3a   Multi-Criteria Assessment tools

Short summary of characteristics

Multi-Criteria Assessment (MCA) tools are used to weight different aspects of sustainability and to establish priorities between competing proposals. The purpose of multi-criteria analysis is to provide a means of judging the economic, technical, social, environmental merits of various alternatives. The question being raised may concern improvement of solutions, selection or ranking of actions. Adopting a MCA theory means accepting that whatever decision is taken is going to be a compromise between several conflicting objectives. There is no better logical method of approaching and dealing with these problems.

Stage that the tool is used

MCA are usually used at the design stage in order to choose between different alternatives according to different points of view or to compare several options to reach one objective. In that sense, it contributes heavily to the decision making process and brings technical support to argue against or for a technical solution. MCA tools can also be applied after project implementation to evaluate if the objectives defined previously, have been reached or not and to raise problems experienced. In this situation MCA tools take the form of evaluation grids.

Output from the tool

Two types of MCA can be carried out:

1)   *Compensatory models* seek to reduce option evaluation into one; the output is a single score which represents the attractiveness or utility of an option. Comparison and assessment are based on a single value.

2)   *Non-compensatory models* compare different alternatives according to a set of criteria without aggregating them, the set of criteria being calculated from groups of indicators. All criteria are weighted in order to give the relative importance of each criterion involved. For this second type, comparison and assessment are based on representations by profiles or stars diagrams.

Experiences of use

In practice, MCA enables users to fulfil several tasks, not only evaluations. They help to handle a large amount of information in a consistent way, to identify the single most preferred option or a shortlist of alternatives, to determine acceptable from unacceptable possibilities, to facilitate discussions, to increase the transparency of the decision-making process, to make easier the participation of different stakeholders in the decision-making process etc.. MCA can be used for choosing between: sites (e.g. for a waste treatment plant), technical alternatives (e.g. separated or combined sewer network) and strategies (e.g. choosing between combining residential and work area or separating them).

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