Matching the tool to the stakeholders

An Assessment of participatory tools in SCENES

M.P. Verbeek

GOCE 036822

SCENES

Water Scenarios for Europe and for Neighbouring States

Matching the tool to the stakeholders

An Assessment of participatory tools in SCENES

Master thesis	Land Use Planning Group
Maarten Verbeek	Gaia building (building nr. 101)
Registration number: 840527869090	Droevendaalsesteeg 3
LUP-80436 (36 ECTS)	6708 PB Wageningen
Supervisors:	The Netherlands
Gerrit-Jan Carsjens	December 2009
Kasper Kok	
Mathijs van Vliet	

Abstract

Participation in large projects such as SCENES (Water scenarios for Europe and for Neighbouring states) is complex to organise in such a way that the participants are able to produce quality results, while learning from each other, within a limited amount of workshop time. A good guidance by the facilitator and the right tools at the right time helps the stakeholders to reach quality results within the workshop. However, stakeholders have little time to come to workshops, which puts even more stress on an already tight schedule. Any social learning that is achieved may not be applicable for follow up workshops if the stakeholders do not have the time to join them. Quality results are re-discussed by new stakeholders. Time is a valuable resource and the added value may be lost with the start of the follow up workshop. The question remains, how much time is enough?

Key words: *participation, SCENES, stakeholder, tool, workshop*

Acknowledgements

Acronyms and Glossary

FCM   Fuzzy Cognitive Map

PAWS   Pilot Area Workshop

SCENES   Water Scenarios For Neighbouring States

WFD   Water Framework Directive

WP   Work Package

IA1,IA2   Integrated Activity 1 or 2

IA   Integrated Assessment

Glossary

Cookbook: The cookbook is a document sent to all pilot area organizers. It contains a proposition for the setup of the workshop with suggestions on time, tools and organisational strategies.

Mood-o-meter: The mood-o-meter is a tool where the happiness of the stakeholders about the process is measured. The stakeholders have the opportunity to put happy, neutral or sad smiley faces on a piece of paper. The amount of happy or sad faces gives an indication on the quality of the process.

Figures and Tables

Table of Contents

Preface

Over the course of my studies here in Wageningen I became aware of the importance of proper communication within planning processes towards the public. In my bachelor I followed courses where we always had to consider the public opinion in our plans, but the planning methodologies we used in our projects put the emphasis on the creation of the plan by the planner himself, as opposed to incorporating the public in the process. Master courses on planning theory and several courses at the communication sciences chair group helped me gain more insight on how to involve the public in the plan process. Through Mathijs van Vliet and Kasper Kok, I became aware of the SCENES (Water Scenarios for Europe and Neighbouring States) project that uses scenario methodology to involve stakeholders to the plan making process. At that moment, the idea to do a thesis on this project was born. It took several months after that to get clear what would be a valuable research topic for me, for SCENES and for planning theory. Months of work and a visit to Ukraine later, I can finish this thesis with a good result.

This thesis is a report for the completion of the Master 'Landscape Architecture and Planning' specialisation 'Spatial Planning' at Wageningen University. In this thesis, I hope to show what I have learned about spatial planning.

1 Introduction

In the Introduction of this thesis, two important things will be explained. First, the SCENES project will be introduced, because this thesis is set within the SCENES project. Second, the objective and research questions will be explained.

1.1 SCENES

1.1.1 Goal

SCENES is an abbreviation of 'Water Scenarios for Europe and Neighbouring States'. *"SCENES is a multi-faceted integrated project that aims to address the complex questions about the future of Europe's water resources."* (Kämäri *et al* 2007; p.1)

Many environmental, social, political and policy drivers will have an effect on the future of Europe's waters. One of the major policy drivers is the Water Framework Directive (WFD). This directive is instituted by the European Union and promotes a greater sustainability within Europe's waters. It mandates a European approach for the policy on Europe's waters and mandates individual river basin management plans for each river district. The WFD also mandates the active involvement of European citizens in both making the plans and implementing them. Therefore SCENES is a project on multiple scales. European, regional an local; it is multi disciplinary as many drivers need to be involved; and finally, it is inclusory as it incorporates stakeholders in the plan making. (Kämäri *et al* 2007)

1.1.2 Objectives

SCENES will create scenarios for the year 2050 on the three scales using experts and stakeholders from different stakes. In order to reach the goal, SCENES has developed the following objectives:

1. An evaluation of scenario methodologies in order to improve them on all the involved scales;

2. Developing a set of scenarios of Europe's fresh waters up to 2050, for use in the creation of strategic plans, and for use by policy-makers on the different scales;

3. An evaluation of the impacts of the scenarios on socio-economics, environment and ecology;

4. To make SCENES a starting point, so that in the future new scenarios on Europe's waters will continually be made and revised. (Kämäri *et al* 2007; adapted from p.4)

1.1.3 Organisational structure

SCENES organisational structure can be seen in Figure 1. IA1 (Integration Activity 1): Coordinates and manages the administrative side of the project. Its objective is to facilitate internal project communication and the coordination of activities between the different work packages (WPs). IA2: Case studies, aims to integrate the scenarios on the local scales to the larger scales, and vice versa. The exchange of data between the scales is very important in this perspective. There are five work packages each with their own objectives.
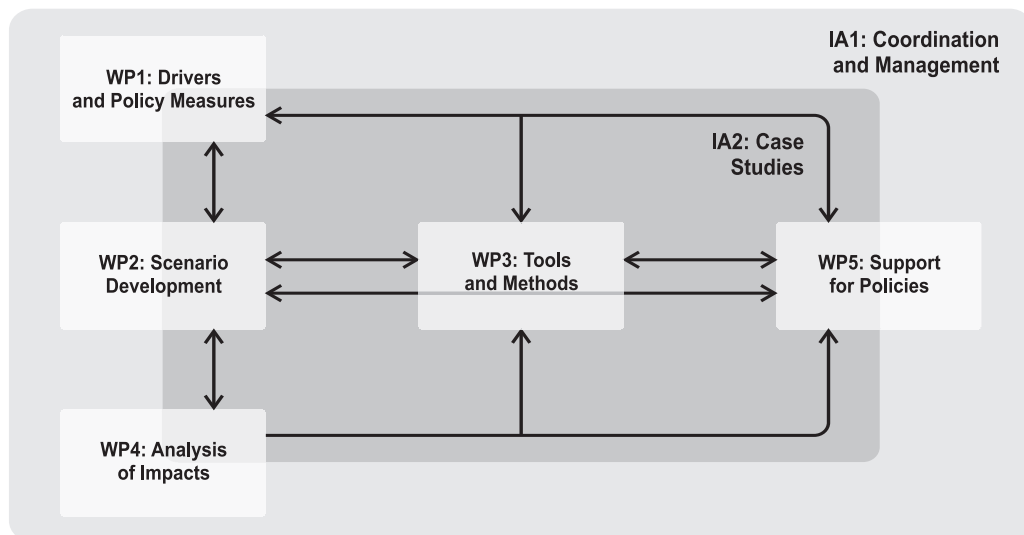
Figure 1 Basic organisation of activities in SCENES project (Kämäri et al 2007; p. 22)

WP 1 'Drivers and Policy Measures' develops the input for the development of the regional and European scenarios. The work package works on the European scale and focuses on hard data for the drivers and pressures. WP1 analyses the data from external driving forces and policy measures that might have an influence on the water demand in Europe.

WP 2 'Scenario development' helps to develop alternative future states, by testing the scenario methodology that was developed for European and regional scale.

WP 3 'Tools and Methods' uses the input from Workshops and drivers for their models. To model alternative future states. They provide the output for enrichment in a quantitative manner.

WP 4 'Analysis of impacts' uses the framework of indicators to analyze the socio-economic, environmental and ecological impacts of changes in water availability on the different sectors in need of the water.

WP 5 'Support for policies' is in charge of the education on participatory processes, synthesizes the workshop results, brings the results together and prepares the results for dissemination, making the results realistic and relevant for policy development.

1.1.4 Methodology

Scenarios

SCENES scenario methodology encompasses three phases:

In the first phase, scenarios on a pan-European scale are selected and information on the drivers and policies collected. The data are run through existing quantitative models of pan-European water availability. The scenarios and model outcomes are used in the second phase, in which local stakeholders create qualitative scenarios on the local scale. The outcomes are then reused for the refinement of pan-European and regional scenarios. The local stakeholders use the refined scenarios again for the 'enrichment' of the local scenarios. Finally, the local scenarios are used in a back-casting phase. The data can be used in a second analysis of drivers and policy issues through quantitative

modelling. In the third and final phase, all the outcomes come together in a final synthesis. The results will then be disseminated to external agencies. (Kämäri *et al* 2007; p.6)

<u>*Workshops*</u>

The workshops are set up to go through four different steps. Van Vliet (p. 9; 2007) describes them. In step one, the stakeholders focus on the present and the near future. They go through all the different issues, aspects and knowledge that make the project complicated, in order to gain a better insight in the problems they are facing. In the second step, the stakeholders look towards the far future. They create long term visions adapting the Pan-European scenarios to their local scale. In the third step, the stakeholders take another critical view at their scenarios using new information from Pan-Europenan and regional scales. This leads to enriched scenarios. In the fourth step, the enriched scenarios will be connected to the present situation in a back casting phase. The short-term options that are necessary to arrive to the scenarios are developed in this phase. The stakeholders will work backwards in time in order to find at what moment in time measure have to be taken to arrive at a suitable future.

These four steps are implemented in three workshops. The stakeholders go through the first two steps in the first workshop. The third step is done in the second workshop and in the third workshop, the stakeholders take the fourth and final step.

1.2 Scope of Research

Section 1.2 introduces several topics that result in the problem that this thesis works on. The problem statement leads to a research objective with research questions.

1.2.1 Problem description

<u>*Time*</u>

The process of attaining knowledge in participatory workshops uses a lot of time, which is often scarce to all people involved. Time is a limiting factor for these workshops, which may result in results with a low quality. The SCENES project is a complex project because it works with a long time frame, on different scales, with many different stakes, external influences and different types of knowledge. The workshops of SCENES need to take into account all these aspects and create ideas for the future, in order to develop integrated scenarios. With this wide array of aspects to keep in mind it is difficult to come up with new ideas. All these ideas need to be discussed thoroughly to prevent misunderstandings. The stakeholders need to create a shared frame of mind in order to come to a consensus on their final scenario. There are three elements here very important. Creativity, as it is an element that stimulates a wide selection of ideas. Discussion, as it is an element that stimulates stakeholders to come to a shared understanding. Consensus building, as consensus is necessary for the stakeholders to agree to a result. Because of the limited time within a workshop, and the need to produce results, the pressure to achieve consensus may be high, leading to forced consensuses instead of good quality consensus that incorporates all three elements.

<u>*Tools*</u>

SCENES has developed a 'cookbook' with a proposed setup for the workshops. The different pilot area organizers decided on their own setup based on their individual situation. Some pilot areas

followed the cookbook more than others did. The proposed setup for the workshops is a two-day workshop. Some pilot areas decided on a one-day workshop and used fewer tools to be able to reach a result in time. Changing the recommended setup may have a negative effect on the ability of the stakeholders to have enough creativity, discussion and consensus building over the course of the workshop to achieve a good quality result.

Quality results in pilot areas

The SCENES team created a setup for the pilot area workshops (PAWS) in order to attain good quality results. However, some pilot areas did not follow the recommended workshop setup. It is unclear whether the recommended workshop setup improves the quality of the results.

This leads to the following problem statement.

There is no clarity on how to set up a workshop in a way that the results are of good quality.

1.2.2 Goal

The goal of this thesis is to:

Give recommendations on participatory workshop setups in general and of SCENES in particular in order to achieve good balance to creativity, discussion and consensus building.

1.2.3 Research Questions

The problem statement and goal lead to three research questions:

- *What is the reason for SCENES' choice in tools?*
  - *What paradigm does SCENES follow?*
  - *Do the tools follow the paradigm?*
- *Does the recommended workshop format improve the process and results?*
  - *Which criteria for the setup, process and results indicate a good workshop setup?*
  - *How does a decrease in time for the workshop influence the quality of results?*
  - *How does a change in used tools influence the quality of results?*
- *What can be improved, for participatory process management in general?*
- *What should, and what can be improved in the setup of the SCENES' participatory processes?*

1.3 Methods

1.3.1 Paradigm exploration
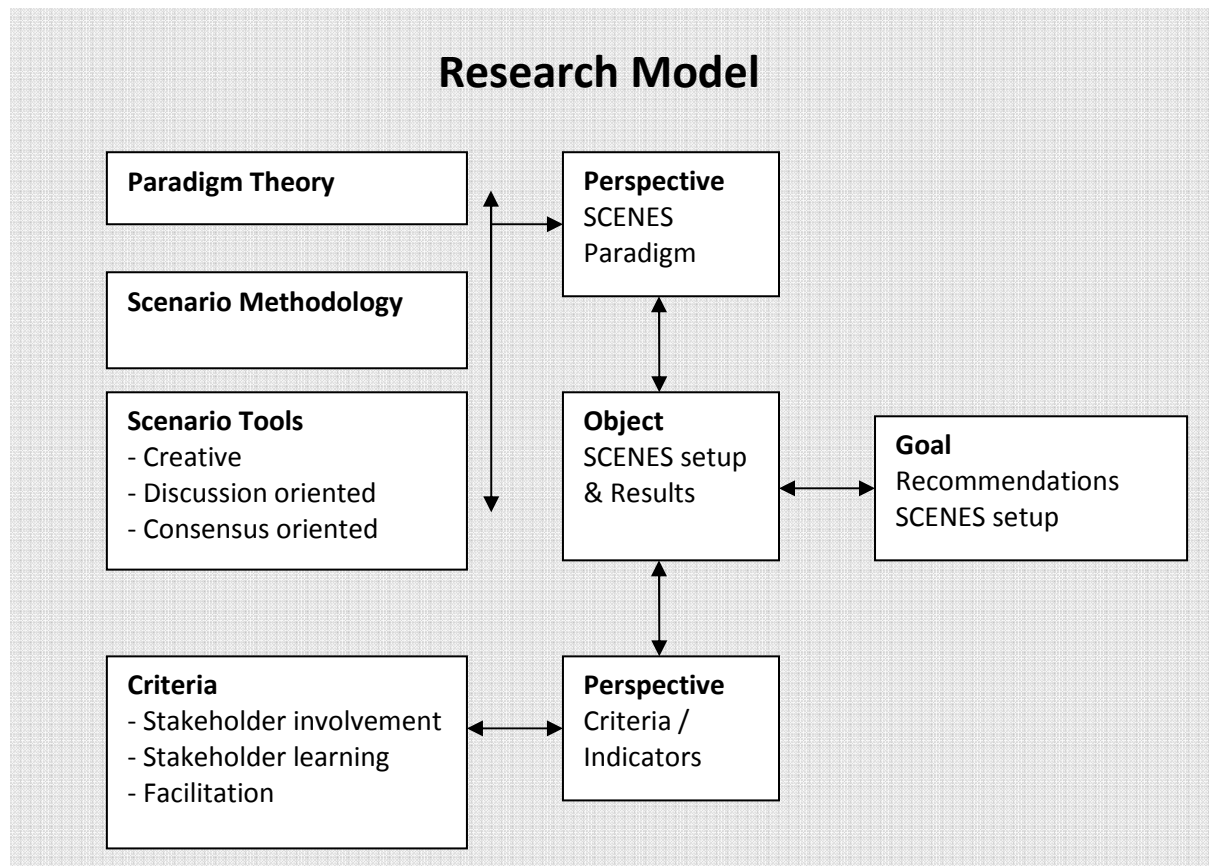
Figure 2 Research Model

Before the setup can be analyzed, it is important to understand the reasons that SCENES has for its methods. That way, the recommendations at the end of this thesis can be adapted to SCENES. A literature research gives a good picture of the background of SCENES' methodology. The researcher found the paradigms and compared them to SCENES. The paradigm shown in this thesis is not the official paradigm of SCENES; it is the result of the researcher's analysis. The paradigm does not encompass all of SCENES. It focuses on the pilot area workshops. The workshop tools of the cookbook can then be compared to the paradigm in order to see whether they fit the paradigm.

1.3.2 Pilot Area Case-studies

The actual format of the workshops in two pilot areas is compared to the recommended workshop format as found in the cookbook. Two case studies are chosen for this, one with a similar setup as the cookbook, one with a shorter time frame and less tools. A list of indicators is derived from criteria found in literature for the evaluation of the pilot area setup. The case study research gives recommendations on setups of participatory workshops in general, based on the paradigm recommendations can be given on what can be changed in the SCENES setups in particular. The structure of the methods used in this thesis are summarized in **Error! Reference source not found.**

Case study choice

Each pilot area goes through three workshops, as described in section 1.1.4. The limited time available for this thesis limits the choice of case studies. The first workshops of the pilot areas were finished at the start of this thesis. Only a few pilot areas hold their second workshop within a reasonable time for the thesis. From those pilot areas, one jumps out as interesting as it follows the cookbook setup. In Table 1, the methods used in the first workshops are compared. Crimea follows the recommended two-day workshop and uses all tools. Guadiana used a one-day workshop, and used FCMs instead of collages. The scenarios were, as opposed to Seyhan, connected to the Pan-European scenarios. That is why the two case studies of choice are: Crimea and Guadiana. As the first set of workshops is finished, the analysis will be on the first workshops in both pilot areas. Because of the limited time for this thesis, the second workshop will not be analysed for both pilot areas. Only PAWS 2 of Crimea is analysed.

Table 1 Overview of methods used in first round of workshops (van Vliet, 2008)

Pilot Area	date WS1	FCM	spidergrams	collages	storylines	scenarios used			
						MF	SeF	SuF	PF
Baltic region	10/11-06	yes	yes	no [1]	yes	x	x	x	x
Narew	21/22-04	yes	yes	yes	yes			x	
Peipsi	3/4-04	yes	yes	no [1]	yes	x		x	x
Danube Delta	17/18-04	yes	yes	no	yes	x	x	x	x
Tisza	3/4-04	yes	yes	yes [2]	yes	x	x	x	x
Crimea	26/28-03	yes	yes	yes	yes	x	x	x	x
Lower Don	11-04	yes	yes	yes	yes	x	x		x
Candelaro	21/22-02	yes	yes	yes	yes		x		x
Guadiana	6-05	yes	yes	no [2]	yes	x		x	x
Seyhan	10-10	yes	yes	no	yes	*free scenarios[3]*			
Garonne	05-6	*introduction workshop; different program*							

[1] used timetrends
[2] used FCMs
[3] Scenarios in Seyhan were not connected to the fast-track scenarios
MF = Markets First, SeF = Security First, SuF = Sustainability First, PF = Policy First

Case description

Crimea is the peninsula of Ukraine in Eastern Europe, as shown in Figure 3. Crimea is an interesting case study for SCENES because of its dependence of water from the Dnieper River. About eighty

percent of the water supply is transferred from the river in a 400-kilometre canal system. This

Figure 3 Crimea in relation to Ukraine; Wikipedia 2009

irrigation system complete with pumping systems has to be maintained. It is unclear who carries the responsibility for the canal system since their independence from the former Union of Soviet Socialist Republics (USSR). Kämäri (2008)
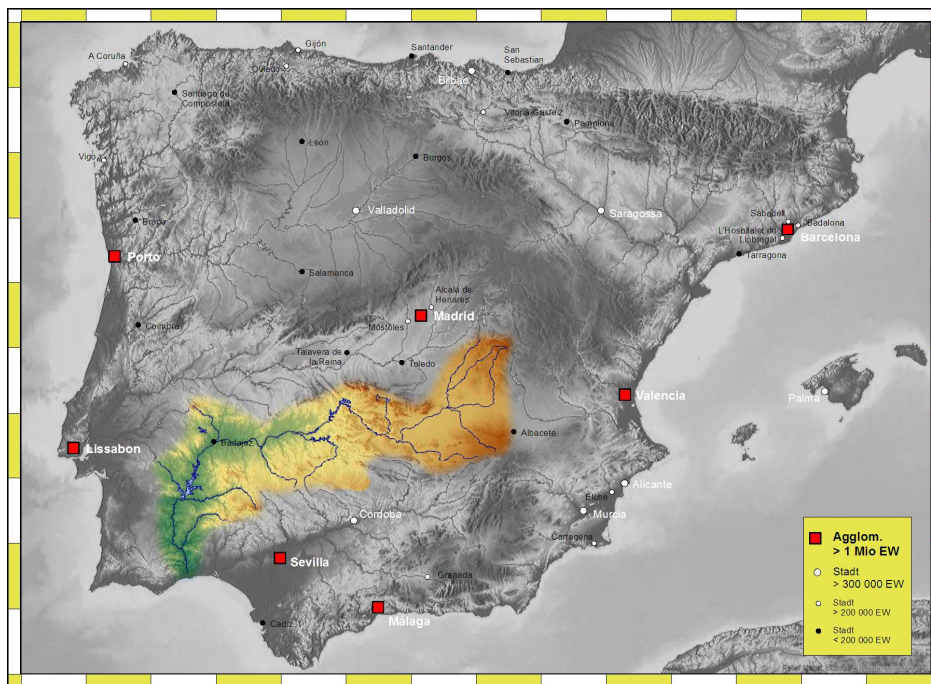

Figure 4 Guadiana river basin area in relation to Spain; Wikipedia 2009

The Guadiana river basin area has most of its course in Spain, the part that flows in Portugal is not taken into account within SCENES (Figure 4) Main problems in the area are that illegal wells deplete

the ground water level, water shortages are a general problem. About ninety percent of the Guadiana water is used for agricultural purposes. The water conflicts rise between all levels, from national government to individual farmers.

Information sources

The research into paradigm theory is performed using scientific literature that is compared to SCENES literature. The case studies have a high diversity of information sources. For all the analysed workshops, the workshop reports by the pilot area organisers are used. In there are direct results of the tools, a subjective report by the organisers, a subjective facilitator report and the opinions of the stakeholders in the form of a questionnaire. Objective observers from SCENES are present at every workshop. Their observation reports were also available for this thesis. Some of the IAs and WPs also make analyses of workshops. Table 2 shows the level at which each work package works. The work packages that work on both the level of the pilot areas and on participation instead of quantitative data have reports that are most interesting for the scope of this thesis. The information from deliverables of work packages two and five are therefore most interesting. IA1 has a coordinative role, while IA2 works on case study level (see Figure 1). Deliverables by IA2 are therefore also of interest for this thesis.

Table 2 Workpackage focus

	EU	PA	Data	Participation
WP1	X		X	
WP2	X	X		X
WP3	X		X	X
WP4	X		X	
WP5		X		X

1.4 Outline report

In order to come to the paradigm of SCENES in Chapter 2, the methods of SCENES are described (section 2.1) and the methods are compared with paradigms from literature (section 2.3). In Chapter 3, the indicators that are used in the analysis are derived from literature. In section 3.1 'the Diamond Scheme' is described, which shows the ideal approach to workshops in order to let the elements of creativity, discussion and consensus building be balanced and so, to reach a good quality result. In section 3.2 criteria for good workshops are derived from literature, while in section 3.3 the criteria for good tools are described. Section 3.4 closes the chapter with a final list of indicators for the quality of the workshops derived from the criteria. The results of the indicators are in chapter 4. First the overall results in section 4.1 the results of PAWS 1 in section 4.2 then PAWS 2 in section 4.3. Chapter 5 is a discussion of the research methods and of the results. The discussion ends with the thesis conclusions and recommendations.

2 SCENES approach

In order to reach the objectives explained in section 1.1, SCENES uses scenario methodology (also section 1.1). The first two sections of chapter 2 introduce the methods and tools that SCENES uses within the methodology to reach those objectives. The third section classifies the paradigm of SCENES based on paradigms found in literature.

2.1 SCENES methods

In section 1.1 SCENES methods were described. SCENES builds scenarios, mixing qualitative and quantitative data using workshops in which stakeholders participate. Scenarios come in different shapes and sizes and much has been written about scenarios. In order to classify the scenario method used by SCENES, two typologies were found. Börjeson *et al* (2006) build their typology based on the three categories probable, possible and preferable. The typology results in three types of scenarios each divided in two subtypes.

Types of scenarios (Börjeson *et al* 2006):

- Predictive
    - o Forecasts
    - o What-If
- Explorative
    - o External
    - o Strategic
- Normative
    - o Preserving
    - o Transforming

This typology covers all possible scenarios, but Börjeson (*et al* 2006) does say that often multiple categories fit within a scenario study. Attributes that are assigned to a scenario are ambiguous (Börjeson *et al* 2006; p637). The definitions hold terms as 'often', which does not give a clear indicator. A scenario can contain only part of the characteristics of several and another scenario type instead of including both in their entirety. A study that allows more variety within its definitions is Notten's (*et al* 2003)

Notten (*et al* 2003) uses a different bases of comparison for scenarios. His research uses three themes. Project goal, process design and scenario content. Within these themes, there are several characteristics that together make a combination. Some combinations cancel each other out, some characteristics overlap. These themes are shown in Table 3.

Table 3 Scenario Typology (Notten *et al* 2003; p.426)

Overarching themes		Scenario	characteristics
A	Project goal: Exploration vs decision support	I	Inclusion of norms? : descriptive vs normative
		II	Vantage point: forecasting vs backcasting
		III	Subject: issue-based, area-based, institution-based
		IV	Time scale: long term vs short term
		V	Spatial scale: global/supranational vs national/local

B	Process design:	VI	Data: qualitative vs quantitative
	intuitive vs formal	VII	Method of data collection: participatory vs desk research
		VIII	Resources: extensive vs limited
		IX	Institutional conditions: open vs constrained
C	Scenario content:	X	Temporal nature: claim vs snapshot
	complex vs simple	XI	Variables: heterogeneous vs homogenous
		XII	Dynamics: peripheral vs trend
		XIII	Level of deviation: alternative vs conventional
		XIV	Level of integration: high vs low

Within each theme there are multiple characteristics. For example, in the overarching theme of 'Project goal', one can aim for a more explorative approach or a more decision supportive approach. On this scale one can aim for the more extreme explorative approach, or the more moderate decision support approach. To further define the exact location on the project goal scale one can compare a multitude of characteristics; the inclusion of norms and vantage points, but also the type of subject, time scale and spatial scale. The same can be done for the other overarching themes. Every scenario has a place on the scales of the three overarching themes. Combinations that can be made within this framework of comparison is higher than in the definition of Börjeson, but with such a diversity in possible directions, it is impossible to make sense of such a characterisation.

SCENES uses European fast-track scenarios, which are based on the GEO-4 scenarios (Kämäri *et al* 2007; p.25; unep.org 2007). The GEO-4 scenarios are anchored in the present and explore several possible futures. The methodology for arriving at these scenarios stems from the SAS approach (Kämäri *et al* 2007; Alcamo 2001). Classified following Börjeson's typology SCENES uses explorative scenarios. As the scenarios are based on factors beyond the control of the regional level, the scenario is 'external explorative'. However, as there is an important role for a back-casting phase (Kämäri *et al* 2007, p.10) the methodology could also be classified as 'transforming normative'. Notten *et al* (2003) does not give a clear classification, but gives the possibility to compose a scenario without the hard boundaries that Kämäri *et al* (2003) gives. SCENES aims for a wide arrangement of classifications. The combination of qualitative and quantitative data and the combination of participation and modelling gives a process design that qualifies as both intuitive and formal. The project goal is explorative while it aims for decision support, as the European scenarios start out as more descriptive, while on the local scale the stakeholders include their own norms.

Both classifications show what is important within SCENES scenario methodology. On the pan-European scale, some of the issues that are taken into account will be manipulatable, while the local stakeholder workshops have no influence on many of the trends, as they look at the influence of the Pan-European scenarios on their local situation. Within the conditions of the pan-European scale, the local scale has influence. An important thing that is not covered in Börjeson's typology is the inclusion of stakeholders. Notten's method of data collection does cover this issue. Within the whole of SCENES, quantitative data is collected and modelled. The pilot area workshops, which are the focus of this thesis, are the exception. Stakeholders participate and use the quantitative data for their qualitative local scenarios.

The collaboration of stakeholders within the process are an important part of the SCENES project, but not all scientists see the use of collaborative methods. Brand and Gaffikin (2007) feel that collaboration is difficult to implement as the world is actually uncollaborative in nature. Brand and Gaffikin see flaws in the theoretical structure of collaborative planning, as the aim of collaboration is to remove power within the process. This is not possible as the power plays are interwoven throughout the planning structure. Flyvbjerg (2002) warns about the dangers of power within participatory processes. Power is an integral part of planning and cannot be seen separately. The ideal of achieving validity solely on the value of arguments cannot be reached as power will always play a role. Arguments are won through rhetoric (eloquence, hidden control, rationalisation, charisma, using dependency relations between participants), or status, instead of arguments.

If power is ignored, a few dominant participants will make the plans while less outspoken stakeholders will have no chance to contribute. If this happens, the advantage of pooling the creativity of the stakeholders is gone. Even more importantly, some stakes might be much better represented than others, making them the dominant stakes. It is therefore important to realise that those power relations are there; this makes it possible to deal with them.

Innes (2004) disagrees with the criticisms towards Collaborative Planning. The world is not as uncollaborative as many critics make it appear. Although there needs to be a change in the way that stakeholders approach each other, it is possible to deal with power in such a way that it will come close to an ideal speech situation. A situation in which every participant is able to express their opinions and where those opinions are heard. Facilitators have techniques that help participants to listen to each other. It is important that the stakeholders see that cooperation will bring the best possible outcome, when cooperation is not necessary stakeholder may leave, or dominate the discussion. Cooperation will bring advantages to the powerful and and less powerful groups at the same time. Stepping out of the process or dominating the process too much makes the other groups unwilling to work with that group again. As long as more cooperation is still the best available option., groups will not step outside of the process. Major advantages are gaining a common goal to work for, which makes the group as a whole stronger against others. Also, the norms and collective values of the group will incorporate norms from all participants, including the weaker participants.

A purpose of using stakeholders in participative processes is the feeling of ownership participants may get when they feel they contributed Raadgever (2005). This is important for SCENES for two reasons. First, it is important that stakeholders return in the succeeding workshops. Second, the SCENES results should be used on all scales in order to come to an increasing water quality in Europe. If the stakeholders feel that their stakes are represented in the plan, they will be more likely to continue with implementation. Therefore, it is important for SCENES to provide the conditions for ownership. Within the workshops, this can be achieved with an ideal speech situation.

2.2 Workshop tools

In the SCENES workshops, several techniques are used. These techniques form the tools that are used in the workshops, and help to guide the workshops to good quality results. What follows in this section is an explanation of the setup of the workshops and the tools within the setup.

2.2.1 Setup

The SCENES workshops go through four steps in three workshops, as described in section 1.1.4. For each of the steps there are corresponding tools in setup. The actual setup as designed by SCENES can be found in the cookbooks of PAWS 1 and 2 in Appendix 7; Cookbook PAWS1 and Appendix 8; Cookbook PAWS2. The cookbook for PAWS 3 is not included as it is not part of the analysis. In PAWS 1, the stakeholders go through the first two steps. In the first step of looking at the present, the stakeholders use the card-technique to creatively discover all the current issues. FCMs are used to build a scheme that shows the way the system works in the present. These issues are valued by the stakeholders using spidergrams. In step two, the stakeholders use collages. In order to create the scenarios, the collages are then put into words in the form of a storyline. In the second workshop, the stakeholders go through step three. The stakeholders adapt the FCMs using new information. The scenarios in the form of collages and storylines are also adapted. The collages and storylines are used to create an FCM of the future. The storylines are adapted on the bases of this new FCM of the future.

2.2.2 Tools

Card-Technique

The Card-Technique is a brainstorming technique, designed to generate ideas. Participants write their ideas on Post-Its and these papers are stuck to a wall. The ideas get discussed and clustered into groups. (portals.wi.wur.nl; Van Vliet 2007) In SCENES, the technique is used to map the issues in the first of the workshops (Appendix 7; Cookbook PAWS1). The stakeholders have some time to think individually of the issues they want to address. The issues are then posted on the wall and clustered by facilitators while guided by the stakeholders. The idea is that all ideas are possible and accepted in this phase. This induces creative ideas instead of 'business as usual'. Card-Technique is a creative tool, suitable for the start of a workshop as that is where creativity is most needed.

FCM

The Fuzzy Cognitive Map (FCM) is a complicated tool. Fuzzy comes from the term 'fuzzy logic'. In 'normal' logic, answers can often only be given in the order of True, or False. A statement can only be correct, or incorrect. When the truth lies somewhere in the middle, than this is excluded from the model. Fuzzy knowledge is based on the knowledge of the excluded middle. Therefore, it has the advantage of adding degrees of truth, which is important in a project where value and opinions are an integral part of the process. Cognitive Maps are almost always graphical representations. Cognitive Maps are not models of objective reality, but the product of separate, subjective perceptions of individuals (Cole and Persichitte, 2000)

FCMs combine the strengths of fuzzy logic, a better representation of human thinking, with the strengths of Cognitive maps, the clear and orderly overview of a graphical representation. *"By creating a graphical representation of a domain, cognitive maps save the user from having to hold the representation in working memory, thus freeing cognitive resources for interpretation and analysis of the content."* Cole and Persichitte (2000) p 5

In FCMs all factors that influence the system receive a box. The directions of influences between the boxes are added, represented by arrows. The amount of influence is the fuzzy element in the FCMs.

These influences can be represented by signs: ++,+,-,- -, words: some/little/much, or numbers: 1/0.5/-0.75.

According to Cole and Perschitte (2000), FCMs graphical manner of presentation can promote stakeholder learning as they more easily perceive and understand the whole system, instead of separate points. The dangers of FCMs is a possible false sense of accuracy. It is important to realize that the FCMs are only the result of the collected subjective viewpoints of the stakeholders. Though some may be experts in their field, it is easy to make mistakes because the experts do not know the extend of the whole system. Some connections that are really there are missing. Some connections that are in the FCM may not be there in reality. Values of influence may be overrated or underrated. Following the results blindly as direct input for decision making would be a mistake. However, FCMs are a useful tool for the stakeholders to gain understanding in each other, and to create a shared understanding of the system.

FCMs are used to create the system of the present and the system of the future. Following Cole and Perschitte, this tool should help the stakeholders gain an understanding of the whole system, not just the part in which they have their stakes. The combination of present and future systems can help the stakeholders to realise the extent of the changes in the future of their regions.
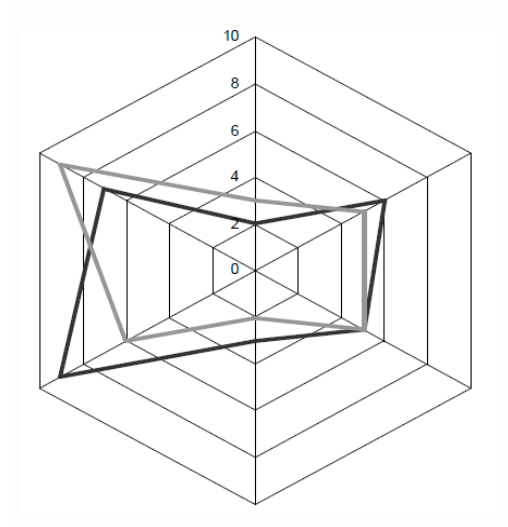
Figure 5 Spidergrams (Van Vliet, 2007)

Spidergram

Spidergrams are tools that help participants to understand the viewpoints of each other. The participants write important issues down on a piece of paper with lines in a star form. Each of the lines represents an issue. The stakeholders put a dot on the line for each issue. The location on the line stands for the importance they feel the issue has. On the outside, the importance of the issue is high, while on the inside, the importance is low. By drawing lines between the dots and joining all the spidergrams together, it is easy to compare the differences in opinion of the stakeholders separately and the differences of importance of the different scenarios.

Collage

14

Figure 6 Collage (Van Vliet, 2007)

Collages is a tool meant for participants to help them visualize the scenarios. The technique gives the participants a lot of freedom, which encourages creativity. As dominant people talk, more silent people can be drawn into contributing by cutting out pictures that they feel represent an aspect of the scenario in their view. As all the participants can contribute and discuss pictures, the final collage is ready only when all agree on the pictures, drawings and text on the paper. Within SCENES, the collages form a visual representation of the scenarios. The scenario is complete with its written representation by the storylines. Suggested materials in SCENES Deliverable 2.1 (van Vliet *et al* 2007) are Magazines with pictures, thick pencils, large paper and glue.

Storyline

Collages are good for sparking creativity, but for the continuation in the second workshop, storylines are necessary. The second workshop is several months later, so the memories of the meanings of the pictures and drawings on the collage fade away. A written companion for the collages is necessary for the participants to work with them again. Storylines have all elements of the collages in them and are a description of the scenarios. For the SCENES organizers the storylines are more clear as well. They were not there at the building of the collages and will not be able to interpret the collages.

2.3 Paradigms

This section explains why SCENES uses the methods and tools in the above two sections. Several ways of thought are introduced with elements recognisable in the SCENES methods.

2.3.1 Mode 2 Science

Gibbons *et al* (1999) discusses the difference between Mode 1 and Mode 2 type of knowledge. Mode 1 knowledge is created by a single discipline, and therefore homogenous in nature. In mode 1 science, creativity is an individual scientist's feat. Mode 2 knowledge on the other hand, is created by crossing the boundaries of disciplines. A collection of skills and experiences is used to create Mode 2 knowledge, which disciplines are used depends on the need of the problem at hand. Therefore it is heterogeneous in nature. Mode 2 knowledge is created by a whole group instead of a single scientist.

Mode 2 science is set within the world, while Mode 1 science works for knowledge as a goal in itself. Mode 2 scientists are better able to sell their research because they make sure that their research is applicable. As a result, there is a more problem oriented approach within Mode 2 science.

2.3.2 Post-Normal Science

In the early eighties, Post-Normal Science was developed as a reaction to the changes in both science and society. The belief that objective science is the truth was undermined because, scientists and society as a whole started to realise that uncertainty and value conflict are a part of science. Post-Normal scientists give a message, opposite to what practitioners of Normal science have practiced for centuries. Uncertainty is a fact of life and can never be completely removed. Post-Normal scientists face the problems of uncertainty and value differences in policy-related science, by involving policy-makers and laymen into the process. (Ravetz and Funtowicz 1999)

According to Ravetz (1999), scientists have their own values and are influenced by their commitments. They cannot separate themselves from society in their research, because of these commitments. If they climb down from their ivory tower, they will see science within the context of policy, using a framework of values that better mirrors society. This means that the results have a value that depends on the people in politics at the moment of the research. As science is no longer seen as an objective truth, personal opinions of the public are taken into account.

Besides public opinion. It can also be argued that the 'laymen' have their 'local knowledge' (Corburn 2005). Their experience of living and working in their area gives them important knowledge that is specified to the problems that need to be faced in the local area. Knowledge of scientists is more general and might miss the real focus point that should be concentrated on in an area. The combination of these two types of knowledge can give a better direction then when only expert knowledge would be used. Laymen do not only have their own local knowledge, but also their own opinions. Laymen and policy-makers can work together to find the most important issues to work on in their future planning. Policy debates will get input from the local laymen and this way, ethical and spiritual considerations can also be taken into account into policy debates.

Experts will always play a large role in science. But in some cases, expert knowledge is just not enough. The uncertainties are high, so objective scientific answers cannot be given. It is possible however to give estimates of the effects of certain policy measures. Post-Normal Science adds to Normal science by adding actors from the policy domain into the process.

2.3.3 Design oriented planning

Kleefmann (1984) has introduced design oriented planning in Wageningen. He describes planning as a search tool. Not one single vision, but several possible scenarios are created that describe several trends on a wider scale. From this, a plan can be made on how to proceed and react within the bounds of these scenarios. The result is a plan for the long term future that is not fixed as a blue print, but flexible. As different possible courses of the future are discovered, the resulting plan is more flexible for otherwise unexpected events. This flexibility is necessary when planning for a long term future, as uncertainty increases with distance in time. Kleefman promotes an important change from a state of friction between rational science and creativity to a state where science and creativity work together.

At the inaugural speech of van der Valk in 1999, for the land use planning group at the WUR, van der Valk promotes the idea of a mixed planning practice. Van der Valk uses elements of both 'Technical Planning' and 'Interactive Planning'. Technical planners believe that the society can be 'made', the experts have the knowledge to come with the best tools to realize the ideas of the politicians. In

interactive planning, planners do not just report to politicians. All stakeholders have a part in the process of plan making. The ideas of planners and other experts are taken into account. However, their objective scientific knowledge is used in the decision making process, but is not decisive in that decision. Discussions, arguments and stakeholder values are. All the stakeholders must feel connected and responsible to the plan. Otherwise, when the plan is supposed to be executed, the will to do so will not be sufficient and the plan will not have the desired effect. Rationality is still important in the planning process. The decisions must be based on scientific knowledge, and not be the result of "just" a creative jump.

With this, van der Valk promotes Kleefman's ideas and goes even further, incorporating the ideas that were found in Post-Normal Science. Van der Valk promotes the creative jump, but reminds us of the importance of anchoring that step in objective science. The creative jump is not done by planners, but by stakeholders. The planner has an obligation of guiding the process. Scientific knowledge has to be useful for use by the stakeholders and should be explained simple enough to be understood by stakeholders.

2.3.4 Processual paradigm

Van der Heijden (2006) discusses three paradigms for making plans for the future. The rationalist, the evolutionary and the processual paradigm. In the rationalist paradigm, future plans stem from the past and quantitative data can be extended from this past into the future. However, when making plans for a the far away future, the uncertainties are high. Many new things could start influencing the landscape. In the evolutionary paradigm this difficulty is taken as a proof that making plans is not a guarantee. Some ideas will work, some will not. It is all just chance. It is true that there are many uncertainties, and decision makers can never be sure for a hundred percent what is going to happen, but throwing away strategic planning as useless is not the answer.

The processual paradigm takes position in between the rational and evolutionary paradigms. Perfect rational strategies do not exist, but it is possible for a manager to map the uncertainties, and create several policy strategies adapted to different possible futures. The policy will be easy adaptable to possible futures and flexible enough to cope with sudden changes. Mistakes that are made can be more easily corrected and the people involved can learn from their mistakes.

Scenarios are tools. Several different scenarios of possible futures are the input, necessary for policy makers to reach their decision. If we follow the processual paradigm and use the scenarios from a post-normal perspective, we see the usefulness of the combination of experts and policy makers in a process. Together they have the knowledge of many possibilities, opportunities and threats; and a collection of wishes, desires and necessities for a viable future, that forms the framework of conditions for the package of measures that is the ultimate goal of the project.

2.3.5 Integrated assessment

"Integrated Assessment is a multi- or interdisciplinary process of structuring knowledge elements from various scientific disciplines in such a manner that all relevant aspects of a social problem are considered in their mutual coherence for the benefit of decision-making." (Rotmans, 1999)

Integrated assessment, Post-Normal Science, Design oriented planning and Mode 2 science have many similarities, as they all see the importance of scientists to reach further than their discipline.

Mode 2 science does this by reaching to other disciplines; Post-Normal science sees the importance of including the knowledge of stakeholders and to make the results useful in 'the real world'. Design oriented planning according to van der Valk (1999) takes participation one step further. Stakeholders are not just asked for their opinion, but form an integral part of the process. However, Post-Normal Science and Mode 2 science are insights that one has to translate in order to use it in practice. Integrated assessment is a theory that can be implemented more directly.

The combination of objective Science, with all its uncertainties, and policy, with all its different viewpoints, helps to deal with the separate weaknesses. Integrated assessment is a holistic methodology, combining several scientific disciplines and stakeholders to create something better. Careful guidance of the process is needed however to make sure that the research does not amount in nothing more than a heap of knowledge that is supplied from multiple disciplines. (Gibbons *et al* 1999)

The experts can give their best estimates of the effects of certain future events. Events that are out of the control of policy makers, but also events initiated by themselves. The policy makers can then determine on the bases of the different possibilities what the best course of action should be.

2.3.6 Synthesis

SCENES goals and methodologies have many similarities with the paradigms mentioned above. SCENES aims to help answer *"the complex questions about the future of Europe's water resources."* (Kämäri *et al* 2007; p1) To do this, SCENES practices Mode 2 science as knowledge from multiple disciplines is used, including hydrological, ecological, economic, cultural, social, climatic, and financial disciplines. Quantitative knowledge is taken from the different disciplines, but the qualitative knowledge is brought into SCENES by the stakeholders in the workshops. The use of stakeholder knowledge is post-normal in nature, and SCENES goes as far as to let the stakeholders do the back casting as well. Stakeholders are not just consulted, but they are able to fully participate in the process. The used approach to the problem fits within integrated assessment theory. The use of both scenarios and back-casting (Kämäri et al 2007; p.10) within the scenario methodology makes a creative jump possible while still anchoring it in the (quantified) present. The aim of SCENES is to make continuing scenarios and a wide dissemination of the results, to make sure that the results will not end up unused on the bookshelf.

SCENES uses all the disciplines to look at the water problems from every scientific angle. The stakeholder participation makes sure that all aspects of the societal problems are considered. The scenario methodology using also qualitative data implies a processual paradigm. If only quantitative data was used, new future uncertainties could not have been taken into account, as in the rationalist paradigm.

Within the scenario workshops there is a large group of stakeholders, that all want their stakes to be well represented within the scenarios. The stakeholders need to collaborate in order to reach a result. Without good collaboration, stakeholders might be dominated by other more powerful stakeholders. Therefore, a good setup that gives the stakeholders space to talk is important. However, the setup must also be able to guide the stakeholders to a good consensus at the end of the workshop. After all, if there are no results, they can not be used for the rest of the SCENES project.

All in all, SCENES is a complicated project. In this thesis, only a small part of the project is taken into account. The workshops are important to get all the societal aspects on the table, to make the stakeholders feel responsible for the outcomes of the project, and to make the stakeholders learn from each other as they together discover the systems of the present and the future.

Therefore, guidance of the stakeholders is important for SCENES. That is why a lot of time has gone into preparing a good workshop setup, as can be seen in the cookbooks in Appendix 7; Cookbook PAWS1 and Appendix 8; Cookbook PAWS2. Chapter 3 will go into the criteria that make a good setup, so that an analysis of the workshops in the case studies can begin.

3 Criteria

In this chapter several important aspects of good workshop setups are discussed. Section 3.1 discusses the Diamond scheme, which portrays the three phases that any discussion about a complex topic should go through. Section 3.2 discusses the criteria for workshop setups in their entirety, while section 3.3 discusses the criteria that are tool specific. Section 3.4 holds the synthesis that derives the indicators from the criteria. The chapter closes with a table that holds all indicators.

3.1 Diamond scheme

In the problem description the three elements of creativity, discussion and consensus building have already been mentioned. Kaner *et al* (2007) do not use the same terms, but they developed a scheme for the entire workshop process to in order to reach a sustainable consensus. He uses the terms of 'divergent zone', 'groan zone' and 'convergent zone' to describe which way the stakeholders should be 'guided' by the facilitator to reach the right state of mind for that part of the process.
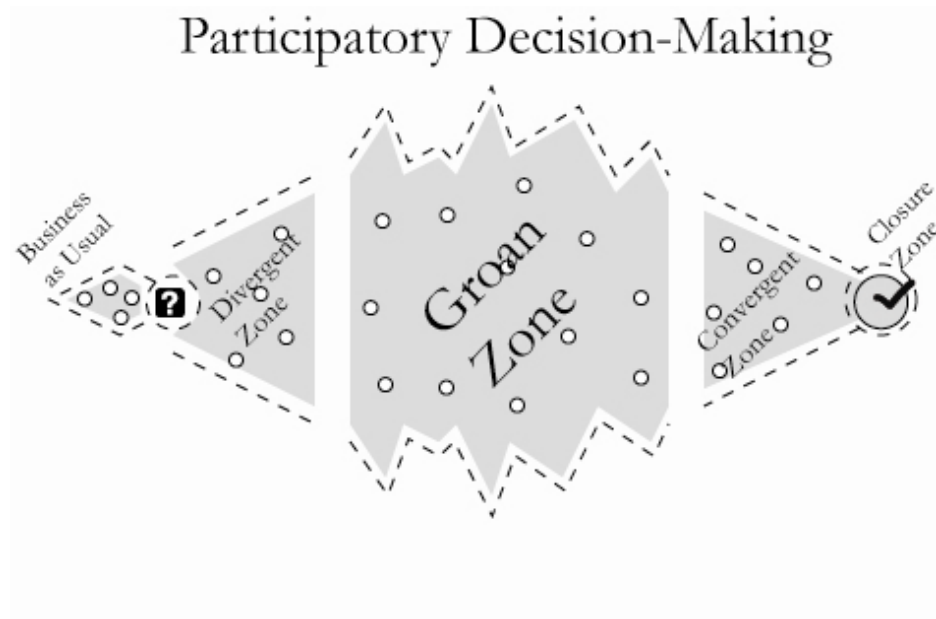
Figure 7 Diamond Scheme (Kaner *et al* 2007)

After a short round in which the stakeholders write down the easy solutions to the new topic, the facilitator must steer the group into the 'divergent zone'. The stakeholders move to a more creative state of mind, bringing up divergent viewpoints, new problems and creative solutions. Show the stakeholders that there are differences in opinion and let them be inspired by new viewpoints. **Creativity** should follow. After this, the group moves into the 'groan zone'. In this zone, the differences are on the table. The stakeholders face the problem that they need to reach a common framework of understanding. Necessary for this is for all involved to be patient when others don't understand their point, to persevere in their efforts and to be tolerant of other viewpoints. Finally you need faith that the **discussion** will reach that framework of understanding. The 'groan zone' is the hardest part of the process because of the frustrations and the seemingly endless discussions that feel like there is no progress at all. Demotivation is a real risk in this zone. This zone is also the

point of return. This is where the differences of the stakeholders are on the table, so that in the next zone, the 'convergent zone', the stakeholders can work towards **consensus**. This phase of the process should go fast. The stakeholders understand each other and can work towards an inclusive solution. In the end the stakeholders reach the final point of the process, 'The decision point'. The stakeholders think as a group, but now they will have to make the final decisions on the actions to be taken and the solutions to use. Stakeholders will still have their differences in opinion. The amount of support for each proposal is what the stakeholders should focus on.

When proper guidance is not provided for the stakeholders, the diamond scheme will not be followed successfully and the results will have a low value. Van der Heijden (2006) describes to problems that can occur within the process. The first problem can occur when the stakeholders have completely different views. They will focus on their differences instead of what they have in common. The 'critical mass' of consensus is not reached and there will be no result. The other problem is on the opposite of the diversity scale. The stakeholders share a strong feeling of consensus from the start. As all the stakeholders think the same way, no new interesting ideas are brought to the table. This state of mind is called 'group think'. In the case that the stakeholders are in 'group think', they will treat the issue as business as usual. They will not go into the 'divergent zone' but go immediately towards consensus. In the case of SCENES, where there is a multitude of issues and opinions to deal with, this would end with a result that may look good at first glance, but as there are no surprising issues. The resulting scenarios are not flexible to deal with unexpected events. In the case where there is much diversity, the 'critical mass' of consensus must be reached. Otherwise, the stakeholders will be stuck in the 'groan zone'. The discussions will not be resolved and no shared framework of understanding will be reached. Without this framework of understanding, it is not good to go into the 'convergent zone'. Without the shared framework of understanding, it is not possible to reach a consensus on issues as the discussions will stay on the level of understanding. It is essential that this understanding is reached prior to the 'convergent zone'.

3.2 Workshop criteria

There are multiple criteria for a good workshop setup. Raadgever (2005) came to a set of 5 different criteria that are essential:

- *Involvement: Participants should be involved throughout all stages of the policy process (already early involvement).*
- *Active-inactive: When organising citizen participation, the participants should represent the different groups in the population in a fair way (the equity dimension). For example, careful attention should be paid to the ratio male-female and actives-inactives;*
- *Co-ownership: The nature and scope of the participation process should be clearly defined and participants should develop co-ownership of the process;*
- *Independent and unbiased: The participatory process should be conducted in an independent and unbiased way;*
- *Cost-effective: The process should be in some sense cost-effective to the sponsor.*

These criteria all revolve around the quality of results and the feeling of co-ownership of the stakeholders. To avoid misunderstandings between stakeholders and policy makers, it would be ideal if stakeholders were involved throughout all stages of the policy process. Kloprogge and van der Sluis (2006) discuss the advantages of stakeholder involvement in integrated assessment projects

specifically. The amount of participation of stakeholders can differ. When that level of participation is low, the influence of the organizing integrated assessment experts is relatively high and the stakeholders are consulting, but not contributing to the discussion. When stakeholder learning is one of the goals, their involvement is important. When the stakeholders are not involved, they will not discuss their differences and shared views. This means that they will not come to their shared framework of understanding.

However, there can be numerous reasons not to involve stakeholders in every step Experts may feel that they are the only ones capable of saying anything useful in their own knowledge domain. They set up boundaries, limiting the input and influence of stakeholders in the process. The purpose of projects following Post-Normal science and integrated assessment is to cross these boundaries. As SCENES follows these paradigms, stakeholders should be involved in the process. Kloprogge and van der Sluijs (2006) add a few indicators to measure how much the stakeholders have been involved:

- Passive or active stakeholder involvement
- The degree to which different functions of the integrated assessment process are open or closed for stakeholder input
- Bottom-up or top-down approach to knowledge and perspectives

A larger role of stakeholders could mean an enhancement of the quality, greater public support and legitimacy and attainment of democracy. With active involvement comes a greater dedication to the results, as co-ownership is felt for the results. It is more democratic, legitimate and the stakeholders will be more determined to actually making it happen (Kloprogge and van der Sluijs 2006)

An open process reduces the chances of attaining the right answer, but to the wrong question. In a closed and passive process the experts will use the information gained from stakeholders to make their plan and than assume that the plan is adapted to the wishes of the stakeholders. The information they gain from the stakeholders comes from their own questions, not from a free form of conversation and brainstorming. This means an increased chance of gaining information on the less important/wrong questions, and in the end making a plan that deals with the wrong issues.

If the improvement of quality of the plan is the goal, it is important to use a bottom-up approach. The stakeholders should be allowed to find their own categories of discussion. This increases the creativity of the participants and will improve both the quality of the results and the feeling of co-ownership for the results.

It is important for the stakeholders to be independent in their discussions. The organisers should keep their focus on the process and not influence the content. The facilitators should be unbiased. Facilitators should steer the process in a way that the stakeholders spend enough time in each of the zones of the diamond scheme, he should not steer the process towards his preferred goal. Otherwise the stakeholders may lose trust in the process.

A good workshop is also cost-effective, otherwise the need for a well balanced workshop is seen as less important than a quick outcome that takes less time. A process that is sponsored by a governmental agency however, has other goals than making a profit. An improvement of water quality, or a better economical situation is sometimes more important than immediate financial profit.

22

Learning can be done in several ways, namely single and double loop learning (van der Heijden 2006). Single loop learning of a stakeholder would be discovering solutions from his or her own perspective. This is done in the creative first round of the scenario building process. Scenarios aim at double loop learning. At the end of the 'groan zone' before discussion becomes consensus building, the stakeholders have reached their shared framework of understanding. The stakeholders have learned each others viewpoints and together they have come to a new and integrated understanding. This learning of each other is double loop learning.

For SCENES, social learning is one of its indicators for a successful process (Kämäri et al. 2007, Kaljonen et al. 2007) Social learning makes the stakeholders better capable of dealing with the problems in their river basin area as they understand each others viewpoints.

Social learning is a goal in itself, not just a means to an end. However, social learning is a process that takes a long time. Raadgever (2009) finds in his PhD thesis that social learning does not occur unless many meetings have been followed, perspectives are intensively discussed and there is active participation in the research.

Raadgever (2009)concludes that, in order for social learning to occur:

'*This requires a great investment of time, money and creativity. Therefore, we recommend to collaborate only when all stakeholders are sufficiently motivated and prepared to invest the resources that are required to make the collaborative process successful.*' (Raadgever 2009 p. x)

As SCENES workshops only involve three workshops of two days, the question is what amount of social learning is actually achieved in this project,

3.3 Tool Criteria

Raadgever (2005) also gave a set of criteria for a good tool:

- *Interactive: be able to support a representative sample of the wide range of governmental and non-governmental stakeholders in sharing and negotiating information from a diversity of sources and from different perspectives (including access to (scientific) expertise);*
- *Integrative: consider different aspects and levels of design and decision-making in a holistic, interdisciplinary and systemic way;*
- *Comprehensive and educational: be able to support participants in developing insights in problem structure, goals, scenario's and/or alternative strategies;*
- *Transparent: tools and procedures themselves should be transparent, reflect upon assumptions, uncertainties and validity of information and produce results that are clear and understandable to all stakeholders;*
- *Flexible and re-usable: be usable for, or adaptable to, a range of (similar) situations. Additionally, it should be possible to combine the tool with other tools in participatory processes;*
- *Fast and easy to use: the required effort for application (time, money) should be relatively little and non-experts, e.g. residents, politicians, should be able to use the tool.*

There are multiple tools used in the workshops, but according to Raadgever, the tools should all fit the above criteria. Tools should be able to support the whole group of stakeholders from their diverse backgrounds within the workshop. The stakeholders need to be able to use the tool together,

in an interactive way. This allows for an open discussion that is important for new ideas to come up. The diversity of disciplines and social differences should integrate in a holistic interdisciplinary way. If the disciplines do not integrate, the goal if integrated assessment is not reached. The tools should be easy to understand. If stakeholders have difficulty understanding a tool, then the discussion will be on the tool itself, not on the content of the problem and not on the different views on the subject. The transparency of tools is actually a part of the comprehensiveness of tools. The outcomes of tools must have a clear meaning. An agreement of the stakeholders on an issue may mean nothing, if the stakeholders mean something different with the same words. Tools should be flexible and reusable. This flexibility is necessary for the tools to fit together. The results of the first tool must be reusable for the next tool.

3.4 Indicators

The aim in this section is the transformation from general criteria to indicators specific for the SCENES workshops. First, the indicators for the entire setup will be discussed. Second, the criteria for the tools will be adapted for each tool.

3.4.1 Setup indicators

Over all the workshops, and within the workshops, the setup should follow the zones of the diamond scheme (Kaner *et al* 2007). The setup prepared by the SCENES organisation should follow this scheme, and so should the individual PAWS. The setup follows the diamond scheme well, when the tools stimulate the stakeholders in each zone in the appropriate manner. In the 'divergent zone' creativity should be stimulated to come to new ideas. The differences of the stakeholders are important, the stakeholders must not enter 'group think'. In the 'groan zone' discussion should be stimulated to come to the 'critical mass', which is essential for a shared framework of understanding. In the 'divergent zone' reaching consensus on all issues is most important. Without results, the data cannot be used by other scales and teams within SCENES.

It is yet unclear how much time is necessary for social learning to occur. However, the differences in total amount of time for the workshop and the time per tool can be measured, in order to come to a conclusion. Social learning is a form of double loop learning, this learning should occur in the group discussions. Remarks in observation reports and results of questionnaires contain the data necessary to measure the satisfaction of the stakeholders with the results. If they are satisfied with the results and feel that they contributed, the feeling of co-ownership is high. For co-ownership to have a positive effect on the results of the final workshop, it is important that there is stakeholder continuation. If all the stakeholders in the second workshop were also present during the first workshop, the co-ownership of the results is still there. It is then easier to continue the process, as there is agreement and understanding about the issues in the previous workshop. Stakeholders need to be involved in the process, preferably in an active, open and bottom-up manner. The observation reports can be used to analyse the approach. The pilot area organisers have lists of stakeholders to compare the stakeholder representation.

The style of facilitation has an influence on the manner in which the stakeholders go through the diamond scheme. Experienced, or professional facilitators that know when and how to steer the process are preferable.

Whether the process is cost effective for the sponsor, the European Union, is less relevant for this thesis as. Besides the goal of SCENES is an increase of the quality of water sources in Europe. This is in the long term more important than the short term cost-effectiveness for the European Union.

3.4.2 Tool indicators

The list of tool criteria given in section 3.3 in combination with the diamond scheme, form the basis for the indicators of the tools.

All the tools that allow the stakeholders to work together have some indicators in common. During these tools there will be discussion, there will be stakeholders that are more or less powerful, there will be limited time available, and still the stakeholders need to reach a consensus that makes them all happy. Based on the interactivity criterion, the discussions should be balanced to make sure no stakeholders dominate the process. As the tools must integrate all opinions, the discussions should go deep enough in the subject to stimulate the stakeholders to learn from each other. Each tool should reach a workable result for the next step if the tool is flexible enough. This means that consensus must be reached. Finally, at the end of the day, the stakeholders must be satisfied with the results.

Card-technique

All tools should be interactive. This is difficult for tools like the card-technique and spidergrams. Most of the session is done individually, but the stakeholders in the whole group do the grouping of issues. As there is little interaction between the stakeholders, it is difficult to see whether the criteria have been reached. The card-technique is used at the start of the process and is thus meant to stimulate creativity. The amount of new, surprising issues that the stakeholders discover is a measure of how creative the stakeholders were in the process. A high amount of surprising issues mean that the stakeholders understood the tool and were able to use it, easily. A comparison with the categories that the SCENES organisation expects gives data on the integration of the stakeholders. If all the disciplines were present during the workshop, all categories should be present in the issues.

Spidergrams

The spidergrams are just as the card-technique created by the stakeholders individually. The stakeholders can discuss the results and use it as a tool in order to come to a shared framework of understanding. From the observation reports and questionnaires can be derived if this discussion was fruitful.

FCM

The stakeholders build the FCMs in groups. The results of the FCMs can be used to determine how comprehensive, transparent, flexible, and easy to use the FCMs are. The results of the FCMs are: The amount of boxes, the density of the FCM, the number of receivers and transmitters, and the amount of unconnected boxes and missing values can be derived. The density of an FCM is a value indicating the proportion of boxes compared with arrows. A high density indicates a too complicated FCM, while a low density indicates a too simple FCM. In this case the FCM was not transparent enough for the stakeholders to keep a good overview of the FCM. Pure transmitters and receivers are boxes that

have only incoming, or outgoing (transmitting) boxes. A limited amount of these is good, but too many of them indicate that the tool is not comprehensive to the stakeholders.

Collage

The collage is a visual tool. Because pictures can represent many different things, only discussion between the stakeholders can create an understanding of the whole of a collage. This is the strength and weakness of the collage. The collage stimulates creativity, but is not easy to understand by an outsider. The collages themselves can therefore not be analysed. The process can still be analysed from the observation sheets and the questionnaires.

Storylines

The results of the storylines can be analyses based on the length of the storyline, and the amount of issues that are new and old compared to the FCMs. The length provides details that are useful for the follow up workshop. The amount of new issues show the creativity of the tool used for visioning. The amount of old issues show that the results of the previous tools were used and thus shows flexibility.

3.4.3 Indicator table

Table 4 Criteria and Indicators

Category	Indicator	Goal
Whole setup	- extent to which SCENES framework is followed - extent to which the SCENES setup follows the diamond scheme - The amount of time taken for each tool - The amount of time taken for entire workshop - extent to which the PAWS setup follows the diamond scheme - Stakeholder involvement Independent and unbiased facilitation	- only small adaptations - high variance in tools - high extent - enough time for healthy discussion, while reaching result - Full two-day workshop - high extent - Active involvement - Open process - Bottom up process -professional/experienced facilitators -not too dominant in facilitation
Card-technique objective	- number of categories covered	at least 7 out of 9 categories covered (Van Vliet, 2009a)
Card-technique subjective	- Surprising issues	Diverging, new issues
spidergrams	Learning about each other's point of view	Lively discussion on results
FCM objective	- number of boxes - density - number of receivers/transmitters - unconnected boxes - missing values	- between 10 and 15 - D between 0.1 and 0.3 - max. 2 receivers / 3 transmitters - no unconnected boxes - no missing values
FCM subjective	- Understanding - Discussion Balance	- Quick grasp of concept of tool - Open conversation, no major domination by a few SH - Everyone needs possibility for input

Category	Indicator	Goal
	- Discussion Richness - Consensus - Motivation and Satisfaction	- Possibility for detail on issues - Agreement of SH on final Clusters and links - Stakeholders happy with process and result
Visions objective	- method used - length of storyline - amount of new issues - amount of old issues	- use of collage or FCM - half a page - > 50% of total - > 50 % of old issues
Visions subjective	- Understanding - Discussion Balance - Discussion Richness - Consensus storyline - Motivation and Satisfaction	- Quick grasp of concept of tool - Open conversation, no major domination by a few SH - Everyone needs possibility for input - Possibility for detail on issues - Agreement on final storyline - Stakeholders happy with process and result
Whole workshop	Motivation and Satisfaction	High satisfaction and willingness to go on with the next WS
Questionnaires	Stakeholder opinion on Workshop:	Positive reactions:
	Grade post-its	>3.5
	Grade spidergram	>3.5
	Grade FCM	>3.5
	Grade collages of the future	>3.5
	Mood-o-meter: percentage of happy faces	> 80%
	Grade for whole WS	> 4
	Increased understanding between different views and interests	> 3.5
	Different types of knowledge and expertise of the participants	> 3.5
	I learned new things about interests and perceptions of other participants	> 3.5
	the workshop helped me to build a more comprehensive understanding of the area	> 3.5
	Other participants brought into discussions fresh ideas	> 3.5
	The fact of working together with different participants raised fresh ideas that were new to all participants	> 3.5
	Different scenarios helped me in envisioning futures	> 3.5
	own ideas included in the scenario outcomes	> 3.5
	scenario-making process is useful for river basin management planning	> 3.5
	produced scenarios are usable for river basin management planning	> 3.5
Previous workshop results (for PAWS2 specifically)	Stakeholder continuation The extent that previous PAWS results were surprising	- At least half the same stakeholders - Much diverging new issues

4 Results

In this chapter the results of the analysis are shown and discussed. The results have been put in a table next to their criteria and goals, so the results can be compared there as well. The results of PAWS1 are in Appendix 1; Analysis Workshop 1. The results of PAWS2 are in Appendix 2; Analysis Workshop 2. The chapter starts with general results on the SCENES workshops. Then the workshop specific results will follow. The results will be discussed in Chapter 5.

4.1 Whole setup

Card-Techniques and Brainstorming are techniques that are creative in nature. People bring up ideas individually and in the whole group. After the individual phase, there is some combined discussion and consensus building as the stakeholders decide which clusters of ideas to form.

Spidergrams determine individual values, meant to create understanding on viewpoints of other stakeholders. This understanding is meant to bring stakeholders together, making this is the end of the 'groan zone', or the start of the 'convergent zone', towards a shared framework of understanding.

FCMs go through all three phases. Diverging as the stakeholders decide what issues should be in the scheme. They choose from the clusters, but can add new issues. Groaning happens when the stakeholders discuss the relations and their values between the boxes. This takes up most of the time. The method is very structural and focused on reaching a complete cognitive map. Converging towards an agreement is therefore very important in this tool. It can prevent the groaning to reach a stage where converging is no longer possible.

Tools of the future

Discussing the changes in the past is part of understanding what has happened It helps to focus on the important issues, and it is a tool for the 'divergent zone'. Scenario Development by the use of collages goes through all three zones. Collage building is a very creative tool, but in the end of the process, a commonly shared scenario 'rolls out'. The emphasis is on creativity, but creating a storyline out of the collage scenario aims for consensus again, because the stakeholders have to agree on specific words.

In PAWS1, the tools show an emphasis on the 'divergent zone', while PAWS2 shows emphasis on the 'groan zone'. This is logical as in PAWS1, there are no results yet, while in PAWS2, a large part of the time previous results are enriched. Although the end of PAWS2 has to end in consensus. Which means that the facilitators need to steer the stakeholders towards consensus building in time.

The two Pilot areas used different tools. Table 5 shows the tools and time distribution of the two PAWS1.

Table 5 Time for Pilot Area Workshop 1 (PAWS 1)

	Guadiana	Crimea
Length of Workshop	1 day	2 day
Total time for tools in PAWS 1	180	370
Tools for the present:		

28

Brainstorm and FCM of present	90 minutes	
Card-Technique		50 minutes
Spidergram		20 minutes
FCM of the present		110 minutes
Tools for future:		
Past Changes & FCM of futre	90 minutes	
Past changes brainstorm and discussion		50 minutes brainstorm; 15 minutes discussion
Collages		110 minutes
Spidergrams		15 minutes

Guadiana used less time for the total workshop, a lower diversity of tools and also less time per tool than Crimea. The setup of Crimea is quite close to the SCENES workshop setup.

For PAWS2 a similar table was created as can be seen inTable 6.

Table 6 Time for PAWS2 Crimea

	Crimea
Length of Workshop	2 day
Total time for tools in PAWS 1	300 minutes
Tools for the present:	
FCM of the present	60 minutes
storylines	90 minutes
Unexpected events	30 minutes
Tools for future:	
FCM of future & spidergrams	120 minutes

The total amount of time in the second workshop of Crimea is a bit less than in the first workshop. The time available for the FCMs of the present was less than in PAWS1. The time spent on the future was longer.

The stakeholder involvement of SCENES in general is good. SCENES actively uses stakeholders during the workshops. The scenarios are created using active stakeholder involvement, but storylines are written passively as the pilot area organisers wrote them based on the notes, presentations and discussion of the collages. The stakeholders were not able to decide on the tools that were used in the workshop, so the process was closed to stakeholder input. SCENES and the pilot area organisers decided on the tools to use within the workshops. This is not because of a lack of confidence in the stakeholder capabilities, but because of a need for coherence and comparability between the pilot areas (Kämäri *et al* 2007). During the card-technique sessions, the stakeholders were free to name any issue. This means that there was a bottom-up approach. After the brainstorm sessions however, the facilitators did the clustering of the notes Sarkki and Varjopuro (2008). This can be seen as a top-down element in the workshop structure. Even though the stakeholders do not group the clusters, they needed to agree with the clusters, this means that their contributions will still be adequately interpreted. Another element that shows the top-down structure of the organisation is the fact that the groups were predefined. This was done to ensure a good mix of different types of stakeholders in the groups.

The stakeholders do not have a contribution in the setup of the process, but as there are multiple tools used, there is almost always a tool with which an individual stakeholder can work. This indicates a higher chance that the stakeholders will be able to contribute meaningfully.

The facilitation of the workshops was not done by professional facilitators, every pilot area has some of the organising staff as facilitators during the process.

4.2 PAWS 1

Facilitation was quite strict during PAWS1 in both pilot areas. The diverging opinions of the stakeholders were not discussed because of the strong focus on consensus. This may have consequences for the value of the result if the issues named by the stakeholders hold no surprises.

4.2.1 Tools

Card-Technique Objective data

The clusters that were formed during the Card-Technique in both Guadiana and Crimea covered the main categories that van Vliet (2008; *et al* 2009b) used as a basis of comparison. Crimea missed the economic category, but van Vliet's goal was to have at least 7 out of 9 categories, so Crimea did a sufficient job here. Guadiana got clusters on all the categories.

Card-Technique Subjective data

The Questionnaires of both Crimea and Guadiana showed that the stakeholders felt that they had diverging views, although they were more divergent in Guadiana than in Crimea. Divergent views indicate discussion, and therefore the possibility to dig deep into a subject. This leads to a better understanding between stakeholders. It is an important goal in the 'groan zone' and is important in follow up steps. Understanding between stakeholders in the early stages of the process helps save time later.

The workshop organizer in Crimea mentioned that the clustered issues were already well known and not very surprising. In Guadiana it was mentioned that the stakeholders were too attached to the present situation. An indicator of too little diversity in what should be the 'divergent zone'.

Spidergrams

Guadiana did not create spidergrams, Crimea did, but the results were not discussed during the workshop. The stakeholders in Crimea could use their spidergrams only to learn about their own system of values. Social learning about the other stakeholders cannot happen if there is no discussion on the value differences.

FCM Objective data

Van Vliet (*et al* (2008); *et al* unpublished (2009b)) analysed the FCMs on their complexity. Part of the data in Table 7 was taken from Van Vliet's research. The other data was directly calculated from the FCMs.

Table 7 FCM indicators PAWS1 (adapted from Vliet, 2009b)

Pilot Area	group name	boxes	arrows	pure receivers	pure transmitters	Density
Crimea	1	12	26	5*	1	0.18
	2	9	23	0	0	0.28

	3	11	25	2	0	0.21
Guadiana	1	17*	20	4*	6*	0.07*
	2	23*	34	3*	6*	0.06*
Future	1	17*	25	3*	7*	0.09*
Guadiana	2	17*	27	4*	6*	0.09*

Numbers with a * are not conform the goals

The FCMs of Crimea have a good density, and on average, not too many transmitters and receivers. The goal can be found in Table 4 Appendix 1; Analysis Workshop 1

FCM Subjective data

The observation reports of both Guadiana and Crimea mention that the stakeholders have trouble with understanding FCMs. The stakeholders in Crimea are said to have difficulty with the concept. In Guadiana the FCM exercise was said to be 'not intuitively understandable.' The facilitator report mentioned many questions and opinions on the tool itself, which cost quite some time to work out. Difficulty with the entire concept of the FCM means that the stakeholders in both workshops will have difficulty understanding the implications of connections within the FCM. Without converting an FCM into a graph, it is difficult to see what the implications of the relations and relation values are. The observers in both Pilot Areas noted that there were both active and passive participants and that some stakeholders dominated the discussions. In Crimea it was also noted that the discussions were lively. In both Pilot Areas it was noted that the time was a limit to the richness of the discussions. In Guadiana it was especially noted that the discussions brought nothing new, as the stakeholders have been working together on this subject before.

The facilitation in both Pilot Areas was sometimes quite strict, which helped to build consensus more easily. The strict facilitation made it easier to reach a consensus within the allotted time, but may have streamlined the discussions so much that 'discussion richness' was impossible. This was shown in Crimea by the Observation report: 'Strong moderation made consensus every time.' And in Guadiana: 'Consensus quickly achieved after facilitator warn them that too much discussion brings problems with time.'

Visions Objective Data

Guadiana used FCMs for the future instead of collages for the visioning exercise. The collages of Crimea are hard to analyse objectively. There are no clear goals for what should be in a collage. The only things that can be compared are the storylines. The Observation report did not show information about the liveliness of the discussions. In Guadiana the FCMs of future's amount of boxes were higher the goal and the density was low. There was also a too high amount of tranceivers and transmitters. This suggests a superficial discussion, just like the FCM of the present.

Both the storylines of Guadiana and Crimea are within the bounds of the goals, neither too long, nor too short. The amount of new issues in the storylines compared to the FCMs of the present is enough in both pilot areas. This suggests that the method was creative enough to bring new issues on the table. The amount of old issues that return in the storylines is low in both pilot areas. This makes it for SCENES harder to compare the FCM of the present with the storylines.

In Guadiana the possibility was offered that the low amount of issues returning from the FCM of the present, was because they started anew, instead of using the FCMs of the past as a starting point. (van Vliet *et al* unpublished 2009b) Van Vliet explains the high amount of new issues in the FCM of the future compared to collages as follows: *"This can be explained by the fact that new boxes are relatively easily added to a FCM and most of the boxes were mentioned in the storyline. In a collage several aspects might sooner be put under one heading, leading to one new issue instead."*

In Crimea the economical category, which missed in the clusters, was represented in the storylines. The spread of all the issues in the storylines among different categories quite even.

The objective indicators are not conclusive about the final value of the storylines. The available results show no clear advantage to using collages over FCMs in a visioning exercise. However, a lack of confirmation does not automatically mean a rejection. Truth is that the right information simply is not available.

Visions Subjective data

The FCMs of the future in Guadiana went easier the second time according to the stakeholders, as the understanding of the tool increased. In Crimea it was mentioned that the stakeholders were very enthusiastic about using the GEO-4 scenarios, but there was no mention of the understanding of the collage technique. Domination by a few stakeholders in the Guadiana Pilot Area was still mentioned. However, there was respect towards each other. In Crimea there is only information on the discussion balance of the entire workshop, saying that there were always some more active and some more silent stakeholders. The discussions in the FCM of the future in Guadiana stayed on the surface again. Apparently there was not enough time for discussions, leading to the feeling that nothing new came from the discussions. As a result, the facilitator had to warn about the time. In Crimea's workshop report there is mention of much diverging views and a lively discussion. Consensus was reached easily once more in both Pilot Areas.

Both Guadiana and Crimea stakeholders thought that there were some divergences of views that cost more time to discuss. However, the facilitation was strict during all the phases in both workshops. For Guadiana this lead to a discussion that was cut short. For Crimea, the data is inconclusive.

4.2.2 Questionnaires

Questionnaires

The Crimean stakeholders have no experience with participatory processes; this first experience with the methodology may have influenced the outcomes of the Questionnaires. The value are high in comparison with the workshop in Guadiana where the stakeholders have more experience. Van Vliet (*et al* 2009b) compared all workshops on a range of questionnaire results on differences between types of workshops. The answers did not differ much whether the Pilot Areas used one-day or two-day workshops. Nor did it matter much whether the stakeholders were new to the workshops or not. The uses of collages lead to more creative storylines. The FCMs of the future were started anew, which made the connection to their counterparts weak. There were multiple questions with a clear difference between the amount of tools used in a Pilot Area. The stakeholders in the pilot areas with a higher number of tools often gave a higher value to questions. Thus more tools increases

satisfaction. Van Vliet explained that the structured way of writing down in FCMs gives a clearer view on which results are once own than for example in a Collage. Collages are a more creative tool, but FCMs give structure, which makes it easier for stakeholders to see that their remarks were used in the final product.

When comparing between questionnaires of Crimea and Guadiana specifically there are interesting results. The appreciation of the whole workshop was higher in Crimea than in Guadiana. The appreciation of the FCMs in Guadiana was substantially lower than the appreciation of FCMs and collages in Crimea. Interesting is that in Crimea the FCMs got a higher grade than the Collages. The structure of the FCMs apparently feels more comfortable to the stakeholders than the creativity of the collages.. Van Vliet *et al* (2008) shows that several pilot areas did not use the collage technique out of fear that the stakeholders would find it not scientific enough. However, the grade for the collages was still relatively high. In both Pilot Areas, the stakeholders felt that they learned new things about interests and perceptions of other participants, in Guadiana this feeling was clearly stronger than in Crimea. However, The question: '*The fact that we worked together with different participants raised fresh ideas that were new to all participants'* from the questionnaires (Appendix 3; Setup Questionnaires) scored substantially higher in Crimea than in Guadiana (3.35 in Guadiana versus 3.79 in Crimea; Appendix 1; Analysis Workshop 1). This was the case in all workshops that have more tools, participants new to participation, and uses collages rather than another method for visioning.(Van Vliet *et al* 2008) Both questions suggest social learning. The learning of stakeholders about the area because of the workshop, was rated higher in Guadiana. In both Pilot Areas the stakeholders agree that building scenarios is useful, but in Crimea the actual produced scenarios are rated higher (3.68 Guadiana, 4.07 Crimea; Appendix 1; Analysis Workshop 1).

4.2.3 Motivation and satisfaction

The motivation and satisfaction during the entire workshop were commented on as good in both workshops. In Guadiana '*Most people commented their interest on the methods we used and on the project and expressed their desire to be involved in future workshops and meetings.'* However, the stakeholders were also '*sceptical about the outcomes and the real utility of them.'* In Crimea '*they all gave very positive comments and seemed to see a lot of value in the process and exercises they went through.'* (see Appendix 1; Analysis Workshop 1) The stakeholders in Crimea and Guadiana both showed interest in future workshops. In Crimea the mood-o-meter showed that the stakeholders were very satisfied with the process. In Guadiana, mood-o-meters were not used, but it was noted that asking stakeholders during the breaks in the program got generally positive feedback.

In Guadiana the scepticism could be explained because the stakeholders in this area have worked together several times already, sometimes also in a participatory manner. The Crimean enthusiasm could have its origin in the fact that they are all new to these processes. (van Vliet et al. 2008)

4.3 PAWS 2

Facilitation

During PAWS1, the facilitators in Crimea did not always keep their facilitating role separate from their role as stakeholder. For PAWS2, the pilot area organisers decided on a strict separation between roles. Observers observe, facilitators facilitate, moderators moderate and secretaries take notes. They should not participate. (Appendix 6; Personal observations)

In both Guadiana and Crimea, there were no professional facilitators available. In PAWS 1 this has lead to a strict facilitation in order to attain consensus within the available time. In Crimea there was mention of a facilitator joining in the discussions on a content level. Therefore, in the second workshop, there was extra attention for the separation of roles. This way, those responsible for the process would not influence the content and vice versa.

4.3.1 Tools

FCM of the present Objective Data

The amount of boxes in each FCM is satisfactory; however, the second of the three FCMs has a low density, and a few totally unconnected boxes. This FCM was either not finished, or not completely thought through. The FCMs of the first workshops were used as a guideline, but all the groups started with a blank sheet of paper, creating the FCM anew. Both the second and the third FCM of the present have values that were not completed during the workshop, but filled in later by the project team of Crimea. Apparently the time was too limited to finish all the discussions.

Subjective Data

Subjective data from the facilitator report (as attachment in the workshop report), observation reports and personal observations, support the idea that there was trouble with the available time. It was noted that new stakeholders revisited issues that were already discussed and decided on in the first workshop. This might not have happened if the assignment would have been to adapt the previous FCMs. The FCM tool was still difficult to understand, especially for the new stakeholders. They were usually more silent, but when they said something, their input was welcomed. Near the end of the session, the discussion balance was improving. The discussions were lively, and many questions were asked at the presentations. The stakeholders were very interested and this took much time. There was high enthusiasm. There was no clear subjective data confirming consensus.

Storylines Objective data

The storylines were made as additions to the old storylines and incorporated new issues and new perspectives. They answered 'what-if-questions' and negative scenarios also gained positive elements. The perspectives were widened and parts were described in more detail.

Storylines Subjective data

With all the new information that should be added to the storylines, the stakeholders were unsure how to proceed at the start; however, the balance and richness of the discussions was good. The informal dinner had helped to create a more open atmosphere for discussions. Stakeholders discussed with each other instead of with the moderator. According to the enthusiasm about the results and the observation report, consensus was reached. As the storylines in the first workshop were made by the workshop organizers, the opportunity to adapt the storylines by themselves led to much adaptation, addition and overall quality.

FCM of the future Objective data

The elements of the FCMs of the future were good according to the indicators, but again some values had to be filled in later. The scenario 'Market first' produced an FCM which does not give a very realistic system description, as it is completely centred on one issue.

FCM of the future Subjective data

The methodology of FCM development was difficult for the stakeholders, but for most of them, the FCM of the future was the third FCM that they made, and therefore they felt more comfortable. Still not all connections were made and the 'Market first' scenario was made unbalanced by the single focus on financing. There was a greater balance in discussions than previous day. The discussions were rich as the tool was used to facilitate their discussions, however, the long day made the coffee break extra wanted. Some discussion richness or ability to come to a consensus may have been lost due to stakeholder tiredness. This was shown in remarks, saying that the limited time made it impossible to come to final conclusions on topics. The results were good enough to elicit applause from the audience, so satisfaction on the results was there.

4.3.2 Questionnaires

All the stakeholders that were present at the first workshop used the results in their work. New knowledge was found and used. New contacts were made, and often used. All stakeholders have spoken with others about the results of the previous workshop.

The stakeholders were satisfied about the usability of the FCM as a tool. The results of the mood-o-meter are not available, and it is therefore not possible to use those results in this analysis; however, the grade for the whole workshop in the questionnaire was satisfactory (grade:4; Appendix 2; Analysis Workshop 2).

The questions on the FCM tool point at a high level of satisfaction by the stakeholders. They feel that they learned from each other and the workshop and they derived interesting ideas from it. The scenarios were useful to envision the future; they incorporated their ideas and are useful for river basin management. The scores are easily higher than the goal. (Appendix 2; Analysis Workshop 2)

4.3.3 Motivation and Satisfaction

Stakeholders were satisfied with the entire workshop. The stakeholders felt that the knowledge gained in the workshops was high, the grade for the whole Workshop was a 4 out of 5. Except for the question about the usability of the FCM method (3.47) and the statement that different participants raised fresh ideas that were new to all participants (3.94) all the questions about the workshop received a grade of at least 4 (out of 5). The discussions created much social learning. Stakeholders learned about each others opinions and learned to work together in a participatory context.

5 Discussion and conclusion

The content of this chapter is the discussion of the results, found in chapter 4, and from that discussion a conclusion on the research questions. However, section 5.1 starts with an evaluation of the research methods.

5.1 Research methods

This section aims to discuss a few elements in this research in order to evaluate the quality, and use of the conclusions.

Information Quality

The analysis of the two Pilot areas was done mostly with second hand information. Except for the personal observations (see Appendix 6; Personal observations, the information was all subject to other people's interpretations and/or translations. Much of the objective data such as the results of FCMs had to be translated. Especially since a large part of the research is qualitative in nature, the analysis consists of a range of interpretations from a multitude of sources. There were summaries of questionnaires done by the participants of the workshops, The reports of those that organized the workshops, objective, external observer reports, first hand observations, and third hand analysis of workshop reports by work packages, that together formed the input of the analysis. All these sources are influenced by the personal interpretations of the authors. E.g.: The interpretations of workshop organizers about the diversion of opinions between the stakeholders differed from the interpretations of the stakeholders themselves, according to the questionnaires.

The reports that were used in the analysis would also have been there without this research, which indicates that the data is not specifically created to be useful for this research. Information that would have been useful was missing because observers did not aim to observe the type of information that was useful for this thesis, or if this information was observed, it was not interpreted as important in the scope of the written report.

Working with the range of different interpretations in the multitude of sources, and around the gaps in the data was a major challenge. Of course, the background of the researcher will also have had an effect on the interpretations for this research and so for the conclusions.

These are some notes of warning that come back in any qualitative research. This does not mean that the conclusions of this research are invalid. The strength of this multitude of sources is that combinations can be found that strengthen, or weaken each other.

Choice of Case-studies

The two cases were chosen for their diversity in setup. Both the differences in time and tools made these two cases interesting. The outcomes of the research may have been influenced further by other differences between the case-studies. Two differences that are linked together are the difference in cultural background of the two Pilot areas and their experience with integrated scenario assessment methodology.

Crimea, as part of Ukraine has a background of Communism from its time as part of the USSR, while Guadiana as part of Spain has a background of Capitalism. As an example of cultural differences, in

Crimea, as opposed to Guadiana, applause is only given when the participants feel that it is really deserved. Applause is not given because it is polite. This difference in culture may have influenced the results of the workshops because of a cultural difference in how at ease the participants were to fully participate without fear.

Experience with the methodology has also been an influence. The stakeholders of Guadiana already knew participatory processes and tools similar as the FCMs. Probably as a part of the cultural background. The Crimean stakeholders were not experienced with the methodology, but to make up for that fact, as everything was new, there was much enthusiasm.

Synthesis

Qualitative analysis is often based on second hand information. The analysis is based on opinions, but that is not necessarily a weakness. Opinions give an extra quality to an analysis that is not present in a purely quantitative analysis. A criterion for a good setup is that stakeholders achieve co-ownership of the process (Section 3.2). The stakeholders need to feel they contributed to the process and they have to feel satisfied with the results. The opinions are thus an important element. Using the opinions from several sources give an opportunity to compare and filter out opinions that are completely different from the other opinions. This strengthens the total cohesion of the analysis.

Questionnaires

A special point of interest is method of questioning that is used in the Questionnaires. The participants and the workshop organizers both filled in questionnaires with the type of questions as shown in Table 8. In the opinion of the researcher, this type of question is steering, and therefore influencing the answers.

Table 8 Workshop Questionnaire; Steering questions?

Tick here	*Please choose <u>one</u> of the following assertions that in your opinion describes the degree of **divergence of views in the groups.** Please read all options before choosing one.*
1	There wasn't any divergence at all.
2	There was very little divergence.
3	There was some divergence and we needed to lengthen discussions because of them.
4	There were very divergent views on the issues and discussing about them required a lot of time.
5	None of the above. Better description is:

In this case, the question is whether the stakeholders find that there were diverging views during the discussions in the groups. Two different elements are open for discussion in this multiple choice; the amount of divergence in opinion, and the need to lengthen discussions. Divergence in opinion is an important element that shows that there is creativity and/or deep discussion in order to come to a common understanding. This is a good thing, without divergence, the results have little value as all the result could have been done by one person behind his or her desk. The need to lengthen discussions is an element of subjectivity that should not be present in a questionnaire. It implies a

negative feeling that discussions stop progress. Adding the need to lengthen discussions to answer '3' changed something positive, lively discussions' into something negative, it stops progress. It is therefore advisable to re-evaluate the Questionnaires to avoid steering elements.

5.2   SCENES paradigm

What is the reason for SCENES choice in tools?

SCENES paradigm is an approach that integrates many different disciplines and social differences in order to achieve a plan that takes as many aspects into account as possible. Besides quantitative data, qualitative input in necessary to implement social values into the plan. Stakeholder participation is a way to do this, but the amount of participation of stakeholders can differ. In order to achieve social learning, the stakeholders need to be actively involved. SCENES opts for active involvement of stakeholders, but Kloprogge en van der Sluijs (2006) their indicators of stakeholder involvement have two other indicators. The process setup should also be open for stakeholders to decide on, and the approach should be bottom-up rather than top-down. SCENES made the choice to keep the setup close to the stakeholders, as there are many different pilot areas. If the setups in the different pilot areas are too great, the results are no longer comparable. The SCENES approach is bottom-up as the stakeholders are able to choose their own issues. The topics of discussion are free for the stakeholders to decide upon.

The methodology that SCENES has chosen for its goal is a back casting scenario. SCENES aims at creating a vision for the future of the water of Europe. Scenarios are useful for creating ideas about the future. A back casting scenario however, is specifically used for scenarios that intend a significant change towards a new created vision.

SCENES uses three workshops with considerable time in between them so that the data of workshops can be analysed and integrated. The outcomes can then be reused in the following workshops. SCENES uses both quantitative and qualitative tools. The overall idea is that the combination is stronger than using either the one or the other as they can overcome each other's weaknesses and use each other's strengths. In order for the quantitative and qualitative data to be interchangeable, SCENES tries to quantify the qualitative results using Fuzzy Cognitive Maps. On the other hand, stakeholders interpret and value quantitative results for their qualitative scenarios. The tools all have their own goal within the setup. Some tools are meant to stimulate creativity, discussion, or consensus building, while some have an added objective to create the link between qualitative and quantitative data. SCENES has not used Kaner's (*et al* 2007) diamond scheme specifically, but the elements in the workshop design are present. Within the paradigm of SCENES the set of tools that is chosen is a logical step. Not necessarily these tools specifically, but the tools have the potential for reaching the results with a good quality.

5.3   workshop format

- *Does the recommended workshop format improve the process and results?*

The combination of results from PAWS1 and PAWS2 can give an answer to that question. The criteria and indicators for this analysis were derived in Chapter 3. Of the two case-studies, Crimea follows the recommended workshop format, while Guadiana makes some changes in both the length of time for the workshop and in the diversity of tools used.

The cookbooks of the PAWS1 and PAWS2 show that in the PAWS1, the focus is on creating diverging scenarios of the future. The emphasis of the workshops is on the 'divergent zone', although all three of Kaner's zones should be represented in each workshop. In the second workshop, the scenarios are made into an FCM for the future. Then discussion and consensus are the most important themes. The fact that Guadiana uses FCMs of the future in PAWS1 instead of collages indicates a missed chance for creating new and inspirational ideas, and goes straight to a consensus with clear links to the present FCM. The first workshop should have a greater focus on creativity, the second on discussion and the third workshop on creating a sustainable consensus. Looking at the setup only, the focus of Guadiana in the first workshop was too much on discussing and consensus building, instead of creativity.

In PAWS1, the amount of time available for the whole workshop, but also per tool was higher in Crimea then in Guadiana. The results of the most difficult of the tools, the FCMs, were also of higher quality in Crimea than in Guadiana. In both pilot areas, the same complaints about time limitations were heard and both pilot areas reported a quick consensus. The Crimean stakeholders gave a higher grade to the FCMs compared to the Guadiana stakeholders. (4.6 in Crimea versus 3.5 in Guadiana). The satisfaction of the stakeholders in Crimea on all the tools and the whole workshop was also higher in Crimea than in Guadiana. Overall, it is safe to conclude that having much more time for the FCMs helped the Crimean stakeholders to achieve a higher quality result that left them more satisfied.

The card-technique brought all the expected categories to the discussion. This shows a good integration of all the disciplines. However, no surprising issues were found. This was the case in both pilot areas. There were also no real differences in outcomes between the pilot areas for the storylines. The difference in time spend on the card-technique does not seem to matter much. The stakeholders in both pilot areas did not write the storylines. Still, as the storylines show no real difference in quality, this indicates no big difference in the quality of the results of the FCM versus collage. The FCMs of the future also suffered from a low density. Collages do not have clear indicators for a good quality, but as the quality of the storylines was similar in both pilot areas, the quality of the results was also similar. What was different is the satisfaction of the stakeholders about the tools. The stakeholders were more satisfied with the collages than the FCMs. If the stakeholders were happy to work with the tools, the stakeholders will feel more ownership for the results. (Grade FCM Guadiana: 3.5; Grade collage Crimea: 4.1; Appendix 1; Analysis Workshop 1)

In PAWS2, the time available was about the same as in PAWS2 for Crimea. In PAWS2, the major focus should be the 'groan zone'. The stakeholders certainly succeeded in discussing. Some of the FCMs of the present and of the future were not finished, even with extra time for the sessions. The resulting FCMs still had a good density, but there were values missing in the result. One of the groups for the FCMs of the present even had boxes that were completely unconnected. The stakeholders took too much time discussion on the connections, that there was no time for consensus building. In PAWS1, the facilitation was quite strict, in order to reach a consensus in time. It looks like in this workshop the facilitation was too free. The stakeholders were not steered towards consensus building in time. Even a two day workshop is apparently not enough time for a good 'groan zone'.

Somewhere between half and two-third of the stakeholders continued their participation from PAWS1 into PAWS2 (Appendix 2; Analysis Workshop 2). The stakeholders that continued their

participation had almost all benefited of the knowledge gained, and the contacts made during PAWS1. There was much discussion on the PAWS1 results especially by the new stakeholders who did not understand the results. Many discussions that were done during PAWS1 because of it. This took extra time and may have partly caused the unfinished FCMs. The storylines were also intensively discussed. The stakeholders were unsure on the methodology of the storylines in the beginning, but understanding followed as the discussions became lively, and among themselves instead of towards the moderator. In storylines, new ideas from discussions can directly be written down as part of the storyline, arguments on values and directions of arrows are unnecessary. For the stakeholders this implies that the discussion can stay on a deep level without having to pay much attention on quantifying relationships. Consensus building is easier and takes less time. Discussion to arrive at a common understanding is most important in creating storylines, which creates an easy consensus in order to arrive at a result makes the tool that more useful.

According to the questionnaires results of PAWS2, the stakeholders were satisfied with the results of the workshop. They have achieved social learning and come to new interesting ideas. As the stakeholders feel that the discussions were useful for river basin management, the third workshop should be able to get enthusiastic stakeholders that can use the results to come to a good back casting.

The unfinished FCMs were later filled in by the pilot area organisers based on the discussion notes. Workshop organizers and facilitators were always present at each of the small groups and notes were made about arguments. Therefore, the workshop organizers have a good idea of the content of discussions. Thus, the values that are filled in are not completely without bases. Furthermore, it can be argued that the values are not the most important part for the continuation in the third workshop. The stakeholders were happy with the discussions and results of the workshop. If the discussions were deep enough, the discussions in the third workshop can benefit from discussions of the second workshop. The actual results of the second workshop are in that case not so relevant. The stakeholders use the common understanding achieved through the discussion for the back casting, not the results from the consensus building. Of course, this is only valid as long as a large part of the stakeholders of the second workshop continues their participation in the third workshop.

The higher amount of time in Crimea did not improve the diversity of the results, but it did improve the quality and readability of the FCMs. The recommended workshop format increased the quality in PAWS1, but there was still not enough time during PAWS2 to come to good results for the FCMs. The amount of time of follow up workshops is not enough with a two day workshop setup, but the amount of time may just be sufficient if a higher percentage of stakeholders continues from a previous workshop.

The change in tools in the first workshop did not have a big difference on the end results of PAWS1. However, the FCM as a tool has gotten comments throughout both workshops in both Pilot Areas that they were difficult to understand. Although understanding seemed to improve, the results show a reduced value. With this, the FCM tool does not fit Raadgever's (2005) criteria for a good participatory tool.

The recommended workshop format does improve both the process and results over a workshop with fewer tools and less time. The results also showed however, that whether the stakeholders are supposed to be in the 'divergent zone' or in the 'groan zone'. There is always a lack of time. Good

facilitation is necessary to make sure that the stakeholders do not skip zones, or stay in zones so long that they have no time to finish.

5.4 Recommendations

- *What can be improved, for participatory process management in general?*
- *What should, and what can be improved in the setup of the SCENES participatory processes?*

This section describes several recommendations for the management of participatory processes, and for the continuation of SCENES in particular.

When using participation, it is important that the participants feel they added to the process, that they learn about each other's views and that they feel responsible for the result. These are indicators that the participants learn useful things about each other for their further work, and feel the importance of implementation of the results. The questionnaires showed satisfaction with results and the feeling that they contributed to the plans. In the second workshop in Crimea, the questionnaires showed that they had used the information and contacts from PAWS1 in their work. The stakeholders that visited the PAWS1 learned from each other, and felt responsible for the results. This is in itself a useful result of the workshop, but especially if the stakeholders return to participate in the other workshops. Continuing new workshops with the same participants helps, because they understand each others viewpoints, and thus need less time repeating the same discussions. As they feel responsible for the results, the stakeholders will not come back to decisions that were already made. An added pro of continuity is also the experience of the participants with the tools. The effect of continuity of the participants is a process that uses less time for repetition, and the participants will feel more responsible for the results with every workshop. The chances of implementation will increase substantially because of it. In general, the common understanding at the end of the 'groan zone' and the consensus reached while producing the results are most useful in the next workshop, as this will form the basic input for the new tools. The stakeholder continuity of fifty (50) percent from PAWS1 to PAWS2 was not enough, as discussions were repeated and the FCMs in PAWS2 were not finished. **The continuation of stakeholders should be improved to two-third in PAWS3 in order for the stakeholders to be able to work with FCMs that they themselves did not finish.**

Working with a tool like FCM takes up a lot of time because the FCM is a very difficult tool. The Crimean FCM of the future in PAWS2 was the third FCM that the stakeholders worked on, but still the FCMs were not finished in time. With a strong continuation of stakeholders, the results will still be usable. The experience of the continuing stakeholders is extra useful in PAWS3, as the stakeholders will have to work with two FCMs at the same time. One of the present and one of the future. The personal observations (Appendix 6; Personal observations) show that the FCMs of the future were build up from scratch instead of adapting the FCM of the present. The result is that the FCMs will hard to compare for the back casting phase. Even if other pilot areas within SCENES do have a stronger link between the present and future FCMs, the complicated nature of the tool will still make comparison difficult.

As a recommendation for managing participatory processes in general it is wise to keep the criteria in section 3.3, by Raadgever (2005) in mind. Especially the last criterion in the list. The FCM is not fast

and easy to use. The advantages of the tool is the possibility to quantify the scenario output for the use of models, but the discussion on the issues in the FCMs took the most time. **When there is a lot of pressure in time. The FCM tool is too time consuming and difficult to use.**

In order to manage the three zones of the diamond scheme, the stakeholders need to be guided. Unprofessional facilitation of the process is not advised as the chances are that the workshop is handled too strict when the facilitation should be free and vice versa. The tools only give a potential for a balance in zones of the Diamond scheme. Whether that potential is reached by the participants is majorly influenced by the facilitator. An experienced facilitator knows when to stimulate which element. Therefore, it is advised to use professional facilitators, or at the least facilitators with experience. However, professional facilitation is only worth it, when the funds become available from the main SCENES organisation, as the regional or local organisations cannot afford it.

The quality of results of the FCMs improved when the amount of time available increased. Increasing the time to three days would probably have another small boost in quality as a result. However, the diversity of the results was low, even in the two-day workshop. **Time is often scarce. The increase of diversity and quality of results do not way up to the loss of continuation of stakeholders. The two-day workshop is still the recommended amount of time.**

5.5 Further research

Besides the recommendations for SCENES and participatory process management. There are also some recommendations for further research.

As mentioned before, information on the process of building the collages was missing for this analysis and this has lead to a gap in the conclusions. It was not possible to come to conclusions on the added value of using collages. The technique was used in an attempt to generate creativity and discussion, but it is unclear how effective this really was. **Further research on the collage tool is recommended to find whether the technique generates creativity and discussion, or loses in discussion richness.** This might happen if the participants hold back when they find the tool is not scientific enough. This is what the Guadiana workshop organizers feared. With empirical evidence of the qualities of the tool, pilot area organisers and stakeholders may be easier convinced of the scientific nature of the tool.

As cultural backgrounds differ, the process will be influenced and therefore, the results will be influenced. It would be interesting to do **further research into the effects of culture on the process**, especially in **the way that a post-communistic society deals with tools and methodologies developed in capitalist societies**. During the analysis of the FCMs of the future of Crimea in the second workshop, the negative effects of a capitalist scenario 'Market first' were very strong, while positive effects of a market economy were not used in generating the map of the future. This raises the question whether the Guadiana stakeholders, or a Dutch group of stakeholders, would have created a similar FCM of the future for Crimea. This is important, as the choice for the scenario that is used for back-casting in the third workshop partly depends on the attractiveness of the scenarios. A scenario that has only negative elements was not the aim of SCENES and this influences the results of the workshops.

References

Alcamo, J. 2001. *Scenarios as tools for international environmental assessments*. Environmental issue report 24, European Environment Agengy, Copenhagen

Börjeson, L. Höjer, M., Dreborg, K., Ekvall, T., Finnveden, G.; *Scenario types and techniques - Towards a user's guide*; Futures 38 (2006) 723-739

Brand, R., Gaffikin, F.; *Collaborative planning in an uncollaborative world*; Planning theory 6(2007): 282–313

Cole, J.R., Persichitte, K.A.; *Fuzzy Cognitive Mapping - Applications in Education*; International Journal of Intelligent Systems, 15 (2000) 1-25

Corburn, J., *Street Science - Community Knowledge and Environmental Health Justice*. Cambridge: MIT 2005

Dreborg K.H.; *Essence of Backcasting*; Futures 28, (1996) 813-828

Flyvbjerg, B., *Planning and Foucault; in search of the dark side of planning theory*, in: Planning Futures: new directions of planning theory, (2002) 44-62)

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., Trow, M.; *The new production of knowledge – The dynamics of Science and Research in Contemporary Societies*; Sage Publications, London 1999, first edition 1994

Heijden, van der K.; *Scenarios – The Art of Strategic Conversation*; John Wiley & sons, Ltd, Chisester 2006, first edition 2005

Innes, J.E., *Consensus building – Clarification for the Critics*; Planning Theory 3, (2004) 5-20

Kaljonen, M., Varjopuro, R., Vliet, van M., Kok, K., Lasut, A. Sendzimir, J.; Deliverable 5.2, *Design of participatory scenario-building process and their linking to dissemination activities*, 2007

Kämäri, J., Alcamo, J., Bärlund, I., Duel, H., Farquharson, F., Flörke, M., Fry, M., Houghton-Carr, H., Kabat, P., Kaljonen, M., Kok, K. Meijer, K.S. Rekolainen, S., Sendzimir, J., Varjopuro, R., Villars, N.; *Envisioning the future of water in Europe – the SCENES project*; Manuscript, 2007

Kämäri, J.*; Region and Pilot Area Descriptions - Integrating Activity 2: Case studies* SCENES, Finnish Environment Institute (2008)

Kaner, S., Lind, L., Toldi, C., Fisk , S., Berger, D.; *Facilitator's guide to participatory decision-making* New Society publishers, Cabriola Island/Canada (2007)

Kleefmann, F.; *Planning als zoekinstrument - ruimtelijke planning als instrument bij het richtingzoeken*; Den Haag (1984)

Kloprogge, P. and Sluijs, van der J.P.; *The Inclusion of Stakeholder Knowledge and Perspectives in Integrated Assessement of Climate Change*; in: Climatic Change 75 (2006) 359-389

Maack, J.N., *Scenario analysis: A tool for task managers*; in: Krueger, R.A., Casey, M.A., Donner, J., Kirsch, S., Maack, J.N. *Social analysis: Selected tools and techniques*, Social Development Paper 36, (2001) pp. 62-87. World Bank, Washington D.C.

Notten, van P.W.F. Rotmans, J. Asselt, van M.B.A. Rothman, D.S. *An updated scenario typology*, Futures, 35 (2003) 423–443

Özesmi, U. & Özesmi, S.; *A participatory Approach to Ecosystem Conservation - Fuzzy Cognitie Maps and Stakeholder Group Analysis in Uluabat Lake, Turkey*; Environmental Management 31 2003 518-531

Raadgever, G.T.; *Public participation in information management- Overview of participatory tools and their contribution to adaptive river basin management*; NeWater Deliverable 1.2.2 TU Delft 2005 (p, 24-25)

Raadgever, G.T.; *Does collaboration enhance learning? The challenge of learning from collaborative water management research,* TU Delft, NeWater project, proefschrift, 2009

Ravetz, J., Funtowicz, S; *Post-Normal Science – An Insight now maturing*, in: Futures 31 (1999) 641-646

Ravetz, J.R.; *What is Post-Normal Science*, in Futures 31 (1999) 647-653

Rotmans, J., *Integrated Assessment: A bird's-eye view*. 1999, ICIS: Maastricht

Sarkki, S., Varjopuro, R.; *Deliverable 5.5 - Document on the evaluation of the process for PanEuropean, Pilot Area and Regional specific first stakeholder panels*, 2008

Selin, S.; *Trust and the illusive force of scenarios*; futures 38 (2006) 1-14

Valk, A. van der; Inaugural speech. *Willens en wetens - planning en wetenschap tussen wens en werkelijkheid* [Speech]; (1999)

Veneklasen, L. & V. Miller (2002), *Power and empowerment. Participatory Learning and Action* (PLA) notes 43: 39-41.

Vliet, van M., Kok, K., Lasut, A. Sendzimir, J.; Deliverable 2.1, *Report describing methodology for scenario development at pan-European and pilot Area scales*; 2007

Vliet, van M.; Deliverable 2.5*, Analysis of first drafts of Conceptual Models and narrative storylines over all Pilot Areas*, 2008

Vliet, van M., Kok, K., Veldkamp, T., Sarkki, S. Varjopuro, R.; *Structure in Creativity; effects of introducing more structure in participatory scenario development workshops on the creativity of process and results*. Unpublished first draft, 2009a

Vliet, van M., Kok, K., Veldkamp, T., Sarkki, S. Varjopuro, R.; *Structure in Creativity; effects of introducing more structure in participatory scenario development workshops on the creativity of process and results*. Unpublished second draft, 2009b

Websites:

GEO-4 full report

http://www.unep.org/geo/geo4/report/GEO-4_Report_Full_en.pdf; *Global environmental outlook GEO 4 environment for development*; 2007; last opened: 2009-11-09

MSP resource portal

http://portals.wi.wur.nl/msp/?page=1219; Card-Technique; 2009-11-10

Wikipedia

http://upload.wikimedia.org/wikipedia/commons/5/54/Map_of_Ukraine_political_simple_Oblast_Krim.png; Crimea in relation to Ukraine; 2009-12-10

http://upload.wikimedia.org/wikipedia/commons/e/e1/SpainGuadianaBasin.png; Guadiana River basin area in relation to Spain; 2009-12-10

Appendixes

Appendix 1; Analysis Workshop 1

method	criteria	Goal	Guadiana	Crimea
Workshop setup	- extent to which SCENES framework is followed - The amount of time taken for each tool - The amount of time for whole workshop - The extent to which the PAWS1 setups follow the diamond scheme	- only small adaptations - high variance in tools - enough for healthy discussion, while reaching result - full two-day workshop - high extent (first workshop focus on creativity)	- Large adaptations (**1**) - Only few types of tools (**1**) - Little time for each tool (**1**) - 1 day workshop (**1**) - Scheme is followed in two iterations in the first workshop; more attention to Groaning and Convergence	- Mostly followed framework (**1**) - large variance of tools (**1**) - Long time for each tool (**1**) - 2 day workshop (**1**) - Scheme is followed in two iterations in the first workshop; more attention to Divergence
Card-Technique objective	- number of categories covered	at least 7 out of 9 categories covered (van Vliet, 2009a)	All categories covered. (**1**)	8 out of 9 categories covered, no economical aspects (**1**)
Card-Technique subjective	- Surprising issues?	Diverging new issues	divergent views no surprising views (too attached to present situation (**3, 4**)	Divergent views No surprising views (**3, 4**)
spidergrams	- Learning about each others point of view	Lively discussion on results	Not made by the stakeholders themselves	Stakeholders made them. Not compared and discussed in group
FCM objective	- number of boxes - density (D) - number of receivers/transmitters - unconnected boxes - missing values	- between 10 and 15 - D between 0.1 and 0.3 - max. 2 receivers / 3 transmitters - no unconnected boxes No missing values	Too many boxes Low density Too many receivers Too many transmitters (**1**)	Right amount of boxes, one a bit below ideal, good density, good receivers and good transmitters (**1**)
FCM subjective	- Understanding - Discussion Balance - Discussion Richness - Consensus	Quick grasp of concept of tool - Open conversation, no major domination by a few SH Possibility for detail on issues - Agreement of SH on final Clusters	- Not intuitively understandable; FCM of future considerably smoother. (**1**) - Sometimes dominated, but people respected each other (**1**) - Too short discussion, nothing new (**1,2**) -There was some divergence (**3**) - Consensus quickly achieved	Difficulty with the concept (**1, 2**) - Both active and passive participants (**1**) - Lively discussion (**1**) - Strong moderation made

method	criteria	Goal	Guadiana	Crimea
		and links	after facilitator warned them that too much discussion brings problems with the time schedule.	Consensus every time (**1**)
	- Motivation and Satisfaction	-Stakeholders happy with process and result	- Satisfied, but sceptical about the outcomes and the real utility of them.	- Not clear on FCM itself what satisfaction was
Visions objective	- method used - length of storyline - amount of new issues - amount of old issues	- use collage or FCM - half a page - >50% of total - >50 % of old issues	FCMs Good length 58% 43% (**1**)	Collage A bit longer, but good 59% 46% (**1**)
Visions subjective	- Understanding	Quick grasp of concept of tool	- More understanding as second time to do it. FCMs?	- Enthusiasm GEO-4 - No specifics on understanding of Collage concept
	- Discussion Balance	Open conversation, no major domination by a few SH	- Difficult to match GEO-4 to local circumstances - Sometimes dominated, but people respected each other (**1**)	- No specific data discussion balance
	- Discussion Richness - Consensus	Everyone needs possibility for input Possibility for detail on issues Agreement of SH on final Clusters and links	- needs to warn about time - some divergence (**3**) - Consensus quickly achieved after facilitator warns them that too much discussion brings problems with time schedule	Some divergence in views on future visions, lively discussions. Smooth discussion, general vision (**2**)
	- Motivation and Satisfaction	SH happy with process and result	- Satisfied, but sceptical about the outcomes and the real utility of them.	Enthusiastic about GEO-4 and what it means for them (**2**)
Whole Workshop Observation reports	Motivation and Satisfaction	High satisfaction and willingness to go on with the next WS	Most people commented their interest on the methods we used and on the project and expressed their desire to be involved in future workshops and meetings.	"Yes, they all gave the very positive comments and seems to see a lot of value in the process and exercises they went through" Interest future workshops
Questionnaires (**3**)	Stakeholder opinion on Workshop:	Positive reactions:		

method	criteria	Goal	Guadiana	Crimea
	Grade post-its	>3.5	3.6	3.7
	Spidergram	>3.5	- not done by SH	4.1
	FCM	>3.5	3.5	4.6
	Collages of the future	>3.5	- not done	4.1
	mood-o-meter: percentage of happy faces	> 80%	Not done But asking in breaks in the program got generally positive feedback	**(2)** 30-☺; 4 -☺; 0 -☹
	grade for whole WS	>4	3.53	4.06
	increased understanding between different views and interests	>3.5	4.11 social learning both good	4.21
	Different types of knowledge and expertise of the participants	>3.5	4.11 SH learning	4.07
	I learned new things about interests and perceptions of other participants	>3.5	4.41 social learning good	4.07
	the workshop helped me to build a more comprehensive understanding of the area	>3.5	4.13 SH learning	3.54
	Other participants brought into discussions fresh ideas	>3.5	3.41 not sufficient deepness in discussions**; no satisfaction on new ideas of others**	3.36 not deep enough discussions
	The fact of working together with different participants raised fresh ideas that were new to all participants	>3.5	3.35 not surprising outcomes Corresponds with previous answer	3.79 more surprising outcomes
	Different scenarios helped me in envisioning futures	>3.5	3.88 understanding of scenarios	3.71 different than other reports say, less confidence about themselves
	own ideas included in the *scenario* outcomes	>3.5	4.53 relevance/legitimacy/Co-ownership	4.21
	scenario-making *process* is useful for river basin management planning	>3.5	4.22 relevance	4.07
	produced *scenarios* are usable for river basin management planning	>3.5	3.68 relevance/credibility	4.07

Notes with Table:

(1) Report of Workshop 1
(2) Observation Report Ania Dubel
(3) Questionnaires
(4) Sarkki and Varjopuro (2008)

Appendix 2; Analysis Workshop 2

method	criteria	goal	Crimea
Workshop setup	- extent to which SCENES framework is followed - The amount of time taken for each tool - The amount of time for whole workshop - The extent to which the PAWS2 setup follows the diamond scheme	- only small adaptations - high variance in tools - enough for healthy discussion while reaching result - full two-day workshop - high extent (PAWS2 focus on 'groan zone')	Framework was largely followed Recommended variance in tools Comparable to PAWS1 2 day workshop held 'groan zone' is main focus
Previous workshop results objective	Stakeholder continuation The extent that previous PAWS results were surprising	At least half the same Stakeholders Much diverging new issues	Between half (**1**) and two-third (**2**) of the participants had already participated in PAWS1 9 out of 9; some divergence, needed to lengthen discussion because of it Satisfaction results 11/11 yes (**4**) Eager to start with new workshop and to work together again (**2**)
FCM of present objective	- number of boxes - density (D) - number of receivers/transmitters - Unconnected boxes - missing values	- between 10 and 15 - D between 0.1 and 0.3 - max. 2 receivers/3 transmitters - All boxes connected - No missing values	15, 14, 13 boxes (**1**) 0.17, 0.07, 0.12 1, 4, 0 receivers/ 1, 0, 1 transmitters 2nd group; three unconnected boxes; 2nd group did not finish 0, 5, 1 missing values
FCM of present subjective	- Understanding - Discussion Balance - Discussion Richness - Consensus - Motivation and Satisfaction	Quick grasp of concept of tool - Open conversation, not major domination by a few SH - Everyone needs possibility for input - Possibility for detail on issues - Agreement of SH on final Clusters and links - SH happy with process and	The methodology of FCM development again was difficult for stakeholders (**1**) New stakeholders make same mistakes as done in first workshop. (**2**) 'Near the end of the discussions, stakeholders that were silent before looked more relaxed to speak up.' (**3**) Some stakeholders were more active, but input from new stakeholders was welcomed. (**3**) Lively discussions (**2**) 'Stakeholders had many questions.' (**3**) 'many questions followed. So as a consequence we finished the day 40 min. later than planned.' (**2**) 'Especially new stakeholders wanted to focus on solutions' (**3**) High enthusiasm (**2**)

method	criteria	goal	Crimea
		result	
Visions Storylines objective	- Length of storyline - amount of new issues compared to old storyline - New insights	- half a page - New issues added - New viewpoints added	- New storylines are addition to old storylines; about one page new - New issues: Market first (water resources, international standards) Security first (water competition, conflicts between water users, specific problem zones) sustainability first (increases in tourism and immigration) Policy first (education, food export, awareness environmental health) - New viewpoints: Market first (what if questions asked and answered, conflicts and difficulties added, focus on specific pilot area situation) Security first (effects of effects) Sustainability first (list of surprises added) Policy first (also positive things in 'Ukraine joins EU' **(1)**
Visions Storylines subjective	- Understanding - Discussion Balance - Discussion Richness - Consensus - Motivation and Satisfaction	- Quick grasp of concept of tool - Open conversation, not major domination by a few SH - Everyone needs possibility for input - Possibility for detail on issues - Agreement of SH on final Clusters and links - SH happy with process and result	- Lot of discussion with moderator on how to proceed **(3)** - 'participants were active, curious and nice to each other, tried to support each other, helping to understand, clarify the meaning, sometimes persuading each other different ways of looking at things'**(2)** 'icebreaker-diner of the night before certainly did good to the process. All stakeholders speak more and are more relaxed to talk in front of each other. The process seems to be more informal than before.' **(3)** 'the silent types start to speak more. Discussions are really between stakeholders instead of each stakeholder talking to the moderator.' **(3)** - 'Group D also created a small map representing Crimea and dividing it in several regions.' **(3)** Also, many new issues implicates discussion richness 'Thoughtful and serious discussions' **(2)** 'They wanted to speak about the amazing things people discovered' **(2)** 'penetrating questions' **(2)** - 'People were very engaged, wanted to share experience, but also they came to an understanding about crucial issues' **(2)**
FCM of future objective	- number of boxes - density - number of receivers/transmitters - Unconnected boxes	- between 10 and 15 - D between 0.1 and 0.3 - max. 2 receivers - max. 3 transmitters - All boxes connected	Sustainability first, security first, market first, policy first 14, 15, 15, 15 0.12, 0.12, 0.12, 0.11 3, 1, 2, 2 0, 2, 3, 2 Market first completely centred around Finances! All boxed were connected

method	criteria	goal	Crimea
	- number of later filled in Values	- all values determined during workshop	5, 8, 1, 14 Not completely finished
FCM of future subjective	- Understanding	- Open conversation, not major domination by a few SH	- The methodology of FCM development again was difficult for stakeholders (1) After detailed explanation of previous mistakes and missing connections they did not manage to present all links. (1) 'It was the 3rd FCM that they've created, so they felt comfortable with the technique.' (2)
	- Discussion Balance	- Everyone needs possibility for input	- More balanced as more shy stakeholders were able to get input in discussions. (3)
	- Discussion Richness	- Possibility for detail on issues	- 'The technique they use was really only a tool facilitating their discussions' (2) 'There was a lot of discussion about the boxes that had to be put in' (3) 'The break was necessary because it was clear that the stakeholders were getting tired.' (3) 'Once more many questions and discussions' (3) 'Participants spent more time on discussion of issues and story lines and had not enough time for detail checking of all links and weights.' (1)
	- Consensus	- Agreement of SH on final Clusters and links	- not always possible to bring the discussion to a conclusion due to the time limitation for this task (1) 'More outcomes oriented' (2) 'getting more tired' (2) 11/17 some divergence, needed to lengthen discussion because of it (4)
	- Motivation and Satisfaction	- SH happy with process and result	- 'When applause is given, they feel that the applause is deserved … That is why applause was only given at the final presentations of the FCMs of the future.' (3) 'Enthusiasm had changed into determination as all groups were set on showing something new and good.' (3)
Whole workshop	Motivation and Satisfaction	- High satisfaction and willingness to go on with the next WS	3.88 usefulness of knowledge gained in workshops (4) To increase usefulness/usability of scenarios: More time for sessions
	Social learning	- Understanding of each others viewpoints, participatory processes, and the Pilot Area	The main outcome of the workshop was social learning, in particular that people learned to work together in such a complex process, to hear each others opinion, to appreciate different points of view, to look forward and to participate in the development of the future by changing of today's situation. They felt some push to believe in their role as one strong stakeholders group contributing to the process of water management in

method	criteria	goal	Crimea
			Crimea. **(1)** **(Annex 3; facilitators report)**
Questionnaires	Stakeholder opinion on Workshop:	- Positive reactions:	
	Use of previous workshops in work	- use knowledge - made contacts - used those contacts - told about the workshops to other people	- yes 9/9 - yes 9/9 - yes 5/8 no 3/8 - yes 9/9 **(4)**
	Usability of FCM method	>3.5	**3.47 (4)**
	mood-o-meter: percentage of happy faces	> 80%	
	grade for whole WS	>4	**4 (4)**
	increased understanding between different views and interests	>3.5	**4.47 (4)**
	Different types of knowledge and expertise of the participants	>3.5	**4.29 (4)**
	I learned new things about interests and perceptions of other participants	>3.5	**4.18 (4)**
	the workshop helped me to build a more comprehensive understanding of the area	>3.5	**4.18 (4)**
	Other participants brought into discussions fresh ideas	>3.5	**4.29 (4)**
	The fact of working together with different participants raised fresh ideas that were new to all participants	>3.5	**3.94 (4)**
	Different scenarios helped me in envisioning futures	>3.5	**4.35 (4)**
	own ideas included in the *scenario* outcomes	>3.5	**4.06 (4)**
	scenario-making *process* is useful for river basin management planning	>3.5	**4.47 (4)**
	produced *scenarios* are usable for river basin management planning	>3.5	**4.24 (4)**

Notes with Table:

(1) Report of Workshop 2
(2) Observation Report Ania Dubel
(3) Personal observations
(4) Questionnaires

Appendix 3; Setup Questionnaires

SCENES
Water Scenarios for Europe and for Neighbouring States

What expectations do you have for the scenario-making process as a whole?

_____

_____

_____

Main problems in the region
In your opinion what are the <u>main problems</u> regarding water use and quality in the XXX area? SCENES TEAM: PLEASE ADD THE NAME OF THE AREA YOU ARE USING IN THE WORKSHOP

_____

_____

_____

Were there diverging views on the main problems discussed in this workshop?

Tick here	*Please choose <u>one</u> of the following assertions that in your opinion describes the degree of **divergence on views of the main problems.** Please read all options before choosing one.*
	There wasn't any divergence at all.
	There was very little divergence.
	There was some divergence and we needed to lengthen discussions because of them.
	There were very divergent views on the main problems and discussing about them required a lot of time.
	None of the above. Better description is:

What were the main divergences about?

_____

_____

Are you satisfied with the way how divergences about main problems were handled in the workshop?

Yes   No
Comments on that?

_____

_____

_____

Future

Are you satisfied with the scenarios that were produced? Yes   No
Comments on the scenarios?

_____

_____

_____

Are you satisfied with the process by which the scenarios were made? *Tick in the box*

Yes   No

Were the fast-track scenarios presented in the workshop useful for creating scenarios for XXX region? *Tick in the box*

Yes   No
Comments on the way scenarios were made and on the fast-track scenarios?

_____

_____

_____

_____

Were there diverging views on future visions of the region?

Tick here	*Please choose <u>one</u> of the following assertions that in your opinion describes the degree of **divergence on views of the future visions.** Please read all options before choosing one.*
	There wasn't any divergence at all.
	There was very little divergence.
	There was some divergence and we needed to lengthen discussions because of them.
	There were very divergent views on the main problems and discussing about them required a lot of time.
	None of the above. Better description is:

What were the main divergences regarding future visions about?

_____

_____

_____

Are you satisfied with the way how divergences about future visions were handled in the workshop?

Yes   No
Comments on that?

_____

_____

_____

In your opinion, was there something essential missing from the discussions? If so, what?

How can you use/apply the issues discussed/learned at the workshop in your own work?

Working tools and methods

How would you grade (from 1-5) this workshop as a whole? Grade:_____
Rating: 1= poor; 2= needs improvement; 3= satisfactory; 4= good; 5= excellent

How would you grade (from 1-5) the following working tools and methods used in this workshop?
Rating: 1= poor; 2= needs improvement; 3= satisfactory; 4= good; 5= excellent

- Post-its (i.e. cards put on the walls to display participants' views), grade: _____
Comments on the
method:_____

- Spidergram, grade: _____
Comments on the
method:_____

- Fuzzy cognitive mapping, grade: _____
Comments on the
method:_____

- Collages of futures, grade: _____
Comments on the
method:_____

Which of the following organisations/sectors do you represent?

Organisation *Tick in a box*   **Sector** *Tick in a box*

    Local public administration   **Water**

    Regional public administration   **Agriculture**

    National administration   **Fishing**

    Research   and education   **Forestry**

    Private sector   **Nature protection**

    Association   **Other**_____

    Other_____

How much do you agree or disagree with each of the following assertions? *Please choose a number in the column on the right hand side of the table.*

	I disagree completely	I disagree to some extent	I cannot say	Agree to some extent	I agree completely
The workshop increased understanding between different views and interests	1	2	3	4	5
The participatory process succeeded in taking advantage of the different types of <u>knowledge and expertise</u> of the participants	1	2	3	4	5
During the workshop I learned new things about interests and perceptions of other participants	1	2	3	4	5
Participating in the workshop helped me to build a more comprehensive understanding of the **XXX** area	1	2	3	4	5
Other participants brought into discussions fresh ideas	1	2	3	4	5

The fact that we worked together with different participants raised fresh ideas that were <u>new</u> to all participants	1	2	3	4	5
Working with different *scenarios* helped me in envisioning futures	1	2	3	4	5
My ideas were included in the *scenario* outcomes	1	2	3	4	5
The scenario-making *process* is useful for river basin management planning	1	2	3	4	5
The produced *scenarios* are usable for river basin management planning	1	2	3	4	5

What should be done otherwise to increase the usefulness/usability of the scenarios?

_____

_____

_____

_____

_____

MANY THANKS!

Appendix 4; Observation sheet draft PAWS 1

Workshop1, part 1: Story of the present

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
Arrival		List of participants List of absentees Synthesize: - Amount of different stakeholder groups represented - Gender balance - Age balance	▪ Representation of different stakeholders
Welcome			
Introduction of stakeholders with **"talking pictures/objects".** Getting to know each other, ice breaking, creating nice 'atmosphere', mapping biggest issues, getting	**Transcribe discussion;** Identify speaker ▪ Reasoning for selecting the objects and its importance for the pilot area (which arguments are used by which stakeholder?) ▪ Reactions from others:	Collect and list the issues raised (*The person who is facilitating the meeting will probably collect them, so the observer needs to list the issues later. Below the same is meant when the observer is asked to 'collect' outputs*)	**Problem framing** ▪ What issues different stakeholders bring up and how they see the problem in context ▪ What are the differences/ similarities in the ways in which different stakeholders see the issue at hand

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
everyone to talk	opposition/support by whom, on which arguments → note also non-verbal reactions, including expressions of disinterest Identify the ones who refused to present an object **Observe and assess** atmosphere in the beginning (enthusiastic/neutral/reluctant)	How many refused to present an object?	
What are the important aspects in the Pilot Area? (Card-technique) Mapping biggest issues, get input from all participants. useable as indicators? WP4	Observe discussions/comments while issues are written on the cards **Presentation:** Observe and write down the problems identified by different stakeholders **Clustering:** observe and transcribe how the clustering process proceeds - transcribe discussions,	**Write down** the final clusters of main problems & collect all the post-its What expected problems were not	**Problem framing** ▪ What issues different stakeholders identify as problematic ▪ What are the differences/similarities in the ways in which different stakeholders see the main problems ▪ How are the identified problems linked/clustered together ▪ Did any unexpected linkages

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
	identify who influenced the final outcome (= whose ideas were adopted, based on which arguments, non-verbal incl. disinterest) - Who did not take part to discussion? - Cards left alone: Whose & what cards?	presented at all? How many cards were included/left out?	between different stakeholders' problems occur? **Methodological aspects** ▪ Was it easy to name the problems by each participant? ▪ Was it easy/hard to find clusters of common problems? ▪ Did new problems arise while clustering?
LUNCH Informal contacts	Observe who eat with whom? Any patterns observable?		
Spidergrams (individual, write name on it) Get an impression of importance of the different issues for each stakeholder. (can later be used for	Observe while people draw their spidergrams (**discussions, comments**, easy/difficult; any signs of learning on how to think about the problems)	**Collect** spidergrams with names on them (for later analysis)	**Problem framing** ▪ Deeper understanding of the problem frames of the different stakeholders; the relevance of the problems ▪ What are the differences/similarities in the ways in which different

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	Observation of discussions and interactions	Quantitative information and materials produced during the meeting	Writing of synthesis afterwards
finalizing FCMs)			stakeholders weight the main problems **Methodological aspects** ▪ Was it easy to draw spidergrams and give weight to different problems? ▪ Did it offer any help in learning about the problem and interlinkages of relevant factors
Introduction of FCM	Observe & transcribe discussion and comments **Who**? Which **arguments**? non-verbal incl. disinterest		
Split up in smaller groups Get input from different fields in the different groups	Observe how people reacted to mix of groups?	List the composition of the groups	
Creating a FCM; assign feedbacks System thinking, getting a	Observe & transcribe discussion in **each group** (*at least as many groups as you have observers*)	Collect all the possible drawings (also the drafts)	**From individual problem frame to common problem** ▪ How people start to work out with the common

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*

better understanding of relations between main aspects.	**Transcribe** discussion, arguments, by whom
	Observe co-operation & social intercourse
	  - Who is most aloud, who has most convincing arguments (*'convincing' means that s/he can convince others, not necessary convincing in your opinion*), based on what knowledge, based on which arguments?
	  - Who gets to decide the linkages?
	  - How much 'experts' intervene, are asked help from? (experts like SCENES people or other recognised as experts)
	  - Who is not influencing?
	  - Was consensus possible? why yes/no
	  - pay special attention to the use of knowledge & interests
			problem?
			▪ What kind of knowledge people are bringing to exercise?
			▪ Can any signs in cognitive or social learning be detected?

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
Break	Observe the break: who's talking with whom? Are they talking about FCM?		
Creating a FCM; Assign values to feedbacks System thinking, getting a better understanding of relations between main aspects.	... continues		... continues
Compare the FCMs (plenary) Further discussion, integrate different views	Observe and transcribe discussion & person **Transcribe:** discussion, arguments, by whom ▪ Reasoning for linkages and their values (which **arguments**?) ▪ Reactions from others (opposition/support **by whom**, on which **arguments**, non-verbal incl. disinterest)	Collect the FCM's of each group	▪ What kind of learning processes (cognitive & social) FCM exercise stimulated? **Problem framing** ▪ How do the different FCM's relate to one another; is there any common understanding of the problem detectable? ▪ If not, what are the main conflicting issues? ▪ If consensus seems to be

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
			close to formation, how does it reflect to views presented at the start of the workshop - how are different interests reflected in the problem formulation? - which interests/issues are omitted? **Methodological aspects** ▪ Was the use of FCM easy/hard for the participants ▪ Was the FCM helpful in stimulating system thinking (cognitive) and social learning (between different interests) ▪ How different knowledge were handled during the process?
Feed back mood-o-meter ☹ ☺ ☺		Gather information from Mood-o-meter ▪ facilitator	▪ Direct feed back to the process

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
better facilitation, methods that better suit stakeholders		▪ methods used	
end			
social events	Observe the atmosphere and group formations		

Workshop 1, part 2: Scenario building

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
Recap of WS 1 Easy start, wake up time, check if everything was understood correctly Shortly describe the current state of the system	Observe & assess the atmosphere (enthusiastic/neutral/reluctant)		
Changes in the past short description of changes that happened in the Pilot Area and some discussion on 'normality of change' Understanding that change is natural.	Observe & transcribe discussion Who? Which **arguments**? non-verbal incl. disinterest		- How information is presented - How different kind of knowledge are used? Is there place for experience-based knowledge as well as for scientific knowledge? - Is the outcome understandable for the panellists?
Introduction of fast-track scenarios Creating framework for local scenarios	Observe & transcribe discussion Who? Which **arguments**? non-verbal incl. disinterest	Collect FT material	- How information is presented - How different kind of knowledge are used? - Is the outcome understandable for the panellists?

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
break	Observe the break: who's **talking** with whom? Are they talking about scenarios?		
What do the scenarios mean for the Pilot Area? First discussion on how the current changes fit in these scenarios. Do the FT scenarios make sense for local circumstances Getting familiar with scenarios and future thinking.	Observe & transcribe discussion Who? Which **arguments**? non-verbal incl. disinterest		**From present problems to future vision** ▪ First reactions to scenario-thinking ▪ How participants find the scenario thinking? - easy/hard - useful/not useful - facilitating free thinking/mind setter ▪ Question of scale. How can global scenarios be interpreted to local scale - what issues arise from translation from global to local?
Scenario development in four groups Each group consist of broad	Observe & Transcribe discussion in **each group** **Transcribe** discussion, arguments,	List the composition of the groups	▪ How people start to think towards future and finding a common vision? ▪ How the scenario is formulated? Pay special

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
array of SHs. They will create the local scenario, if possible within one of the four FT scenarios. Collages or rich pictures will be used. summary of process (by facilitator)	by whom **Observe** co-operation & social intercourse - Who is most aloud, who has most convincing arguments, based on what knowledge, who is influencing how the scenario is getting its form? - Who is not influencing? - Was consensus possible? why yes/no - pay special attention to the use of knowledge & interests	Collect all the produced material	attention to following aspects: - interests & differing problem frames - power relationships - use of knowledge ▪ Is agreement on scenarios feasible? Why yes/no? ▪ Different methods used: did they help discussions, enhance collaboration
LUNCH mood-o-meter ☹ ☺ ☺ ▪ Were all important changes in PA discussed earlier today? ▪ Your first reaction to working with scenarios? ▪ Should some of the morning's issues revisited on the basis of mood-o-meter?	Observe the lunch. Any different from yesterday?	▪ Collect info from Mood-o-meter	

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
presentation of scenarios and discussion (plenary) presentation of the collage and the story behind it for each scenario. discussion on each scenario on missing aspects, new ideas inclusion of other views	Observe and transcribe discussion & person **Transcribe:** discussion, arguments, by whom ▪ Reasoning for scenarios (which **arguments**?) ▪ Reactions from others (opposition/support **by whom**, on which **arguments**, non-verbal incl. disinterest)	Collect the Scenarios	▪ What kind of learning processes (cognitive & social) scenario building stimulated? **Problem framing & scenarios** ▪ How do the different scenarios relate to one another; is there any common understanding of the problem detectable? ▪ If not, what are the main conflicting issues? ▪ If consensus seems to be close to formation, how does it reflect to views presented at the start of the workshop - how are different interests reflected in the future vision? **Methodological aspects** ▪ Was the scenario building easy/hard for the participants ▪ Was the scenario-building helpful in stimulating cognitive and social learning (between different interests) ▪ How different knowledge

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
			were handled during the process?
break	Observe the break: who's talking with whom?		
Spidergrams input for other WPs, input for development of FCMs of visions. develop spidergrams for the clusters of yesterday morning, how do they change under each vision? (on 1 to 10 scale) use the 'old' spidergrams from yesterday	Observe & transcribe the discussion **Who**, which **arguments,** Non-verbal reactions incl. disinterest Observe while people draw their spidergrams (**discussions, comments**, easy/difficult; any signs of learning on how to think about the problems)	Collect spidergrams with names on them	**Problem framing** ▪ How are the spidergrams changing? ▪ Is there any sign of cognitive & social learning? - towards what direction **Methodological aspects** ▪ Did spidergrams offer any help in making the change in problem framing visible?
What did we accomplish? Thanks for attending, hope to see them next time make SHs feel that they really contributed something worth much.	Observe & transcribe discussion Any reaction Observe and assess atmosphere (enthusiastic/neutral/reluctant)		- how do participants feel about the outcome - what kind of cognitive or social learning took place?

Activity & goal	OBSERVATION		THINGS TO BE CONSIDERED
Possible activities and methods used in your meetings.	*Observation of discussions and interactions*	*Quantitative information and materials produced during the meeting*	*Writing of synthesis afterwards*
evaluation of methods and process - feedback questionnaire		Feedback questionnaire Individual assessments of methods, social learning, legitimacy & usability	
end			

Appendix 5; Observation sheet draft PAWS 2

General issues to be observed during the workshop:

- References to the first workshop
  - positive or negative assessments of the results/outputs
  - description of how the results, outputs or knowledge gained during the first workshop has been used by the participants (e.g. in their own work)
  - if someone tells that they have told about the workshop results to others that were not involved
    - descriptions of those persons' comments on the SCENES workshop results
  - descriptions of how contacts gained during the first workshop have been used
- Learning of the methods (FCM, scenario thinking):
  - points indicating confusion about the methods
  - points indicating mastering of the methods (can be about using the methods or even about deconstructing of the previous or this workshop's results with valid reasoning and arguments)
  - 'education' given by the old participants to the newcomers (what is told about the methods or results; this will also tell us how the old-timers have understood things)

Issues to be observed in different sessions:

Possible activities and methods used in your meetings.	*Observation of discussions and interactions*
Welcome	
Introduction of stakeholders Getting to know each other, ice breaking, creating nice 'atmosphere', mapping biggest issues, getting everyone to talk	**How many old-timers/newcomers?** **Observe and assess** atmosphere in the beginning (enthusiastic/neutral/reluctant) Are the old-timers enthusiastic to start working again?
Presentation of the first workshop's results	Observe & transcribe discussion and comments **Who**? Which **arguments**? non-verbal incl. disinterest, confusion This session can tell you a lot. For instance: - How well participants have understood the methods and the process? (Are there knowledgeable comments and suggestions?; Is there confusion?) - The level of common understanding - Group's dynamics: who are the acknowledged experts? And who are not? - Have the participants used the knowledge of the system in their work? - Have they told about the methods or outputs to others? - Discussions between the old-timers and newcomers

Possible activities and methods used in your meetings.	Observation of discussions and interactions
Break (around this point)	
Finalising the FCM ▪ Discussion on the content of the boxes ▪ Identification of indicators Finalising the relationships between the issues	Observe & transcribe discussion and comments **Who**? Which **arguments**? also non-verbal incl. disinterest, confusion This session can tell you a lot. For instance: ▪ How well participants have understood the methods? (Are there knowledgeable comments and suggestions?; Is there confusion about the FCM?) ▪ The level of common understanding of the pilot area's water system's structure and dynamics ▪ Group's dynamics: who are the acknowledged experts? And who are not?

Causal Loop Diagram
 	
In four Pilot Areas only!
	Observe & transcribe discussion and comments
	
	    Who? Which **arguments**? non-verbal incl. disinterest
	
	    See above row!

Feed back mood-o-meter ☹ ☺ ☺	Please do the mood-o-meter again. Ask especially about their satisfaction with the (now) finalised products.
end of the day	

Possible activities and methods used in your meetings.	Observation of discussions and interactions
Recap of Day 1	Easy start, wake up time, check if everything was understood correctly. Are people ready go from FCMs to the scenarios? **Observe** & assess the atmosphere (enthusiastic/neutral/reluctant)
Presentation of PEP1 results (other Pilot Area results?)	Observe & transcribe discussion Who? Which **arguments**? non-verbal incl. disinterest This session can further help the participants to understand the water systems. So please observe: ▪ The level of common understanding of the pilot area's water system's structure and dynamics o also new points raised concerning your pilot area ▪ Any comments asking about PEP methods (where are these results coming from?)
Presentation of your pilot areas 'old' scenarios	Observe & transcribe discussion Who? Which **arguments**? non-verbal incl. disinterest

Possible activities and methods used in your meetings.	Observation of discussions and interactions
	Observe: - The level of common understanding - Group's dynamics: who are the acknowledged experts? And who are not? - Have the participants used the knowledge of the system or the scenarios in their work? - Have they told about the methods or outputs to others? - Discussions between the old-timers and newcomers
break	
Update pilot areas scenarios. (In small groups?) - Include the surprises - Perhaps also expand the number of scenarios	Observe & transcribe discussion Who? Which **arguments**? non-verbal incl. disinterest Observe: - How well participants have understood the methods and the process? (Are there knowledgeable comments and suggestions?; Is there confusion?) - The level of common understanding - Group's dynamics: who are the acknowledged experts? And who are not? - Discussions between the old-timers and newcomers - Reactions to the surprises
LUNCH	
Presentation of the revised scenarios	Observe and transcribe discussion & person

Possible activities and methods used in your meetings.	Observation of discussions and interactions
	▪ Reasoning for scenarios (which **arguments**?) ▪ Reactions from others (opposition/support **by whom**, on which **arguments**, non-verbal incl. disinterest)
Develop FCMs of the future for each scenario (small groups)	Observe & transcribe the discussion **Who**, which **arguments,** Non-verbal reactions incl. disinterest ▪ How well participants have understood the methods and the process? (Are there knowledgeable comments and suggestions?; Is there confusion?) ▪ The level of common understanding ▪ Group's dynamics: who are the acknowledged experts? And who are not? ▪ Discussions between the old-timers and newcomers
break	
Presentation of the FCM of the future	Observe and transcribe discussion & person ▪ Reasoning for FCM ▪ Reactions from others (opposition/support **by whom**, on which **arguments**, non-verbal incl. disinterest) ▪ How well participants have understood the methods and the process? (Are there knowledgeable comments and suggestions?; Is there confusion?) ▪ The level of common understanding
Link with WaterGAP and local models	Observe & transcribe discussion

Possible activities and methods used in your meetings.	Observation of discussions and interactions
	Any reactions
evaluation of methods and process - feedback questionnaire	mood-o-meter ☹ ☺ ☺
end	

Appendix 6; Personal observations

Observations PAWS2 Crimea; Maarten P. Verbeek

General issues to be observed during the workshop:

- References to the first workshop
    - positive or negative assessments of the results/outputs
    - description of how the results, outputs or knowledge gained during the first workshop has been used by the participants (e.g. in their own work)
    - if someone tells that they have told about the workshop results to others that were not involved
        - descriptions of those persons' comments on the SCENES workshop results
    - descriptions of how contacts gained during the first workshop have been used
- Learning of the methods (FCM, scenario thinking):
    - points indicating confusion about the methods
    - points indicating mastering of the methods (can be about using the methods or even about deconstructing of the previous or this workshop's results with valid reasoning and arguments)
    - 'education' given by the old participants to the newcomers (what is told about the methods or results; this will also tell us how the old-timers have understood things)

Abbreviations
PAWS1 Pilot Area Workshop 1
PAWS2 Pilot Area Workshop 2
PEP   Pan-European Panel
PEP1   Pan-European Panel meeting 1
CLD   Causal Loop Diagram
FCM   Fuzzy Cognitive Map

Different roles in the workshop
Olga, as coordinator of the Crimea workshop took the advice of the PAWS2 cookbook to heart that there should be a strict separation between roles. Observers, facilitators, moderators and secretaries have to do just that, they should not participate. The stakeholders are the only participants.
This separation of roles was not as strict during the first workshop. Andrej was one of the moderators during PAWS1 and PAWS2. In PAWS1 he served a double role. He was also a stakeholder for a NGO. For PAWS2 an extra stakeholder from his NGO was invited to make sure the NGO's interests were in the process, but Andrej could stay neutral in the process. All non-participants were told this separation of roles was important.
Without knowing the Russian language it is of course difficult to know whether the moderators kept to moderating without influencing or even joining the discussion, but we could observe other elements.

Kees and Anna, the two other SCENES observers were invited to give a presentation. Kees and I worked on a presentation on the analysis of the Fuzzy Cognitive Maps of the first workshop. Later in the first day, Anna gave a presentation on Causal Loop Diagrams. This means the observers do have influence on the methodology of the process. They do not have an input on the content however, which was the aim of the role separation.

There were two official Moderators, but the group work was in three and four groups. The facilitator Vitaly had also a role as moderator. Olga, the coordinator was also a part-time moderator. This double role is not bad though, because the coordinator, the facilitator and the moderators are all steering the process, they are not influencing the content. In one of the groups the role of secretary was filled by one of the stakeholders. Because this is quite intensive, the input of the stakeholder on the content while performing this task is negligible.

Applause
Throughout the workshop we noticed that the stakeholders never applauded for the presentations. The Ukrainian people feel that applause should only be awarded as a sign of support for the statements made, rather than as a compliment for the effort. When applause is given, they feel that the applause is deserved and it is never just a politeness. That is why applause was only given at the final presentations of the FCMs of the future.

Issues to be observed in different sessions:

Possible activities and methods used in your meetings.	*Observation of discussions and interactions*
Welcome	The word of welcome was done in Simferopol. With a welcoming word to the SCENES observers and an explanation on the goals of SCENES and the goals of this Workshop. In short there was an explanation on the PEP-results. After that, all stepped into the bus to the location of the workshop.
Introduction of stakeholders Getting to know each other, ice breaking, creating nice 'atmosphere', mapping biggest issues, getting everyone to talk	**How many old-timers/newcomers?** We did not receive the definitive list, but I estimate one-third of the Stakeholders was new. **Observe and assess** atmosphere in the beginning (enthusiastic/neutral/reluctant) The location of the workshop was in a small village in a convention centre. It was an old building and with a nice view of the mountains and the see outside. Before the starting presentations, the stakeholders stood in small groups talking to each other. A few new coming stakeholders were standing alone. The atmosphere at this moment was generally neutral. **Are the old-timers enthusiastic to start working again?** It seemed like most of the groups were formed by the old-

Possible activities and methods used in your meetings.	Observation of discussions and interactions
	timers, their conversations seemed enthusiastic about seeing each other again, but also about starting the project. A few new-comers were standing alone.
Presentation of the first workshop's results	For the presentations there was a room set up like a lecture room, with all the stakeholders facing the projection screen. The Stakeholders looked interested during the presentations, there were no questions asked afterwards. This means that they either understood, or they saved their questions for during the group work. At the end of the presentation, the groups were formed. Beforehand was already decided who would be in which group. So that all groups would have a mixture as diverse as possible. Priority in the groups was on the sectors that were represented. Scientific experts, water management, governmental authorities and NGOs. It seemed as though there was a secondary division for age and gender. Group A: Moderator: Victor; 3 male, 3 female Group B: Moderator: Andrej; 4 male, 2 female Group C: Moderator: Vitaly; 6 male, 2 female Observe & transcribe discussion and comments **Who**? Which **arguments**? non-verbal incl. disinterest, confusion This session can tell you a lot. For instance: ▪ How well participants have understood the methods and the process? (Are there knowledgeable comments and suggestions?; Is there confusion?) ▪ The level of common understanding ▪ Group's dynamics: who are the acknowledged experts? And who are not? ▪ Have the participants used the knowledge of the system in their work? ▪ Have they told about the methods or outputs to others? ▪ Discussions between the old-timers and newcomers
Break (around this point)	
Finalising the FCM ▪ Discussion on the	It was decided that the stakeholders would not decide on one final FCM, but to improve the three that they had and use them

Possible activities and methods used in your meetings.	Observation of discussions and interactions
content of the boxes ▪ Identification of indicators ▪ Finalising the relationships between the issues	as a final result. The stakeholders were split up in three groups. One for each of the original FCM's of the present. The tables and chairs in the lecture room were movable. Chairs were rearranged so the stakeholders within a group could sit around the tables facing each other. Two groups sat in the lecture room. The final group went to a different room. It was a theatre room, the stakeholders set up a table there so they could also sit while facing each other. The atmosphere of the stakeholders was mildly enthusiastic at the start, but during the group work this gradually improved. There were differences between the groups. In **group A**, it didn't take long before Victor was standing, instead of sitting at the table. After a while stakeholders from the group joined in with standing on one side, to be able to see the flip-over the right way up. This also meant a more energetic conversation. The women in group A took the lead in the conversations. They were the most active stakeholders. In **group B**, the discussion started between Andrej and one more stakeholder. The rest was more quiet, but also managed to say a few things. After a while there was more discussion between the different stakeholders. The stakeholders talked mostly to the moderator, instead of to the other stakeholders. In **Group C**, Vitaly the moderator sits more on the side. 2 stakeholders are central in the discussions. They are holding the pencils and post-its. The women in this group are very silent. The stakeholders that sit more to the side are also the more silent stakeholders. When a silent stakeholder tries to speak, the other stakeholders respect this. The extra input is welcomed. All groups start with talking to the moderator, after a while discussions between stakeholders occur. In group B, this still happens by talking to the moderator. When the discussions start on the enrichment of the scenarios, the new stakeholders come with lots of new ideas. In his group, Andrej felt the need to slow the new stakeholders down, so not to lose themselves in discussions that have been done during the first workshop.

XL

Possible activities and methods used in your meetings.	Observation of discussions and interactions
	Instead he suggested focusing on the core issues, chosen in the first workshop. And to expand those. Especially the new stakeholders wanted to focus on solutions, while the goal was to focus on the present.

Near the end of the discussions, stakeholders that were silent before looked more relaxed to speak up.

The presentations of the FCMs of the present were followed with interest. The stakeholders had many questions. On new boxes, arrows and strengths of feedback.

Secretaries
All the groups had a secretary making notes on points of discussion, arguments and decisions taken. The secretaries have no input on the content of the workshop. The roles of the secretaries however differed for every group. In group A, the secretary wrote the post-its and drew the arrows, while in group B, the moderator drew the FCM. The secretary wrote down all the notes on the discussion. In Group C the facilitator sat on the side, while one of the more dominant stakeholders drew the FCM. In this group, there was no external secretary. Instead, one of the stakeholders made notes.

Observe & transcribe discussion and comments
Who? Which **arguments**? also non-verbal incl. disinterest, confusion

This session can tell you a lot. For instance:
- How well participants have understood the methods? (Are there knowledgeable comments and suggestions?; Is there confusion about the FCM?)
- The level of common understanding of the pilot area's water system's structure and dynamics
- Group's dynamics: who are the acknowledged experts? And who are not? |
| **Causal Loop Diagram**
In four Pilot Areas only! | The stakeholders found the CLD-presentation hard to follow at first, but after a while they understood and then they were |

Possible activities and methods used in your meetings.	Observation of discussions and interactions

	really interested and asked a lot of questions.
	
	The explanation of the Causal Loop Diagram was done at the end of the day without any follow-up. Although the stakeholders were enthusiastic about the methodology, I don't think anything was done with the knowledge. The timing for introducing a new methodology was not suitable at the end of the day.
	
	Observe & transcribe discussion and comments
	    Who? Which **arguments**? non-verbal incl. disinterest
	    See above row!

Feed back mood-o-meter ☹ ☺ ☺	Please do the mood-o-meter again. Ask especially about their satisfaction with the (now) finalised products. Olga has the results
end of the day	Of much interest is the dinner of this evening, because this served as a very good icebreaker. The dinner started at about 19.00?? During the dinner every now and then, someone would stand up and propose a toast. Every speaker would try to tell a better anecdote than the speaker before him or her. This meal, together with the wine served with it, made sure that there was an informal atmosphere. The stakeholders got a chance to really get to know one another outside of the normal relationships. This helped the next day, because the silent types were more talkative. They probably were more confident about talking in the group. For those who were interested, after the dinner there was the possibility for song and dance in the form of traditional Comsomole games. It was a chance to really be free and have fun. Not everyone joined in, but it should help the stakeholders that did, in letting go and being more creative the next day.

Day 2:

Possible activities and methods used in your meetings.	Observation of discussions and interactions
Recap of Day 1	Easy start, wake up time, check if everything was understood correctly. Are people ready go from FCMs to the scenarios? Because of time restrictions, there was no summary of the previous day. **Observe & assess the atmosphere** (enthusiastic/neutral/reluctant) The stakeholders seemed eager to start working again, they seemed enthusiastic. A few of the stakeholders needed a little more time to become fully awake because of too much wine the previous evening.
Presentation of PEP1 results (other Pilot Area results?)	Observe & transcribe discussion Who? Which **arguments**? non-verbal incl. disinterest There were few questions after the presentation of the PEP1 results. They did seem interested. This session can further help the participants to understand the water systems. So please observe: ▪ The level of common understanding of the pilot area's water system's structure and dynamics o also new points raised concerning your pilot area ▪ Any comments asking about PEP methods (where are these results coming from?)
Presentation of your pilot areas 'old' scenarios	Instead of presenting the results of PAWS1, the stakeholders were given stencils with the storylines from the previous workshops and additional information from PEP1 and other Pilot Areas. Together with the enriched FCM's of the present and the Collages they formed the input for the enrichment for the storylines. The stakeholders are told that it is up to them to just enrich the storylines, or to take them into a new direction, change the names, add and adapt. It is important that new issues have a new set of indicators. These indicators are made the same session as the scenario enrichment. And should be presented together with the scenarios. Observe & transcribe discussion Who? Which **arguments**? non-verbal incl. disinterest Observe: ▪ The level of common understanding

Possible activities and methods used in your meetings.	Observation of discussions and interactions
	- Group's dynamics: who are the acknowledged experts? And who are not? - Have the participants used the knowledge of the system or the scenarios in their work? - Have they told about the methods or outputs to others? - Discussions between the old-timers and newcomers
break	
Update pilot areas scenarios. (In small groups?) - Include the surprises - Perhaps also expand the number of scenarios	There are now four groups instead of three. The extra group is now also in the lecture room. At the start of the group session there seems to be a bit of a confusion. One member of the theatre group is supposed to be in another group. After this, the groups can start working. Group A; Market first; Victor; 1 M, 2 F Group B; Sustainability first; Andrej; 3 M, 1F Group C; Policy first; Olga 2M, 1F Group D; Security first; Vitaly; 6M, 1F In all the groups it seems that the icebreaker-diner of the night before certainly did good to the process. All stakeholders speak more and are more relaxed to talk in front of each other. The process seems to be more informal than before. During the session the silent types slowly start to speak more. Discussions are really between stakeholders instead of each stakeholder talking to the moderator. Group D kept one of the FCM's of the present at hand to use as an inspiration. All groups used the Collages from PAWS1 for the enrichment. Group D also created a small map representing Crimea and dividing it in several regions. The stakeholders were enthusiastic, during the session this enthusiasm only seemed to grow. The 'security first' group was not so much enthusiastic, but more determined. The scenario is one, everyone wants to avoid, so it was difficult to be enthusiastic about it. Observe & transcribe discussion

Possible activities and methods used in your meetings.	Observation of discussions and interactions
	Who? Which **arguments**? non-verbal incl. disinterest Observe: ▪ How well participants have understood the methods and the process? (Are there knowledgeable comments and suggestions?; Is there confusion?) The stakeholders started with reading and going through all the information that was given to them. Afterwards the stakeholders seemed to go through the old scenarios systematically. The stakeholders might have been a bit unsure how to proceed, because in the beginning there was a lot of discussion with the moderator. Only later the discussions were once more between stakeholders. ▪ The level of common understanding ▪ Group's dynamics: who are the acknowledged experts? And who are not? ▪ Discussions between the old-timers and newcomers ▪ Reactions to the surprises The surprises were not imbedded into the scenarios at first. At the end of the session, special time was allotted to come up with possible surprises.
LUNCH	
Presentation of the revised scenarios	The presentations were done before lunch Observe and transcribe discussion & person The stakeholders were very interested in the different storylines and all four presentations got many questions. ▪ Reasoning for scenarios (which **arguments**?) ▪ Reactions from others (opposition/support **by whom**, on which **arguments**, non-verbal incl. disinterest)
Develop FCMs of the future for each scenario (small groups)	After lunch, the groups continued with the FCM's of the future. These were based on the storylines, so there were four groups, one for each scenario. The groups started over with the FCMs. They looked at the FCMs of the present, but decided to start fresh with a new FCM. There was a lot of discussion about the boxes that had to be put in, but all the groups seemed focussed on their task. Enthusiasm had changed into determination as all groups were set on showing something new and good. In the middle of this session there was a coffee break,

Possible activities and methods used in your meetings.	Observation of discussions and interactions
	afterwards the stakeholders finished the FCMs and continued with creating spidergrams. The break was necessary, because it was clear that the stakeholders were getting tired. Observe & transcribe the discussion **Who**, which **arguments,** Non-verbal reactions incl. disinterest ▪ How well participants have understood the methods and the process? (Are there knowledgeable comments and suggestions?; Is there confusion?) ▪ The level of common understanding ▪ Group's dynamics: who are the acknowledged experts? And who are not? ▪ Discussions between the old-timers and newcomers
break	
Presentation of the FCM of the future	The presentations were done with great enthusiasm. The presentations were also received well with the other stakeholders because at the end of these presentations there was applause. This is something that was not done during the rest of the workshop. There were once more many questions and discussions, but not a lot of time was available, because the FCM-building session had taken longer than planned. At the presentation there were already less stakeholders. From the 20 stakeholders that started, there were only 11 Stakeholders left, of which 5 female. Observe and transcribe discussion & person ▪ Reasoning for FCM ▪ Reactions from others (opposition/support **by whom**, on which **arguments**, non-verbal incl. disinterest) ▪ How well participants have understood the methods and the process? (Are there knowledgeable comments and suggestions?; Is there confusion?) ▪ The level of common understanding
Link with WaterGAP and local models	Observe & transcribe discussion Any reactions
evaluation of methods and process - feedback	mood-o-meter ☹ ☺ ☺ Ask Olga for results. The Stakeholders were positive about the outcome of the workshop. The stakeholders felt that

Possible activities and methods used in your meetings.	Observation of discussions and interactions
questionnaire	Sustainability First was the best scenario. Security first is the one scenario all the stakeholders want to avoid.
end	

Appendix 7; Cookbook PAWS1

Reader guide:

This cookbook is meant as example. Make sure that your planning for your workshop will have at least a similar level of detail as this cookbook; it will make your workshop run smoother. If you have already made a program, then use this cookbook as a guide to see how detailed you should be and of what kind of issues you should think (timing, goals, materials/resources). If you have other/better ideas for the methodology we described, please let me know.

When you have decided to use only a part of the methods, think about how you will overcome the gaps. Which goals do you now miss and how will you reach those goals in a different way. If you have changed the time planning within the workshops think about how you can make sure that you can reach your goals in that time frame.

Days before workshop:

- walk through your planning a last time; is everything arranged?
- Contact the stakeholders, are they still planning on coming?
- Is every bodies role clear? Observers are there to observe, they have no input. Facilitators facilitate, but do not steer the project.
- Have you thought about back up options? What do you do when something takes too much time, what do you do when stakeholders do not talk, etc.

The day after the workshop: Evaluate with the other facilitators and observers. Write down / elaborate all your ideas and thoughts on the workshop, and start analyzing the results. The observers should contact WP5, for their evaluation.

It is advised that also the facilitators write a half to one A4 with their ideas about the meeting, and how the methods worked.

'Cookbook' workshop 1

Workshop1; story of the present

time	activity	description	goals	material needed
Morning				
9.00 (at least 1 hour before start)	Check room check catering check beamer/laptop check if you have all necessary materials	Is the lay-out as you wanted, or do you have to change it? does the catering have the same program as you (and not maybe still an old version) is the beamer working with your laptop, or do you need assistance	making sure that everything will go as smoothly as possible.	beamer computer/laptop presentations
10.00	Arrival	coffee/thee		coffee/thee
10.30 10.35 10.40	Welcome, introduce yourself and helpers/observers program introduction SCENES goals	short introduction about meaning of project: what are the goals of SCENES, what are the goals for the Pilot Area, how will the program look like, what will be done in this workshop and what can they expect in the other workshops.	Inform stakeholders set clear goals openness	
10.45 10.45 10.50 10.55	Introduction of stakeholders max. 5 min explanation and introduction of yourselves, then start with someone who you think does not have problems with speaking in a group check if you get out of it what you want, otherwise think of ways to change it.	start with yourself, bring something nice/funny. Explain why you do it this way (so that people will remember each other better, and so that at the end already some of the main issues are known) each participant brings a picture/object that for him/her represents an important aspect of the Pilot Area. They shortly will tell their names and background	Getting to know each other ice breaking creating nice 'atmosphere' getting everyone to talk mapping biggest issues	picture/object to present yourself

11.00	make sure people don't talk to long. check now and then if you are on schedule.	write the main issues down, but out of side so that people don't start reading and waiting till you are done		flipover paper and felt tip pen to note down main issues
11.10 11.10 11.15 11.20 11.25 11.35	What are the important aspects in the Pilot Area? (Card-technique) Explain Hand out post-its, 3 pp. stress that it is individually. give them 5 minutes to write, start collecting and put them all together (make some clusters for you self, but in the end they decide!) get attention of whole group and start making clusters with the group (when clustering is almost ready, one of you starts adding them on the big spidergram)	Group similar aspects together (only throw away complete duplicates) and give each cluster a name. Make sure that the post-its and cluster can stay there (or somewhere else where everybody can see them) for the rest of the workshop, so that people can go back to them to look for the ideas behind the clusters. start making clusters for yourself	Mapping biggest issues, get input from all participants. get clusters that are understood and supported by whole group Useable as indicators? WP4	cards/glue/post-its place to group them (and write cluster names on: blackboard, overlay paper) felt-tip pens pens
12.15 12.15 12.20	spidergrams (individual, write name on it) explain spidergrams, handout papers with empty spidergrams. Present big spidergram with clusters on axis draw spidergrams (put names on them for tomorrow)	make spidergrams, using the clusters from the morning session. Give relative importance of each cluster (1-10) and connect points Everyone should use the same axis on the same place, to make comparison easy. (someone goes to check if lunch will be on schedule)	get an impression of importance of the different issues for each stakeholder. (can later be used for finalizing FCMs)	big spidergram (with clusters on axis) empty spidergams for the participants
12.30	LUNCH (mood-o-meter)	Talk with SHs to see how they think it is	Informal contacts with/between	

	☹ ☺ ☺	going. Evaluate morning; think about afternoon program, changes needed?	stakeholders. Time to take a deep breath.	

Afternoon				
time	*activity*	*description*	*goals*	*material needed*
13.50	start moving back to workshop room		start on schedule	
14.00	Introduction of FCM	Explanation of system thinking and FCM	to make sure that the participants know what to do and why it is relevant	presentation
14.00	explain that relations exist and that there are relations between the clusters they just made relations can have different strengths show simple FCM	examples from different field and area avoid examples with their clusters		
14.10	show possible output explain how FCMs will be used	don't go too much in dept.		
14.20	explain exercise explain reason for exercise time for questions			
14.25				
14.30	Split up in smaller groups use energizer to get them out of post-lunch dip.	Split up with mixing groups	get input from different fields in the different groups	depends on energizer
14.40	make sure it doesn't take too long			
14.45	Creating a FCM; write clusters on post-its and paste them on the flipchart discuss about relations	Let each group make a flowchart of the clusters -> look for feedbacks and relations	System thinking, getting a better understanding of relations between main aspects.	post-its flip-over paper felt-tip pencils pencils, erasers
14.50				
	think about missing issues/ things that can be clustered			
15.00				
	discuss relations (positive/negative)	Are the feedbacks positive or negative? But this can also already be done during when assigning relations		
15.10				

15.45	(check if coffee will be ready)			
15.50	*break*			
16.20	Creating a FCM; Assign values to feedbacks (++, +, -, --) ask /listen for reasoning behind feedbacks, polarity and strength! (and note them down)	How strong are they -> relative, max 6 scales of + and -. Using numbers is often difficult with stakeholders.	System thinking, getting a better understanding of relations between main aspects.	try to compute one FCM that is most completed as an output example.
16.45	see which group is fastest, start making matrix in Excel			Excel file with matrix usb-stick to transfer file
17.00	Compare the FCMs (plenary)	Let each group present their FCM, explain the feedback and why they are positive or negative (and how strong they are)	Further discussion, integrate different views,	
17.00	max 5 min per FCM			
17.20	what are the main similarities and differences? any new clusters added? any clusters removed? make sure that discussion is possible!			
17.30	present first results calculation discuss them, is it what they expected	give them an idea of what you can do with a FCM and what the results look like.		
17.45	Indicators list and timetrends	Discussion on which indicators are useful, start with concluding with the ones that fit the clusters derived on day 1.	Input for other WPs	list of indicators
17.45	talk about expected useful indicators / present list with indicators (WP1)			flipovers / ppt to write down new indicators
17.50	discussion on indicators			
18.00	chose the main indicators			

18.10	explain time trends and how they will be used (reference modes)	And make timetrends on expected changes of main indicators (individual/pairs)		papers to draw timetrends on (blank paper, if possible with preprinted axis.)
18.15	devite in groups (2-4 people)			
18.20	draw time trends of expected changes in indicators (business as usual)			
18.30	End of day 1 thank everybody! give program for evening tell how late tomorrow starts	wrap up- what has been done, how will it be used. give some idea about tomorrow (visioning)		
18.40 18.40 18.35	(mood-o-meter) ☹ ☺ ☺ hand out papers and explain idea and why they should fill it in let them fill them in	find out how SHs like the first day, make clear that feedback is welcome…	better facilitation, methods that better suit SHs	papers with the things you want feedback on or post-its, one for each aspect, let them draw smilies and paste it on at flipovers
Evening	Dinner and social events			

* use energizing group division: jigsaw, number clumbs, etc.

Workshop 1, day 2; Scenario building

time	Activity	description	goals	materials
Morning				
8.30	check if room layout is still ok, start up beamer start up computer welcome 'early birds'		are ready with preparing when 1st stakeholders come in	
9.00 9.10 9.15 9.25	welcome everybody Recap of day 1, show results of calculation of FCMs, try not to go into discussion on results, watch the time. explain what will be done with results show program of today	quickly show what has been done yesterday Shortly describe the current state of the system	Easy start, wake up time, check if everything was understood correctly show how much they did motivate SHs knowing what is expected from them	Excel doc with FCM results other results presented on the walls
9.30 9.30 9.40	Changes in the past presentation on changes in past explain that change is normal and will likely occur in the future.	short description of changes that happened in the Pilot Area and some discussion on 'normality of change'.	Understanding that change is natural.	powerpoint
9.45 9.45 9.50	Introduction of fast-track scenarios explain what a scenario is presentation of FTscenarios	Introduction of fast-track scenarios, presented in similar way as expected output (collage) explain it is 'only' a framework	Creating framework for local scenarios Getting familiar with scenarios and future thinking.	presentation

10.05	explain how they are made and for which level (Europe)			
11.15	short discussion on the scenarios, are they credible/ useable/relevant for PA	First discussion on how the current changes fit in these scenarios. Do the FT scenarios make sense for local circumstances		
10.30	*Break*			

11.00	Explanation of scenario development exercise	explain procedure of rest of the day, make sure SHs know what to do.	to make sure that SHs know what is expected as output.	presentation
11.20	split up groups	split up in four groups, one for each scenario		
11.30	Scenario development in four groups	Each group consist of broad array of SHs. They will create the local scenario, if possible within one of the four FT scenarios. Collages or rich pictures will be used.	four scenarios social learning collages summary of process (by facilitator)	
11.30	discussion on the given scenario: in which way is it credible/useable/relevant for PA?			
11.45	if Europe evolves in this way, how does that effect the PA?	FT scenarios are framework -> freedom within them -> what reasons given for divergent developments in PA.		
12.15	note down key words for the PAs future make sure everybody can provide input	do rounds and ask people who don't talk so much their opinion		
12.45	start looking for illustrations			
13.00	LUNCH (mood-o-meter) ☹ 😐 ☺	talk with SHs to see how they think it is going. Evaluate morning, think about afternoon program, changes needed?	Informal contacts with/between stakeholders. Time to take a deep breath.	

Afternoon				
time	**Activity**	*description*	*goals*	*material needed*
14.30	Development of scenarios continued	Create presentation, with a short story. Think especially about chances to system chancing feedbacks?	4 scenarios with a background story	see previous
14.45	think about relations from the FCM, how do they change?			
14.50	try to incorporate it in collage			
15.10	think about short storyline for presentation of collage; what are the main issues they want to tell the others about?			
15.20	presentation of scenarios and discussion (plenary)	presentation of the collage and the story behind it for each scenario.	inclusion of other views	
15.20	get whole group together.	discussion on each scenario on missing aspects, new ideas		
15.30	start with 1st group, each group 10 minute time (presentation + short discussion.			
	general discussion			
15.10				
16.30	*Break*			
17.00	Spidergrams (15 min)	develop spidergrams for the clusters of yesterday morning, how do they change under 'your' vision? (on 1 to 10 scale)	input for other WPs, input for development of FCMs of visions.	spidergrams from previous day. Use different color of pen to discriminate between present and future
	hand back spidergrams of yesterday, let them fill them in for their own scenario	use the 'old' spidergrams from yesterday		
17.15	wrap-up	what did we accomplish? Thanks for attending, hope to see them next time	make SHs feel that they really contributed something worth	

	explain what they did, and what you will do with it. Thank them, invite them for next WS		much.	
17.45	short survey for all SHs, including mood-o-meter ☹ 😐 ☺	how did they like it? Was it understandable? Where their voices heard? (in cooperation with WP5)	evaluation of methods and process	questionnaires
18.00	End (drinks?)			

(times for back-to-back workshop with Day 1, if separate, everything 1 our later)

Appendix 8; Cookbook PAWS2

Reader guide:

This cookbook is meant as example. Make sure that your planning for your workshop will have at least a similar level of detail as this cookbook; it will make your workshop run smoother. If you have already made a program, then use this cookbook as a guide to see how detailed you should be and of what kind of issues you should think (timing, goals, materials/resources). If you have other/better ideas for the methodology we described, please let me know.

When you have decided to use only a part of the methods, think about how you will overcome the gaps. Which goals do you now miss and how will you reach those goals in a different way. If you have changed the time planning within the workshops think about how you can make sure that you can reach your goals in that time frame.

Week before workshop:

Send the stakeholders a summary of the results of the first workshop, especially if you haven't sent material already. This way they can already get back into the subject again before the start. You will need to present all the material during the workshop again, but repetition never hurts.

Days before workshop:

- walk through your planning a last time; is everything arranged?
- Contact the stakeholders, are they still planning on coming?
- Is every bodies role clear? Observers are there to observe, they have no input. Facilitators facilitate, but do not steer the project.
- Have you thought about back up options? What do you do when something takes too much time, what do you do when stakeholders do not talk, etc.

During the workshop:

Put the material from the first workshop on the walls, so that they can be referred back to.

Desired output:

Final FCMs of the present

Enriched storylines

Updated spidergrams

1 FCM of each future system

The day after the workshop: Evaluate with the other facilitators and observers. Write down / elaborate all your ideas and thoughts on the workshop, and start analyzing the results. The observers should contact WP5, for their evaluation.

It is advised that also the facilitators write a half to one A4 with their ideas about the meeting, and how the methods worked.

Weak after workshop

It might be a good idea to create 1 combined FCM for the Pilot Area that can be used in the communication to the region and Pan-European panel.

1. What are the prospects for water use in the most important sectors in your PA?

This question addresses all society-oriented water system services.

We propose to include the sectors agriculture, manufacturing, energy, people, and industry (?). This question would also include conflicts between society-oriented water demands. We propose, for example, to ask the stakeholders to indicate the order of importance of sectors in case of water shortage. It also specifically includes water quality issues. The question needs to be further specified to include both the needs for WaterGAP and WP1(?) and WP4.

Of the remaining big questions, the following can be addressed here:
- What are the potential conflicts between sectors (excluding nature)?
- What are the emerging issues/problems?
- What is the role of climate change and how will it influence conflicts?
- Which surprises could influence the outcome of the scenario?

2. What is the future of the Water Framework Directive in your PA?

This question addresses all nature-oriented water system services.

This question will cover all aspects of the WFD, with specific focus on nature and good ecological status. Two sub questions were identified:

2.1 How and where will medium and long term changes in drivers affect compliance with the WFD?

2.2 What and where will be the greatest risks to compliance?

These questions include issues of water quality, water quantity, environmental flows, and climate change. The political, institutional, and socioeconomic aspects specific to the WFD that might slow or obstruct compliance are also included here.

Of the remaining big questions, the following can be addressed here:
- What is the role of climate change?
- How vulnerable is nature to changes in water resources?

3. What are potential conflicts, trade-offs, and complementarities between the society-oriented and the nature-oriented water system services?

This question links nature and society, emphasising conflicts, complementarities, connections and feedbacks between both sub-systems.

Given the inherently integrated character of the entire scenario developing exercise, we anticipate that many links between sectoral water use and impacts on nature and the functioning of the WFD will be made automatically. We decided to specifically include this third question to emphasise the added value of constructing integrated scenarios. Similar sub questions as valid for the first two questions can be posed here, yet the impact of climate change, for example, could be different than when considering sectors or nature only.

Naming of scenarios

We had a short discussion on the naming of the scenarios, during which we concluded that the original names of the GEO-4 scenarios can be misleading. This holds for both the PEP and the Pilot Area scenarios. New suggested names include Europe First (for Policy First) and Water First (for Sustainability First). We concluded that it is a good idea to stimulate the stakeholders to think of new names, as the stories diverge from the original GEO-4 scenarios.

Workshop 2; Scenario enrichment   Day 1

time	activity	description	goals
Morning			
9.30	Arrival	coffee/thee	
10.00	Welcome	short introduction about meaning of SCENES, where in process, very short overview of what was done in PAWS1, and what you did with results, etc.	Make purpose of project clear.
10.30	present old FCMs and explain the outcomes of calculations	inform new stakeholders, remind others of what was done, show analysis and possibilities to use the FCMs	information
11.00	first discussion on outcomes FCM		
11.30	present list of drivers from PEP1 and compare with list of issues in FCM. OR present CLDs and explain differences with FCM	Check if all relevant issues are incorporated in the FCM. But be aware to not create too many new issues. Best number of boxes in FCM is 10 to15.	to make sure all relevant issues are incorporated
12.00	start enhancing the FCM	try to keep the same groups working on the same FCMs as last time	
13.00	LUNCH (mood-o-meter) ☹ ☺☺		Informal contacts
Afternoon			
14.00	presentation of enhanced FCM		
14.30	plenary discussion FCMs	input from other groups	
15.00	presentation of visions from WS 1	show collages from scenarios, tell what SCENES did with it (create storylines, used for meta-analysis: comparison with issues FCM)	(re)introduction to scenarios. Get participants motivated.
15.30	*break*		
16.00	present outcomes regional /pan-European enrichment findings.	discussion on the new information -> changes needed? SH ideas about the new information show gaps between PA and region / PEP	cross-scale enrichment
16.30	present outcomes	discussion on the new	quantitative enrichment

		information -> changes needed? SH ideas about the new information unexpected model results?	
17.00	plenary discussion on visions	give newcomers possibility to give their view on the scenarios	get new views incorporated
17.30	start rewriting of the storylines small groups (same as WS1) with the use of the three main questions. keep the main results of the previous 2 presentations in mind	For each scenario: * what are the prospects of water use in the most important sectors in your PA? (take from FCM) * what is the future of WFD in your PA? * what are potential conflicts between society and nature oriented water system services.	better storylines, with more detail
18.15	short survey for all SHs, including mood-o-meter ☹ ☺ ☺	how did they like it? Was it understandable? Where their voices heard? (in cooperation with WP5)	evaluation of methods and process
18.30	end		

Workshop 2, day 2

time	**Activity**	**description**	**goals**
Morning			
9.00	Short recap of day 1 short recap of goal next session	Shortly describe what we want for the storylines, remind them about PEP and model results	
9.30	Continuation of rewriting of storylines small groups (same as WS1) with the use fo the three main questions.	see yesterday. Suggested format is a flipover with bullet points. It is also advised to come up with a new name for the scenario, that shows the character of the scenario.	better storylines, with more detail.
10.30	*break*		
11.00	plenary discussion of new visions		
11.30	influence of critical events on visions in small groups	how would a critical event / surprise (f.i. credit crisis) influence the visions? Ask a 'what-if'-question, and see how reactions will be under each scenario	make visions more robust
12.30	plenary discussion of critical events on new storylines		
13.00	LUNCH (mood-o-meter) ☹ ☺ ☺		Informal contacts

Afternoon			
14.30	change FCM of present to FCM for vision (in groups, 1 for each vision)	how did the system change under each vision, did some feedbacks became stronger or weaker? Start with present FCM. New boxes needed? Some relations severely changed?	input for new FCMs for each vision (together with spidergrams)
16.00	*break*		
16.30	plenary discussion on new FCMs of visions	give everybody the possibility to give their view on the feedbacks	
17.00	update spidergrams	ask stakeholders to revisit the spidergram they made for the future, do they want to make any chances?	see if learning process occured
17.15	wrap-up		
17.30	short survey for all SHs, including mood-o-meter ☹ 😐 ☺	how did they like it? Was it understandable? Where their voices heard? (in cooperation with WP5)	evaluation of methods and process
17.45	end		