

What is the ADx?

Adaptation decision-making is challenging; it requires not only an understanding of present and future climate hazards but also of the socio-economic contexts in which adaptation will be implemented. There are many 'conventional' decision-making methods and tools that could be applied. At the same time, new tools are appearing that address the demand for climate information specifically, or for the integration of climate information with other priorities in adaptation decision-making. The ADx concept falls into the latter category; it is designed to operate as a meta-tool in which several promising decision methods can be selected, applied and compared.

Why did we develop the ADx?

The core idea of the ADx is to investigate the possibility of **comparison of methods** for adaptation decision-making, and the core argument is that applying multiple methods to a given set of adaptation options and comparing their outputs may provide a more robust assessment.¹ The ADx concept, tool and documentation therefore aims to:

- support improved understanding of - and communication about - the conditions of applicability of different adaptation decision-making methods
- provide guidance on - and a tool for - selecting from a wide range of decision-making methods
- provide implementations of decision-making methods that could be used in adaptation: those which are based on integration with the best available climate information, and which best suit the needs of adaptation researchers, analysts and practitioners
- facilitate comparison of the outputs of several decision methods applied to a given set of adaptation options, strategies or measures

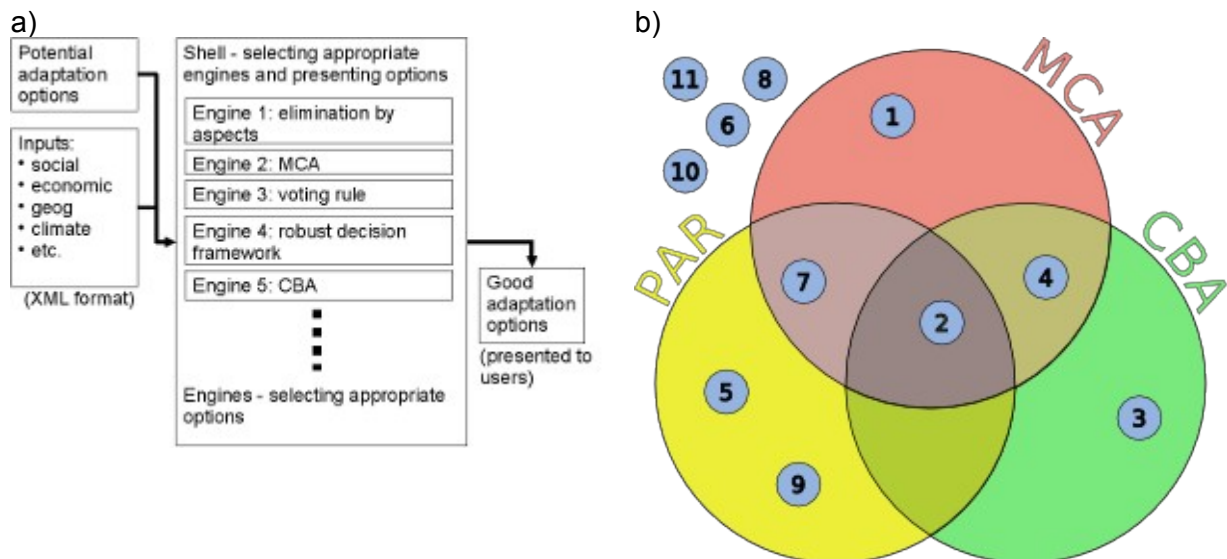


Fig. 1a): selecting decision-making methods to be applied to potential adaptation options; 1b) comparing the performance of options (shown as blue circles) across three selected methods: PAR, MCA, CBA.

¹ Our philosophy: there is no cure-all method to analyse everything: do not rely on only one approach!

About the ADx

The shell (i.e. the meta-level container through which users can select, apply and compare methods) of the ADx was developed in a prototype phase in 2008 (Fig. 1a)).² In subsequent years we have added 2 'engines' (i.e. implementations of different types of decision method) to the shell so that decision-makers working in adaptation will have appropriate support tools:

Voting - a participatory method that could be carried out in a workshop or classroom setting with a facilitator present to guide the group through a series of screens. Each participant /group of participants in turn may input his/her/their preferences for particular options. When the last participant has entered information and the "finalize poll" button is clicked, the engine presented with a results screen showing an average 'score' and an overall ranking for each option.

Analytic Hierarchy Process (AHP) - is most often used by a single decision-maker, but can also be used by a group. In the latter case, participants are obliged to agree on a single value judgement for each comparison pair (of alternatives). This could be seen as a difficulty, but could also lead to interesting additional discussion. The AHP engine² handles the definition of goals, criteria and sub-criteria by taking keyboard input from the user in text fields.

The idea is that engines will be used according to their fit to the the data, context and objectives (Fig. 1a). A schematic of the presentation to users of combined results, having applied three decision methods in this case: PAR (participatory assessment); MCA (multi-criteria analysis); CBA (cost-benefit analysis) to the same set of adaptation options (shown as blue circles) is shown in Fig. 1b). Preferred options of each method are shown located in respective bounding circles, and where these intersect there is a robust basis for selection; in the illustration option 2, for example, may be a robust choice.

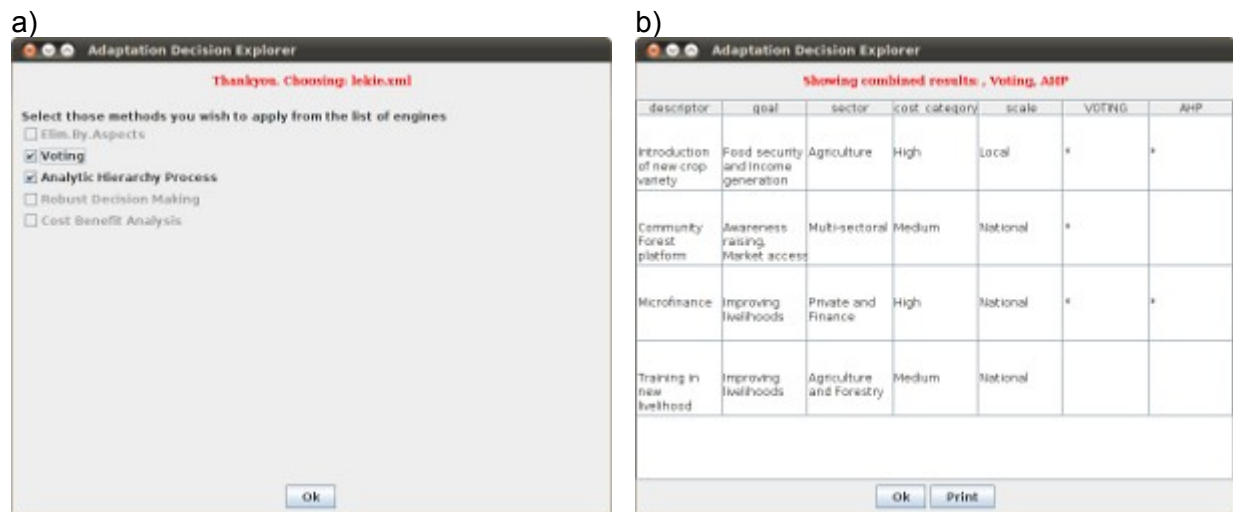


Figure 2a): Screenshot of selection of engines; Figure 2b) Combined results screen showing Voting, AHP.

² The ADx was first developed during the [EU FP6 CIRCE](#) project; a first blueprint was submitted as project deliverable D13.2.1 in July 2008 along with the prototype (ver. 1) and made available through [weADAPT](#).

² The AHP implementation is a modified version of JAHP application (available on [sourceforge.org](#))

Key features of the ADx :

- Modular design so that new engines can more easily be added to the shell (Fig. 2a).
- Adaptation options are coded into XML files which can be accessed by any engine
- The tool is implemented as a JAVA application for platform independence
- ADx ver. 2-1 is distributed under GPL (i.e. Open Source) and is available as a JAR file

Training and support

We offer training on ADx as part of a module on adaptation decision-making related to the [decision-making initiative](#) on weADAPT, where ADx is a featured tool. This module (which is based partly on online learning) was developed as part of the EU/UNITAR C3D+ CoLab project.¹

Further development

Development will concentrate on implementation of further engines, and their integration with climate information. Some improvements on the interface, on the ability to load and save work, and in the the ability for the ADx to suggest appropriate engines are also envisaged:

- XML input files that can supply the criteria used for decision-making
- An implementation of 'Elimination by aspects' to facilitate the selection of methods
- Supporting guidance on how to select methods, such as that being developed in the course of the EU FP7 [Mediation](#) project

Finally, it is envisioned that new options for distribution of ADx will be made available. There would be value to reimplementing the ADx as an online tool, i.e. a web application. This would create new opportunities for the way users participate in decision-making and the way data is accessed and shared.

Contact

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¹ This is an extension of earlier work on the CIRCE project, on the weLEARN project and on C3D+ Yr2.