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Natural Resources Management : tools and techniques relating to collective decision-making

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This synthesis « **Natural Resources Management : tools and techniques relating to collective decision-making** » was performed by **Gaëlle Carrier,** student in the AgroParisTech-ENGREF specialized master "Water Management" (post-master degree) in Montpellier.

SYNTHESIS

Natural Resources Management: tools and techniques relating to collective decision-making

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ABSTRACT

Public participation is increasingly present and approved in projects because of current regulations and the desire of the public to be involved. The water law, the Water Framework Directive and the Aahrus convention are some examples. Public participation can take several forms: information, consultation or collective decision-making. The level of involvement of the stakeholder makes the difference. The collective decision-making and its tools are now developed.
Beuret, 2006 defines collective decision-making as 'a collective building of questions, views or projects in order to act or decide together. It is found on horizontal dialogue between stakeholders who deliberately entered in the process. They recognise one another as relevant stakeholders, thus entitling them to participate in the processes.
This dialogue between stakeholders with different values and requirements can be difficult to lead. It is a long process, consisting of essential steps to be brought to a successful conclusion. Tools and techniques can be set up during these steps to improve dialogue and enable the creation of an agreement. This technical synthesis will suggest a typology of these tools based on these essential steps: strategy development, understanding the context, dialogue between stakeholders, stimulation of creativity and an overview. These techniques enable us to reach different goals: define the subject of the dialogue, who decides, knowledge of the actors and their positions, have a climate of trust, find innovative solutions and bring about stakeholder involvement.
Finally, the choice and the relevance of these tools as well as the ways of implementation and the function of the manager of the collective decision-making process will be discussed.

Key-words: consultation, collective decision-making, public participation, tools, techniques

RESUME

La participation du public est de plus en plus plébiscité à la fois par la réglementation et le public. La loi sur l'eau, la Directive cadre européenne sur l'eau et la Convention d'Aarhus en sont des exemples. Celle-ci peut prendre plusieurs formes : information, consultation, concertation. Le degré d'implication des participants y est différent. Nous allons ici nous intéresser à la concertation et à ses techniques d'animation.
Beuret, 2006 définit la concertation comme « une construction collective de questions, de visions, d'objectifs ou de projet en vue d'agir ou de décider ensemble. Elle repose sur un dialogue horizontal entre des participants qui s'engagent volontairement et se reconnaissent mutuellement une légitimité à participer ».
Ce dialogue entre des acteurs avec des valeurs et des besoins différents peut être difficile à mener. C'est un processus long, jalonné d'étapes importantes à franchir pour être menée à bien. Des techniques d'animation peuvent être mises en place lors de ces étapes pour faciliter le dialogue et la construction d'un accord. Une typologie de ces techniques basée sur ces étapes peut être utilisée : élaboration d'un cadre stratégique pour la concertation, appropriation du contexte, échanges entre les acteurs, création d'innovation et bilan. Elles permettront de répondre à différents objectifs : définir ce qui est discuté et qui décide, connaître les acteurs et leur position, instaurer un climat de confiance, trouver des solutions innovantes et obtenir un engagement des acteurs.
Enfin le choix et la pertinence de ces techniques sera discuté ainsi que les modalités de mise en œuvre et le rôle de l'animateur dans ce processus de concertation.

Mots clés : concertation, participation du public, outils d'animation

SUMMARY

INTRODUCTION

The need to involve the public in addressing environmental issues was mentioned as early as 1992 in Rio. This led to the development of the Aarhus Convention in 1998 that France ratified in 2002.This principle was subsequently included in the Water Framework Directive of 2000 and in the Water Law of 2006. Public participation is also included in the planning code in the context of developing the Local Urbanism Plan (PLU) in particular. Responding to what people want is also becoming increasingly important. They desire to be involved as early as possible in decisions and projects affecting their territories (Richard, 2015).

The environment is a very relevant field for the question of public participation. Territories, natural spaces and resources are multifunctional and/or multi-use. The available space or the quantity of the resource is limited. Conflicts could appear. The establishment of common management systems is necessary. For that discussions are initiated between users (Beuret, 2006).
This “discussion” with the public can take many forms: information, consultation or collective decision-making for example. The degree of involvement of actors is different just like their relationships with the contracting authority. During a consultation, the actors give their opinion on a pre-defined project. The contracting authority does not have to provide feedback. During a collective decision-making, the discussion is a collective process and the contracting authority and actors exchange together (Leteurtre, 2015). These actors actively build the project (Allet, 2015; Beuret, 2006).

To promote the active participation of stakeholders, tools or techniques are used. They will either contribute to the analysis of the subject either stimulate facilitation and organisation of the collective decision-making process (Slocum-Bradley, 2006). Whatever the domain – urban planning or territory development project (PLU, SCoT, PAPI, etc.) or natural resources management (SAGE, drinking water catchment, etc.), the same range of tools will be used. The persons who were interviewed during this work used these tools in different domains: water management, PLU, renewable energy.

We can then ask what techniques to use and when to ensure the good proceedings of the collective decision-making process.
Once the collective decision-making process and its issues have been defined, some techniques in relation to key steps of the collective decision-making process will be developed and discussed.

DEFINTIONS AND ISSUESOF THE COLLECTIVE DECISION-MAKING

DEFINITIONS

Beuret (2006) defines collective decision-making as ‘a collective building of questions, views or projects in order to act or decide together. It is found on horizontal dialogue between stakeholders who deliberately entered in the process. They recognise one another as relevant stakeholder, thus entitling them to participate in the process.

As part of the Collective decision-making Decision and Environment (CDE) program of the Ministry of Ecology launched in 1999, collective decision-making is defined as “processes and procedures which pass through, or intended to, participation of the public, actors of civil society or institutional actors in decision process. Consultations, public enquiries, mixed instructions, public debates, citizens' conferences, negotiations related to the decision process, electronic discussion devices, etc are included.

ISSUES

Conducting a collective decision-making can meet the expectations of the project leaders but also of the population: appropriation and validation of the project by citizens on the one hand and participation and acceptance of the territory management choices on the other.
Informing and involving as many actors of the territory, collective decision-making limits legal remedies. It is not intended to satisfy everyone but it should allow initiating a dialogue and listen to all stakeholders[1]

[1] These are all the actors of a territory involved in the project and/or impacted by the solution (Allet, 2015). These are elected people, technical and institutional partners, public or private beneficiaries, civil society (Barral, 2015).

(Barral, 2015). It is also a source of innovation and a way to create added-value to the project (Beuret, 2006).

Prior to the collective decision-making, a choice of actors to integrate the process must be carried out. However, a paradox appears: to have a relevant and effective collective decision-making, the largest possible numbers of actors should be included. But the effectiveness of dialogue may diminish if too many people are involved. The selection will be made by the contracting authority and who will have an influence on the tools used later in the collective decision-making process. In any case, the choices made should be explained and provided to actors. The transparency of exchanges throughout the collective decision-making process is also important.

To ensure this transparency, certain prerequisites are necessary. At the launch of the collective decision-making process, it is necessary to define who decides and how to take into account the results of the collective decision-making in the decision. Thus, the aim of the collective decision-making is defined. Is collective decision-making used, for example, to validate a variant of a project already completed or does it develop aims and variants of the project? In the former case, the collective decision-making is limited. Beuret (2006), Allet (2015) and Foulon (2015), insist on the importance of exchanges to build a project. Ideally, the collective decision-making has to focus on an intention and not on a well organised project. The outcome of the collective decision-making is not known at its beginning.
This raises the question of when the collective decision-making takes place in the project life. Beuret (2006) and all the interviewed persons emphasize the benefits of the launch of the collective decision-making process as early as possible in its life.

Beuret (2006), Allet (2015) and Hugounenc (2015) also insist on the need to create a climate of trust, favorable to exchanges. For example, functioning rules can be introduced in the collective decision-making group. The intervention of an independent facilitator of the contracting authority can ensure the proper application of these rules and the proper conduct of the collective decision-making process. This independence of the facilitator was acclaimed by all interviewees.

Hugounenc (2015), Leteurtre (2015) and Barral (2015) also emphasise the importance of collective decision-making to commit stakeholders to the project. Commitment on aims but also on functioning rules of the decision process. Moreover, when the collective decision-making allows the definition of actions particularly, it has to allow foreseeing project leaders and funders.

TYPOLOGY OF TECHNIQUES

Today, project management and tools (planning, RACI matrix[2], meeting, etc.) punctuate the “technical” life of a project. Major steps are thus associated. Take the example of a natural resources management project. There are generally the following steps: draw up the specifications, the budget and the timetable; initial study implementation; preliminary project development (action plan); final project; implementation and overview and conclusion (Figure 1).

In parallel a collective decision-making process can be implemented. This is not unique. A strategic planning of the process is defined at the beginning of the project. However, it is not definitive and may have to evolve during its implementation.
It depends on who is involved, but also on external events: human, political, financial, and regulatory. So, it can take a variety of paths and forms. There will be many collective decision-making processes than projects. However, key phases answering to precise aims are found. They guarantee the smooth implementation of the collective decision-making. These phases and their aims are described below.

[2] RACI matrix : matrix of persons working on a project at different steps according to their degree of involvement: Responsible Actor Consulted Informed

Table 1 : phases of a collective decision-making process and their aims

Steps	strategy development	understanding the context	dialogue between stakeholders	stimulation of creativity /innovation	overview and conclusions
goals	• Decide what to bring to the table (subject of the collective decision-making) • Determine who participates • Determine who decides and how to use results of the collective decision-making process	• To know the future participants: point of view on the subject, relationships with others stakeholders, level of knowledge, data holder, etc.	• Learn and understand together the collective decision-making subject and the point of view of everyone • Have a climate of trust to improve group dynamics	• Find innovative appropriate solutions • To get participants commitment to do actions (project manager, technical support, funding, etc.) • Have a climate of trust	• Have a feedback on collective decision-making results and on the process itself • Have participants feelings on the collective decision-making process

A collective decision-making process runs parallel project phases. Project and collective decision-making will interact and "feed" each other. Collective decision-making can (and should) be considered as an integral part of the project (Figure 1).

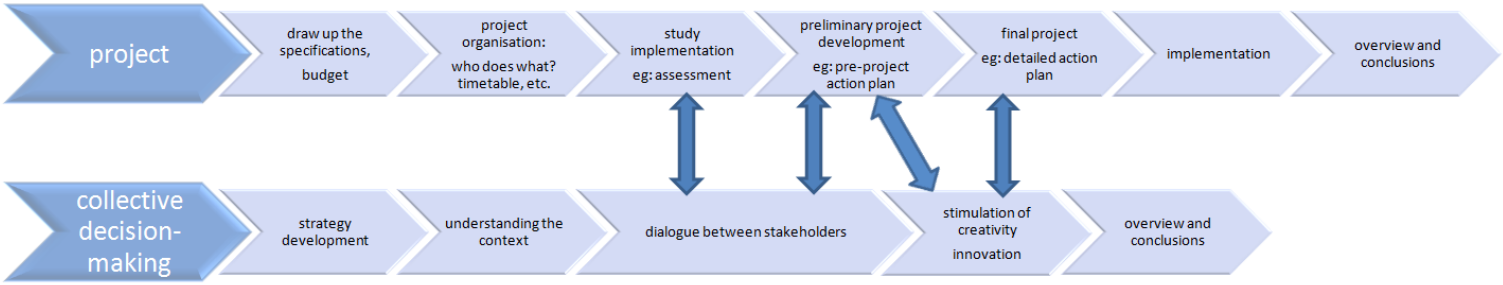

Figure 1: project and collective decision-making process implementation. Arrows show interactions between these two elements (own development to author).

UNDERSTANDING THE CONTEXT AND THE STAKEHOLDERS

Define the contours of collective decision-making

Collective decision-making is a collective construction between a large number of stakeholders. A meeting between the facilitator and the contracting authority is required ahead of the process to define the **strategic framework of the collective decision-making**.
Allet (2015) and Foulon (2015) begin their support of the contracting authority with an interview with them. **Individual semi-structured interviews** is the preferred tool here.
This interview will allow the contracting authority assistant or the facilitator of the collective decision-making, to define or clarify the framework of the future collective decision-making. The strategic framework or collective decision-making scheme (Foulon, 2015) is the completion of this first interview.
Several important elements are explained there:

- The subject of collective decision-making
- Decision modalities
- How results of the collective decision-making will be taken into account
- How the collective decision-making process will be implemented
- participants

The subject of collective decision-making is what the contracting authority – or project leader or decision-maker – would like to bring to the "dialogue" table and for what purpose. Decision modalities define the entity that makes the final decision (usually the decision-making body of the project leader organisation). A collective decision-making process is implemented to respond to a request, a problem that requires a decision. This decision will be fed, built together through collective decision-making, but at the end of the day, the decision will be made by an organisation previously identified in the process. How results of the collective decision-making are taken into account match with this collective building of the decision.
During this interview, the work of the facilitator will clarify expectations and aims of the contracting authority with regards to collective decision-making. One of the risks observed is that they are not convinced by the interest of the process. In this case the collective decision-making can be viewed as a regulatory requirement or a communication tool with partners (Foulon, 2015). Thus, another issue for this interview appears: to raise awareness of the contracting authority about the usefulness of collective decision-making for their project.

As mentioned above, the result of the collective decision-making cannot be known in advance and the process defined during this interview can evolve. The contracting authority must be aware of these two points: the evolution process and the uncertainty of the result.

Secondly, the practical aspects will be approached during this interview: process duration, funding and participants. Thanks to these elements, a timetable and possible tools proposal will be written.

Context and stakeholders

Once the strategic framework has been defined, the facilitator will appropriate the context: knowledge of the key actors involved, their views, their opinions and their relationships (consensual or conflictual), history of the collective decision-making subject – has this subject already been addressed and how, etc. This knowledge of the territory, actors and technical, financial and political constraints will allow them to predict and/or manage possible sticking points during the collective decision-making process.
Again, the preferred tool of the interviewed person is the **individual semi-structured interview**. This interview takes place in the conditions chosen by the interviewee (date, time, place). The facilitator prepares some 15 open-ended questions. The interview lasts for approximately ninety minutes. Thus the main actors involved are interviewed. They have previously been identified by the facilitator and the contracting authority (Allet, 2015).

These interviews have several advantages. It allows for the creation of a climate of trust between the facilitator and the participants to the collective decision-making. More precise information can also be obtained. Indeed, once in meeting, political games between actors appear. Some information – the exact view of the subject, for example – can be hidden or misrepresented (Allet, 2015). Detailed-knowledge of the situation and especially sensitive topics can help the facilitator to predict and manage tense situations. The function of the exchanges facilitator in the collective decision-making process is then simplified.
However, carrying out these interviews involves time and money, which are not always available. In this case, other tools can be used. Public meetings with all the actors can be organised. Paper or computing surveys can be carried out.

These interviews can be associated or not with other tools to illustrate the information collected: actors map, tool ARDI– Actors, Resources, Dynamics, Interactions, etc.
Actors map is a way of representing stakeholders, their relationships with each other as well as their opinions on the subject of the collective decision-making (Hugounenc, 2015).
The tool (ARDI) comes from the research community on the building of assistance model (Michel). It establishes graphically (sort of mind map) the relationships between the different components of the object studied. Resources can be material or immaterial. The social, political, economic and ecological dynamics are represented. A diagram of the functioning of the interactions between these different elements is finally produced (Leteurtre, 2015).

EXCHANGING IN A CLIMATE OF TRUST
Learning and understanding from each other to share a common view of the project

Once the collective decision-making process has been initiated, it may be necessary for the participants to learn and to get to know each other too. For the same resource, views, expectations and management aims of the different actors of the territory will be different. One of the issues here is to highlight these differences. Then the next challenge will be to promote understanding and the acceptance of these differences by everyone.
Moreover, collective decision-making focusses on a subject that needs to be well defined and shared by all stakeholders. For this, a common vocabulary and a common level of knowledge are required for all participants.
The initial study taking place at the same time will then provide input for the collective decision-making process (Figure 1). Thus, experts and layman (inherent knowledge of field people) knowledge could be summed up. It may be interesting to break down the main subject of the collective decision-making into several simple questions (Allet, 2015; Hugounenc, 2015). First, collective decision-making will focus on what is admissible to all, to ideally go towards what is desirable (for a proper management of the resource, for example; Beuret, 2006).

Tools used will allow to:

- Create a dynamic in the exchanges between participants
- Involve people regardless of their initial level of knowledge thanks to a proper translation of field information and studies
- Generate the emergence and appropriation of a common vision of the collective decision-making subject.

Actors map, previously cited, can be used again. This enables the facilitator to have both a global view of the actors' games in the territory and serve as a discussion support with them. Having a graphical image of the relationship between actors and natural resources and between them can provide a good basis for discussion to develop a common understanding of the collective decision-making subject (Hugounenc, 2015).

A participative map can also be used. Thanks to a map of the territory, participants think about and exchange on the strengths and weaknesses of the territory, the issues area, etc. (Leteurtre, 2015). This technique highlights positions of each and facilitates dialogue at the same time. Indeed, this happens around a physical support – a map of the territory - and around a common topic – the territory to which the participants belong. If the number of participants is large, the group will be divided to allow everyone to express themselves. The equipment and the number of facilitators is to plan accordingly. At the end of the session, a pooling of the production of each group will be done. It may be carried out by a spokesperson from each group, defined at the beginning of the session. Giving a role to the participants promotes their commitment (Allet, 2015).

Role-playing can also be used here. Simul'Eau, jointly created by Lisode and Irstea (Leteurtre, 2015) and Wat A Game, WAG, designed by Irstea (Morardet, 2015) are examples.
They can take the form of a board game like a traditinal board game, or be computerised. Participants play their part or that of another actor of the territory. Scenarios are developed and played. Players are asked to make decisions according to their role, the aims associated with this "character" and the context defined early in the game – wet or dry season for example in the case of water management. A game lasts about 90 minutes and simulates several years. It is followed by a debriefing about one hour (Leteurtre, 2015). This allows actors to understand the position of one another, globally apprehend the collective decision-making subject and to be aware or at least visualise the diversity of activities of a territory. It also provides information on the subject of the collective decision-making. For example, for water management, which is motivating the decision taken, the "untouchables" points of the different actors.

Take the example of WAG. This role playing is used for water management. Two levels exist; iniWAG and WAG. They consist of a board with "rivers" and "land uses" cards, glasses symbolising dams and activities cards. In iniWAG, the created activities are theoretical and are imaginary names. In WAG, actors build the game, image of their watershed. They choose activities, issues, etc. and participate in the calibration of game scenarios (Morardet, 2015). Additional time is to provide, in the latter case, to implement the game.

Role playing is an interesting tool that covers several aims of the collective decision-making but their implementation is long and difficult. Their design is long and requires extensive bibliographic search. The game created inevitably simplifies reality. Particular attention is then paid to keeping orders of magnitude of the different activities, annual variables chosen, etc. They are designed for a given situation and are not easily reusable in the state. Nevertheless the mains idea can be reused. The people who lead it have to be trained (Morardet, 2015).

Fields visits and the focus group are other techniques that can be mobilised.
Fields visits or “headland” or “river” meetings can be formal or informal. They can be planned or be a result of a meeting between participants who want to see a topic discussed during this meeting. They are an opportunity for stakeholders to visualise the topics they talk about indoors. The format seems more unifying (Hugounenc, 2015).
During a **focus group** keywords or issues are written on a board. A round table is carried out where each participant describes those keywords. Answers are listed progressively on the table. This will feed the reflection of the other participants and ensure the transparency of exchanges. During the round, the facilitator distributes speaking time and helps participants specify and clarify their thoughts. Then they organise the responses to highlight the similarities and main ideas (Barral, 2015). This allows for a finer understanding of each other's arguments. A safe atmosphere is necessary for everyone to "reveal" his own perception of the subject (Barreteau, 2008).

Creating and maintaining a climate of trust

A collective decision-making does not aim to please all stakeholders but to listen and to involve them (Barral, 2015; Allet, 2015). Transparency and trust are then two key elements to ensure the success of a collective decision-making (Allet, 2015; Foulon, 2015; Leteurtre, 2015; Beuret, 2006). This will generate calm and constructive exchanges.
Special tools can be used but precautions can be taken during the implementation of the techniques discussed above for example. The combination of these two methods / devices creates and maintains a climate of trust in each phase of the collective decision-making process.

Individual interviews with actors, field visits, role playing, seen above, are involved in the creation of a climate of trust.

Under the river contract of Huveaune (13), various tools were used to illustrate the issues or "enlarge" the vision of the river by the actors. When returning the diagnosis, a clown performed in order to stage in an amusing way the issues of the watershed. After the river committee has validated the diagnosis and initiated the construction of the river contract, a photo exhibition was created. The photos shown, illustrated the inside of the river to "see what nobody sees." This is one of the watershed users, an amateur photographer, who made this exhibition (Hugounenc, 2015 Annex 3). These animations allowed everyone to approach the subject over in a calm atmosphere.

The establishment of **operating rules** within the group (listening, speaking time, etc.) and the **definition of roles** (decision-makers, participants, people consulted, etc.) are elements involved in the process transparency and ownership by all (Foulon, 2015).

Collective decision-making will produce a significant amount of information. To ensure transparency of the process, it will be transcribed and distributed at least to the stakeholders.
The **summary of the session** is the most used tool. It can take different forms (text, maps, mind map, etc.). The words are reported as accurately and clearly as possible. It must be understandable to those present but also for the absent. The important information is highlighting (Foulon, 2015). The summary of the session makes it possible to keep track of all exchanges. It is best to keep everything (Leteurtre, 2015). They can also serve as a working basis for the next meeting.

The information produced can also be used through a website dedicated to the project. Large projects such as SAGES or river contracts can have their own websites. Documents produced can be uploaded as well as pictures. The websites of Aquadomitia or the river contract of Huveaune are examples.

Innovate

As we have already mentioned each situation is unique. The solutions - actions or policies - that will emerge should also be unique. The collective decision-making must create added value (Beuret, 2006), open the field of possibilities (Allet, 2015; Leteurtre, 2015).

This step is closely related to the preliminary project development. Good communication between the person in charge of the development of these preliminary projects and the facilitator of the collective decision-making is essential. The technical and collaborative elements feed each other (Figure 1).

At first no limit is imposed on stakeholders. The goal is to get as many ideas as possible regardless of technical, political or financial considerations. Many techniques can be used. Some examples are presented here.

The **Metaplan**® tool produces reflection in a group of a maximum of fifteen people. During the session, which lasts about 45 minutes, the group thinks about a specific question, written on a board. Ideas are marked on post-it notes and put on the table. Thematic pooling can be made. They are then discussed. The elements from the discussion are also written on the board (Barral, 2015 Metaplan, 2003). Discussions are immediately transcribed; this facilitates the implementation of the summary of the session. Those present are volunteers, which enables productive exchanges. Elected people seem less receptive to this technique (Barral, 2015).

To think outside of the box, an interesting technique is the **antithesis**. This technique takes place in 2 sessions for a total of about 30 minutes. First, the facilitator asks participants to list the solutions usually used to solve the problem considered. Secondly, it asks them to think about what would happen if the exact opposite was done. This change in approach stimulates the imagination of the participants and thus leads to new solutions. Even the wildest ideas are accepted at first (Allet, 2015).
Brainstorming can also be used. As part of the development of PLU, Lisode asks participants to imagine what would be their territory both in an ideal and then a catastrophic future. Again, all proposals are accepted at first (Leteurtre, 2015 Annex 3).

Thematic or technical workshops and **open forums** are similar techniques. These techniques take place over half a day, with 30 minutes sequences. The assembly is divided into sub groups. Many rooms of groups are then required, on the same site. A single room can also be used if this one is large enough to clearly separate the different groups. First, a global presentation of the meeting is made to all participants (overall theme, purpose and proceedings of the meeting, etc.). Then the participants are divided into groups. Each group is led to think of a sub-theme of the overall theme of the session. The ideas are written on a paperboard. After 20 to 30 minutes of exchanges, the groups rotate. Thus all groups will think about all sub- themes. A debriefing time is scheduled to the end. For this, a spokesman by sub-theme is designated in the final round.

Role playing can also produce new solutions. Indeed, several scenarios are played. After each round, the decisions and actions that have occurred are analysed. In addition, a global debriefing at the end of the game is also carried out. The match between the game and reality is discussed. How were crisis situations managed? Is this management the one that occurs today in a crisis? Are the solutions proposed realistic and practicable (Leteurtre, 2015)? These discussions can bring out ideas to change current practices.

Choose future solutions

Secondly, the decision criteria will be used to obtain desirable solutions. These criteria meet the objectives and a level of ambition defined in the ownership of the subject phase. Then solutions are sorted and will feed the action plan (Figure 1). At this point of the project, it is necessary to define the human, technical and financial needs to carry out these actions. Here, collective decision-making could facilitate stakeholder commitment and thus improve the implementation phase of projects.

A basic technique is to use **stickers**. Each participant has stickers. Proposals for actions from previous techniques are posted. Each participant will vote, with stickers, for one or several actions that they wish to keep. Actions that have received the most stickers are retained. This technique works well for small projects. This is the group that chooses. The resulting decision is never questioned (Allet, 2015).

As part of the implementation of policy or action plan, a prioritization of action is necessary. The approval of the actions by the actors is taken into account but also the technical and financial feasibility. For this, a **consensus scale** may be used. Lisode define it as follows (Leteurtre, 2015):

Table 2: consens scale from Lisode (Leteurtre, 2015).

	I support	I like	I am indifferent	I need additional discussion	Veto
Action 1					
Action 2					

This table enables the rapid identifies actions that lead to consensus, those that require additional discussion and those that are not possible. In actions that lead to consensus, there are two cases: actions with a project leader and those that do not have one and therefore require additional discussion. The development of this scale allows having a first stakeholder commitment.

Irstea has developed a tool that helps actors to organise the actions identified: **Cooplan** for Cooperative Planning. First, actions are described: equipment and material resources, intellectual resources, expected impacts at local and regional scale, ecological, economic, etc. A matrix is built from these actions. This confirms the consistency of action between them and in time in particular. Inconsistencies and warning areas are highlighted and then will be discussed in order to be solved (Morardet, 2015; Ferrand, 2015).

CARRY OUT AN ASSESSMENT

When a river contract, SAGE or any other project comes to completion, they are assessed. It defines whether the objectives have been achieved and analyses the difficulties encountered (technical, administrative, budget, governance). A similar approach of analysis of the collective decision-making process can be conducted.

It is important, even and especially for the project developer, to know what brought the collective decision-making process to the project (Morardet, 2015). Here the objective is to understand what brought the collective decision-making process to the project: technical, organisational innovation, improvement of relationships in the territory, etc.? The analysis can also study the relevance of the techniques used. Were the techniques adapted to the public? How have they been implemented? What are the improvement points in the implementation? It can also help to collect how participants feel about the process: a sense of listening, interest of the collective decision-making process?

Two types of evaluation can be made: a 'hot' one, immediately during the course of the collective decision-making and a "cold" one, sometime after the end of the process.

The "hot" evaluation may assess a particular technique or the overall process. For example, when Lisode intervenes, a systematic assessment of the session is performed (Morardet, 2015).

Irstea has developed a tool - **EncoreMe** - that helps people carrying out the collective decision-making process to assess both the collective decision-making process and the action plan developed during it. This tool, like WAG or Cooplan tools presented in previous sections, is part of a set of tools – the CoOplAaGE suit - developed by Irstea to help to establish a collective decision-making (Annex 4).

Today, the overall assessment of the collective decision-making process is not widespread (Morardet, 2015), and precisely why it is difficult to find examples of tools used.

CONCLUSION – DISCUSSION

We have seen that each project is unique and therefore each collective decision-making process is unique too. The multitude of existing tools and techniques illustrates this diversity. The techniques presented here are not exhaustive. There are many websites or "guides" in which many other techniques are described.
The choice of technique will be driven by the objective of the collective decision-making process but also the session in which it will be mobilised (Leteurtre, 2015). The human and financial resources allocated to the collective decision-making will also greatly influence the choice of these techniques.
Techniques such as role playing or thematic workshops take time and / or mobilise many people. They will be saved for major projects such as a SAGE that can mobilise the necessary time and resources to achieve them. Other shorter and easier techniques to implement such as brainstorming or antithesis can be used on smaller projects. In any case, special consideration will be given to the choice of these techniques. The goal, the profile of participants, time, human, material and financial resources available will determine this choice in order to choose the most appropriate technique relevant to the context.
All these techniques are used to ensure the success of the collective decision-making. However, other criteria also play into the success or failure of collective decision-making.

IMPLEMENTATION MODALITY

Collective decision-making is a long process, which takes over time (Beuret, 2006). This is extra time to include in the life of the project. Yet this extra time during the project development can serve to save it at the end. Appeals will be reduced and actors have a greater awareness of the objectives and will be ready to commit (Morardet, 2015). Thanks to this latter point, we can imagine that the implementation of the action plan developed will be facilitated; contracting authorities have been identified since inception.
Many natural resource management projects are supported by territorial collectivities. The success of the collective decision-making will be facilitated if the elected people concerned by the project are involved and recognised in the territory (Hugounenc, 2015).
Today, collective decision-making or public participation is increasingly acclaimed. Its potential implementation and format remains subject to political will. An awareness and education of contracting authority seems necessary (Allet, 2015). The report of Alain Richard in June 2015 on environmental democracy discusses and criticises the current modalities of implementation of the collective decision-making. The possibility of strengthening its legal framework is discussed.

The concept of time is important. For a relationship of trust to develop between actors, time is required. On the other hand, if the collective decision-making is too long and does not make progress these same players will struggle (Barral, 2015). They might even stop participating. For large projects that require long technical studies, the question of the timing of the collective decision-making arises. How to maintain a group dynamic during phases of recovery and processing of data by technical consultants? Should collective decision-making start later? Yet the participation of local actors in the choice of data to use and questions to investigate may be both important and relevant.

FUNDING

Collective decision-making also necessitates a supplementary budget. This budget is used to cover the operation of the facilitator and the necessary equipment. In particular, are included in the equipment, the potential renting of the room, small supplies (stationery, etc.), drinks and food for participants – all factors which help to promote a climate of trust.
This extra time and budget must be registered earlier in the specifications of the study. An awareness of organisations that are assisting the contracting authority (administration and consultants) and funders can also be considered. For example, the Rhône Mediterranean Corsica Water Agency released in 2011, a guide to assist project managers in the design and negotiation of hydromorphological restoration projects for rivers.
Major projects, such as SAGE, consecrated budgets can be substantial. Why not dedicate a part of these budgets to the implementation of collective decision-making (Leteurtre, 2015)?

WHO SHOULD LEAD THE PROCESS?

The establishment of a collective decision-making process and related techniques requires the intervention of a facilitator. The facilitator is both a broker and a facilitator of exchanges. He or she will accompany the collective decision-making process and not drive it (Beuret, 2006). They add nothing to the content of the exchange (Allet, 2015). They worked to improve the exchanges (Foulon, 2015). They will distribute the time allocated to speak, listen, reword, make participants specify ideas, synthesise and stimulate the group creativity (Beuret, 2006; Allet, 2015; Foulon, 2015; Barral, 2015). A Facilitator's skills consist of knowledge, savoir-faire and savoir-être (Beuret, 2006; Leteurtre, 2015 Annex 5). These special skills make it a specific profession (Leteurtre, 2015).
Natural resource management projects also mobilise significant and essential technical skills for understanding the subject. Technical skills and facilitator skills must then coexist to complete the project. Two separate organisations (consultants, associations, etc.) may occur. Another possible solution is the intervention of a single organisation that would own in-house "a collective decision-making service." In all cases, the contracting authority will have two separate interlocutors, one for the technical aspects and for the collective decision-making aspects.
Almost all the interviewed people emphasized the necessary independence of the facilitator from the contracting authority (Allet, 2015; Foulon, 2015; Hugounenc, 2015; Leteurtre, 2015). However, the mere presence of a collective decision-making professional is by no mean a guarantee of its success (Terrier, 2016). The involvement of stakeholders and the format of the collective decision-making remain important.

Today, the technical component and the social component of development projects of territories or natural resource management are equally important in terms of the success of their implementation (Terrier, 2016). Many tools and techniques can be mobilised to carry out collective decision-making. Particular attention will be paid to defining the objectives of the latter, understanding the territory and these actors. They will select adapted techniques. An assessment of these is certainly also necessary in order to further improve and develop the collective decision-making process.

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ANNEXES

ANNEX 1: interview grid

The interviews were semi-structured interviews. They lasted between 45 and 90 minutes. The following questions were used to lead these talks.

1. Can you describe a collective decision-making process that you led?

2. What were the highlights of the process? What techniques were mobilised at these times? Why have you chosen this technique for this "step"?

3. Can you describe this method?
   - What is the purpose: facilitate dialogue between the participants so that they understand each other, gather ideas for developing a management plan, promote the emergence of a common vision of a territory, etc.
   - Preparation needed: time, materials, preliminary contact with some actors, etc?
   - Place chosen: size of the room, need a “neutral” place, etc.?
   - Conduct with participants: one or more steps, time of the meeting, need several meetings?
   - What is the role, the position of the facilitator? Is the facilitator belongs to one of the stakeholders?
   - Method of feedback following the meeting?

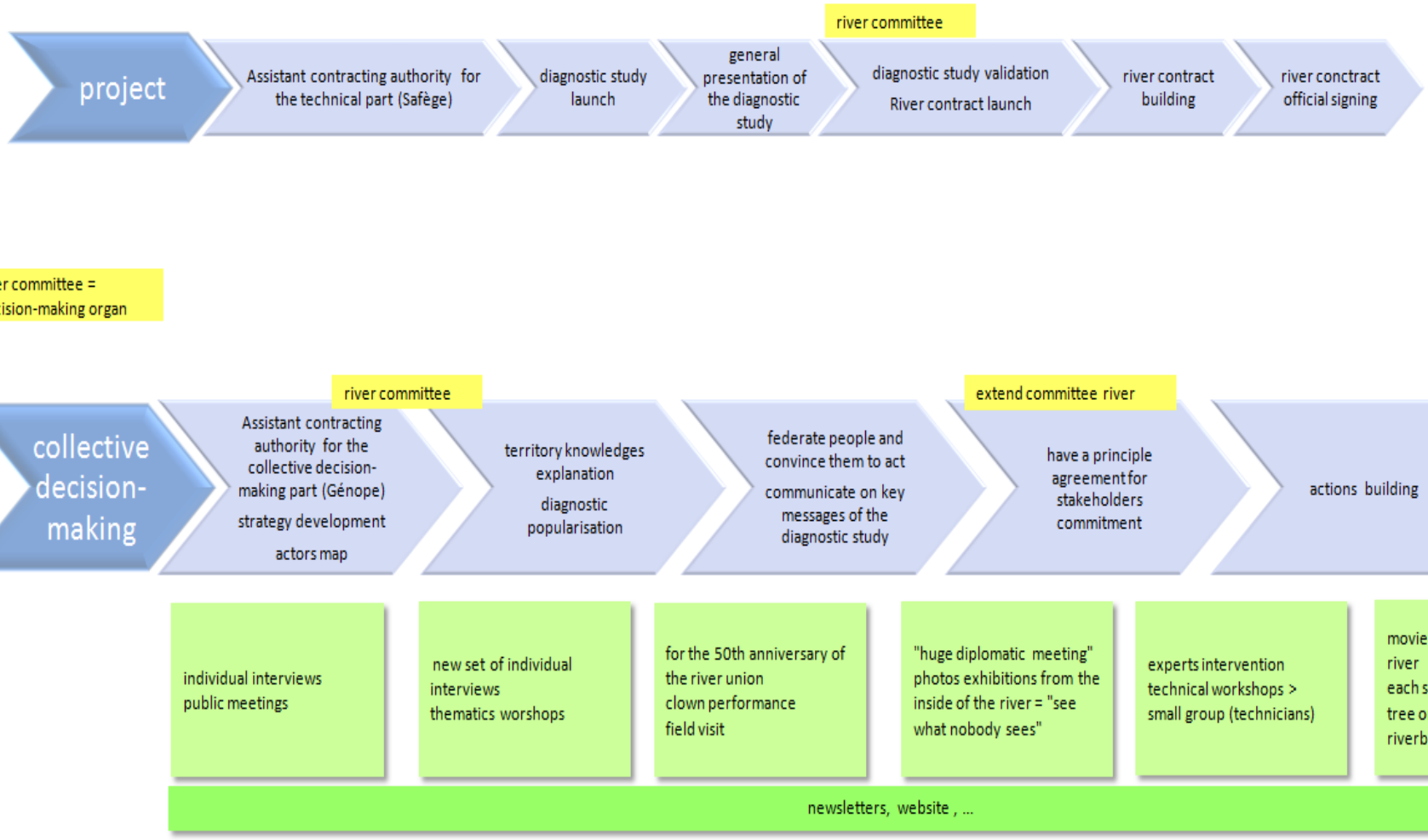
4. What are the strengths and vigilant points to know?

ANNEX 2: list of interviewed people

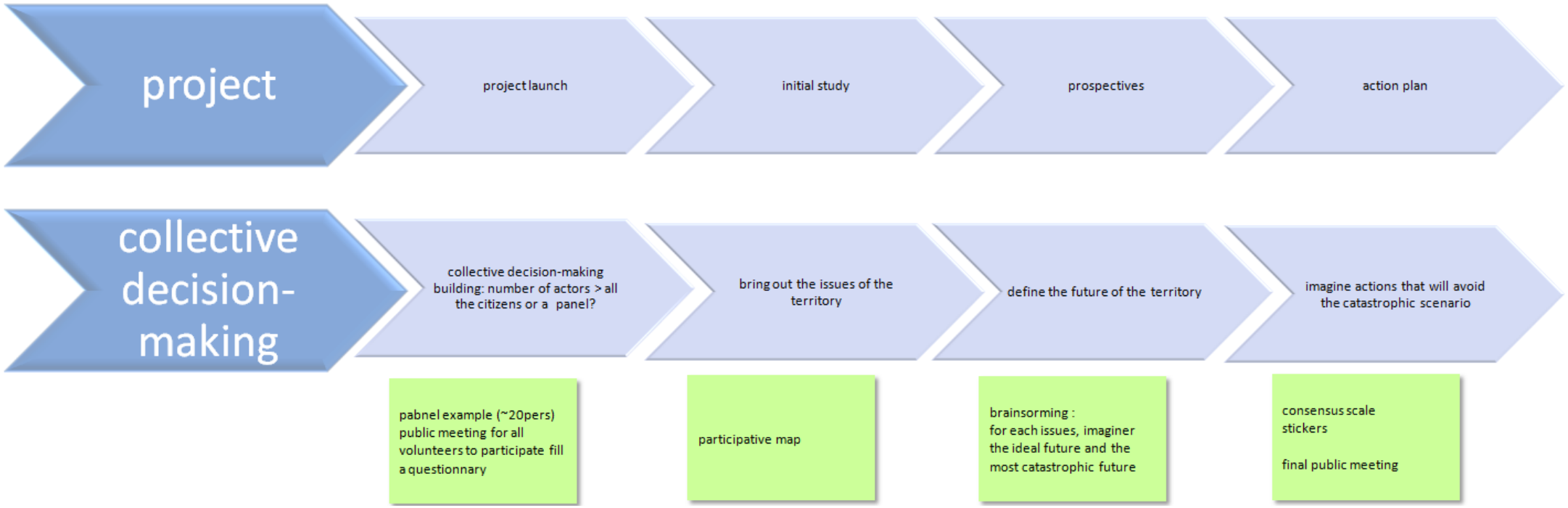
Name	**Institution**	**Contact by**	**Interview ?**
Claude Allet	Allisten Management	Mail + phone	Yes
Damien Barral	BRL ingénierie	Mail + phone	Yes
Sabine Hugounenc	Safège	Mail + phone	Yes
Arno Foulon	Energie Partagée Association	Mail + phone	Yes
Elsa Leteurtre	Lisode	Mail + face-to-face meeting	Yes
Sylvie Morardet	Irstea	Mail + face-to-face meeting	Yes
Nils Ferrand	Irstea	Mail	No
Armelle Caron	AgroParisTech	Mail + phone	Yes
Catherine Bardet	AgroParisTech	Mail	No
Karim Berthomé	AgroParisTech	mail	No

ANNEX 3: collective decision-making process examples

Example of the river contract of the Huveaune river (13) (according to the interview realise with Sabine Hugounenc, 2015)



Example of a PLU project implementation by Lisode (according to the interview realise with Elsa Leteurtre, 2015)



ANNEX 4: the CoOplAage suit

Step by step through a Cooplaage process

In a catchment, a group of farmers would like to act to improve their situation and the socio-environmental viability. After discussing with technicians, they are guided toward the CoOPLAaGE web site. They discover the method and decide to enter into it. They ask the local water agency to animate and supervise the process. One animator is selected.

0 Attending Schoolplage
The animator follows the SCoOL-PLAaGE course online and attends a 3 days setting seminar. Based on this, he/she can start animating

1 Preparing a protocol
With a group of delegates of different stakeholders, they engage in the PRE-PAR protocol, discuss the principles and participants of the future decision and participation process. They test it by a simple role playing game where they check commitment and motivation for all. This "participation plan" is accepted and starts, under supervision of the elected warrant.

2 Exploring Justice
Using Just-A-Grid they discuss the social justice principles for sharing land and water. They come to a shared vision of the "fair allocation" rules.

3 Creating a model and game
Some representatives engage in the CREA-WAG process and using INI-WAG they start preparing a local model and game representing their own situation.

They are supported by the online tools of INFO-WAG & INTER-WAG.

4 Elaborating an action plan
In a first instance this local game is used to open a large discussion among all stakeholders. This raises awareness. An exchange can start withing them to start a COOPLAN process. They start proposing and structuring actions (with the help of experts), anc finally gather action plans, for which they assess coherency, feasibility and efficiency. They evaluate them with the principles raised by JUST-A-GRID.

5 Testing and discussing plans
Theses plans are tested and discussed with the role playing game. Finally they come to an agreement on a joint regional strategy, for which they can build an implementation plan.

6 Monitoring-Evaluation
The whole process is monitored and evaluated using the ENCORE-ME framework, which tells them about the changes in knowledge, preferences, actions and relations.

Contact and info

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Trainings available now!

Find out more about Wat-A-Game and CoOPLAaGE by attending to one of our SCoolPLAaGE-trainings, available on:
http://agenda watagame.info

CoOPLAaGE

Wat-A-Game and its family

Coupling innovative tools for sharing change in socio-environmental systems

What is CoOPLAaGE

CoOPLAaGE is a an integrated set (suite) of participatory methods, tools and protocols designed to support all stakeholders' groups, from citizens to policy makers, in discussing and engaging really into change strategies in socio-environmental systems, through :

- design of an acceptable decision procedure
- modeling of the joint situation
- framing of shared social justice principles
- simulation (role playing game) of change pathways and policy impact
- planning to build coherent action plans
- evaluation of the process and outcomes
- implementation pathway

For whom?

A transfer approach towards all users

CoOPLAaGE is designed to support ALL stakeholders at all levels -from lay people in rural communities to the uppermost policy makers- in collaborating around action plans and change together (the « shared room principle »).

It especially targets conditions where resource users must adapt their behaviors while policies are adapted coherently, through a dialogue ("two-levels processes").

CoOPLAaGE is fully transferable, robust (no computer), and can be self-animated within groups with limited pre-training.

Most tools are simple and accessible to illiterate people.

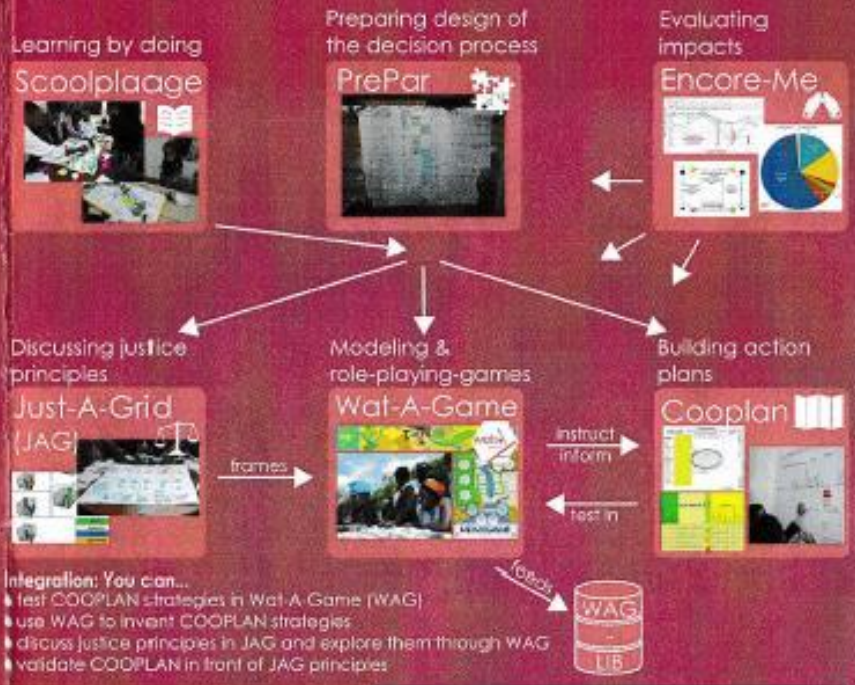
Why using CoOPLAaGE?

CoOPLAaGE...

- provides a coherent set of tools which covers together the needs of a usual process: Organizing / Mediating / Diagnosis / Design / Integration / Choice / Implementation / Evaluation
- fully respects all stakeholders' inclusion
- is entirely transferred, hence adaptable
- is innovative and attractive (e.g. game)
- is research based
- is public and independent – no consultancy
- is robust and accessible
- tools have been tested internationally
- is low cost: training and research partnership

Overview of CoOPLAaGE tools

10 participatory tools for...



Integration: You can...

- test COOPLAN strategies in Wat-A-Game (WAG)
- use WAG to invent COOPLAN strategies
- discuss justice principles in JAG and explore them through WAG
- validate COOPLAN in front of JAG principles

Afromaison and Mpan'Game: an applied case study of Cooplaage

The European Project Afromaison has developed a multidisc tool-box for Integrated Natural Resource Management. In Uganda, the local stakeholders have used WAG to develop the model and game Mpan'Game, representing the catchment and its socio-environmental stakes. Coupled to COOPLAN it has been used by more than 2000 people to explore and discuss a joint regional strategy submitted to the authorities.

http://www.afromaison.net

Wat-A-Game

Wat-A-Game (WAG) is an open toolkit and a method based on simple bricks and a supporting software for designing and using participatory simulations (i.e. role playing games) for water management, policy design and education. It can be easily used for your own cases, at different scales and for various water related issues.

WAG can be used in any place, with, and for, all stakeholders, farmers, citizens, experts, administration, policy makers...

WAG is a suite of tools and methods including: INI-WAG, Crea-WAG, WAG-LIB (library of WAG case-studies), INFO-WAG and INTER-WAG.

http://watagame.info

ANNEX 5: global view of the facilitators'skills – knowledge, know-how, know-how-to-be

Des compétences et leurs déclinaisons : des savoirs, des savoirs-faire, des savoirs-être	
Savoir créer un climat propice à la coopération	**Capacité à détendre l'atmosphère** Créer un état général de calme, d'impartialité, sécuriser les acteurs, savoir dépassionner et dédramatiser les choses
	Capacité d'empathie Percevoir la sensibilité de l'autre. Ouverture
	Capacité de retrait de soi Position de retrait, distance et détachement, savoir « prendre sur soi », savoir prendre ses distance vis-à-vis de ses propres perceptions et appréciations et vis-à-vis de son statut social
	Savoir se rendre crédible Honnêteté, solidité. Lorsqu'il y a plusieurs traducteurs : la cohérence
Capacité d'écoute active	**Capacité à être en situation d'écoute active** Stimuler l'expression et la production d'informations, être capable de reconnaître la position de chacun, permettre l'expression des émotions
	Capacité à éveiller l'écoute Créer un climat d'écoute mutuelle
	Capacité de reformulation Sensibilité dans l'écoute ; savoir reformuler et traduire
	Capacité à *lier écoute et rétroaction* Capacité à alterner discussion et recentrage, à favoriser la mise en évidence d'un sens commun, à renvoyer une image des accords et désaccords, à jouer de la distance du traducteur pour dire des choses
Capacité d'assimilation, de traitement et de synthèse de l'information	**Capacité d'analyse** Capacité de diagnostic, aptitude à connaître et comprendre le contexte
	Capacité à se saisir des connaissances existantes Ouverture aux langages de chacun, aptitude à assimiler les différents langages relatifs au sujet, capacité à réaliser ou organiser la traduction scientifique
	Capacité de synthèse
Capacité de conduite du groupe	**Capacité à comprendre le groupe** Capacité à cerner l'interaction de groupe. Etre attentif : observation du non-verbal
	Capacité à gérer le groupe Capacité à mettre en avant des leaders, à gérer l'affectif (les tensions, la lassitude…), le fonctionnement et le « moral » du groupe
	Savoir faire émerger des règles Savoir établir, faire émerger, faire respecter des règles de dialogue

Capacité à être un activiste de la créativité	**Capacité à stimuler le groupe** Stimuler le groupe pour l'amener à persévérer : la figure de l'activiste
	Savoir stimuler la créativité Permettre aux individus d'élargir leurs sphères d'autonomie, de liberté, stimuler la créativité, déjouer les pièges des mécanismes de résistance à l'innovation
Sens de la concertation : un savoir intuitif ou acquis	**Connaissance intuitive ou acquise de démarches et savoir-faire relatifs à la conduite de la concertation** Construire de la proximité, médiation-miroir, enrôlement, conduite d'une démarche allant de l'acceptable au souhaitable, créer et exploiter des liens entre scènes, etc…
Patience, disponibilité et engagement personnel	**Capacité à être disponible dans l'instant** Etre patient, savoir perdre son temps. Etre disponible, présent aux autres
	Disponibilité dans la durée S'impliquer dans la durée. Persévérer, entre temps morts et temps forts
Capacité à épouser une posture paradoxale	**Impliqué et détaché** Passion, chaleur et convivialité + capacité d'extériorité, de détachement
	Entre retrait et charisme Savoir se mettre en retrait + jouer d'une autorité morale
	Rigueur et flexibilité Rigueur dans la méthode + flexibilité dans la conduite du dialogue
	Fidélité et volontarisme Une traduction fidèle…. mais un miroir sélectif
	Connaissance et naïveté Capacité à traduire + Capacité à prendre le rôle du naïf

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