the mitigation and the adaptation criteria (2,0/1,0) are due to the reasoning that the mitigation effect of a mitigation measure is more important than the mitigation effect of an adaptation measure (and vice versa):

- a) if the CRM under consideration is a mitigation measure
- b) if the CRM under consideration is an adaptation measure
- c) if the CRM under consideration is an adaptation measure
- d) if the CRM under consideration is a mitigation measure

The reasoning behind the weighting:

- The CRMs are the backbone of the cc.alps project. The combined weight of the “climate criteria” (mitigation and adaptation) is 3,0. No other group of criteria should have a higher weight.
- We are particularly interested in the “side effects” of implementing CRMs. Therefore, the three “sustainability criteria” (criteria 3-5) should have the same weight as the two “climate criteria”. Both groups of criteria have a combined weight of 3,0.
- In the long run, the three “sustainability criteria” are equally important. Therefore, each “sustainability criterion” has the same weight (1,0).
- The criteria 6-8 should be less important than the “climate” and “sustainability criteria”.
- Within the context of cc.alps, transferability is very important, because we will have to convince regional stakeholders that these measures make sense and it is possible to carry them out. Therefore, we need transferable good practice examples. This is more important than good PR and awareness raising (criterion 6).
- A comprehensive climate strategy (criterion 8) and integrated climate measures (criteria 1 and 2) are thought to be more important in cc.alps than single measures, that are not embedded into a concept and do not consider the mitigation or adaptation aspect.

5.5 AGGREGATION

The total score of a CRM is calculated by multiplying each score by its weighting, and by adding the weighted scores.

Multi-criteria evaluation matrix (or impact scoring matrix)

	Crit. 1 (SxW)	Crit. 2 (SxW)	Crit. 3 (SxW)	Crit. 4 (SxW)	Crit. 5 (SxW)	Crit. 6 (SxW)	Crit. 7 (SxW)	Crit. 8 (SxW)	Total score
CRM1	2	0	1	2	2	0,5	2	-1	8,5
CRM2	4	0	2	1	2	0,5	2	-1	11,5
...									
CRMn	4	1	2	2	2	1	2	2	16

(SxW) = Score x Weight

6 TO REMEMBER WHILE DOING THE EVALUATION

Verify whether the CRM is a mitigation or adaptation measure.

We asked for visible results. Check the date of implementation!

Evaluate the CRMs within their means.

If a criterion is not fulfilled at all, the score is –2 (not 0).