ADDITIONAL RESOURCE

AFRICAN DEVELOPMENT BANK GROUP
GROUPE DE LA BANQUE AFRICAINE DE DÉVELOPPEMENT

oneWORLD
We build resilient futures

Multi-Criteria Decision Making

Guide for applying the Multi-Criteria Decision Making (MCDM) support tool

To apply this tool, you will need an understanding of the levels of scarcity, the vested interests, available resources, and uncertainty levels within your project location. This context has been developed throughout this training course, for example in understanding risk and vulnerability (R&V) to climate change and the results from 1st-to-4th order impact assessments. Applying the MCDM tool (Table 4.2 below) will now allow you to analyse decision-making trade-offs by assessing the range of possible co-benefits and alternative options.

Steps in using the MCDM tool framework

1. Identify a suite of possible (specific) interventions/services in response to the climate change risks for your project location (1st-to -4th order, climate mainstreaming etc.).
2. Categorise identified responses thematically, for example institutional, social, environmental, economic .
3. Detail the descriptive indicators related to the categorised responses.
4. Cluster identified indicators thematically, for example, natural, human, social, financial, industrial capital (e.g. Table 4.1). Balance the number of indicators noting that:
5. the more indicators included in the framework, the less chance a single indicator will dominate.
6. But, the disadvantage of too many indicators is that the importance of a few key indicators can be compromised. Also, the more indicators there are, the more time-consuming the process, especially if it involves multi-party stakeholder participation.
7. Attach scores to the indicators, thus conducting a version of a cost-benefit analysis: apply the scoring scale in Table 1 (note: this is built into the spreadsheet you are using). You may alter the range of the scoring scale if you wish, noting that scales can range from -1 to +3, where -1 implies a deterioration and/or detraction and/or a conflict with the indicator and +3 a strong support and/or proven evidence of success with respect to the indicator (e.g. Table 1). The These scores should be consolidated and analysed by the group to see which interventions are consistently prioritised. Here, as a group, you will rank the interventions according to the highest scores.

8.

Table 1: Example criteria for scoring the indicators

-1	Deterioration/conflict
0	Indifferent
1	Ok
2	Good
3	Very good/strong support

Once each intervention is scored the outcome is an index for each thematic area, which can be combined to provide a total score.

Case Study 1: Mazabuka and water equality – Using the MCDA tool

Case study 4.1: Mazabuka and water equality – using the MCDM tool to prioritise water equality development policy objectives and climate change risks for the district

You can use the MCDM tool to deal with development decisions that are specific to a district or region. Mazabuka has a number of important development policy objectives related to water equality and access in the district. Working as a group, participants applied the MCDM tool to specific interventions that are already in the implementation stage at district level in Mazabuka. The objective was to enable improved decisions around which interventions (hard or soft) are best suited to development targets, whose achievement may be impacted by climate change.

Because the MCDM Tool is an index, or a way to measure different variables, interventions can be taken at a district (e.g. development policy), ward (e.g. incentive schemes such as farming inputs) or community (e.g. bags of charcoal) level.

In applying the MCDM Tool, it is important to consider the mechanisms necessary to achieve overall aims – i.e. while water security might be an objective, it is still necessary to use different techniques as measurement mechanisms of achieving this objective.

In the early stage of applying the MCDM, participatory analysis was undertaken (replicable across any level of district planning). This considered how the tool is used and what it is meant to achieve. Current interventions being implemented in the Mazabuka district were considered, which included the following:

INTERVENTION	INDICATOR
Drilling of Boreholes	# of boreholes drilled and functional
Rehabilitation of existing boreholes & wells	# of boreholes rehabilitated and functional # of wells rehabilitated and functional
Protection of wells	# of wells protected
Installation of new water intake systems	# of water intakes installed and functional
Formation and training of V-WASHE & water management committees	# of V-WASHE & Water management committees formed AND trained

Using the MCDM Tool, the groups ranked, weighted and graded these interventions across the different indicators. Indicators were selected according to Institutional and Governance, Social, Economic Development, Environmental, and Human Benefit themes.

At a project level, the participants noted that it is necessary to consider how to apply the MCDM realistically, considering external factors, and how much time it may take to apply the tool. For example, a CRAF using this in collaboration with community members in order to determine and prioritise interventions will potentially have a very different outcome to the MCDM Tool being used at a district level for decision-making on policy objectives.

Thus, in applying the MCDM tool, the user needs to consider the different stages, as well as influencing factors, of what is already happening across the district, wards and communities. The tool should be used as a guideline in an iterative process of incorporating different aspects (or themes) underpinning the interventions; there are factors that affect the success of project outcomes and may restrict interventions that are not always known or understood in initial design stages.

In this example, while boreholes might be seen as a critical intervention, how effective the borehole is depends on other factors, such as the quality and levels of groundwater as well as the mineral content. Further, in terms of climate change and resilience, it is necessary to perform groundwater mapping prior to sinking boreholes, as this knowledge will affect the grading (and therefore outcomes) of using the MCDM tool to determine benefits of a particular intervention.

Important lessons

1. Despite imperfect information, we can still take rational decisions.
2. Never Say: "*Since we do not have perfect information, we cannot plan – or any analysis*." Improvisation is better than having lame/weak hands.
3. Need to adjust tools to the challenges experienced already – but we cannot wait forever to make decisions.