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Participatory methods for water resources planning

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Abstract. The Water Framework Directive institutionalises participatory processes in river basin planning across the European Union. This paper reports on three case studies from southern Europe where conflicts over water exist. In each a different method for participation was experimentally employed: scenario workshops, mediated modelling, and social multicriteria evaluation. Scenario workshops and mediated modelling proved well suited to the early stages of a planning process (problem solving and identification of goals and alternatives) and to be good at educating participants and supporting capacity building. Their performance was less satisfactory with respect to resolving long-standing conflicts and achieving consensus. In comparison, social multicriteria evaluation was better able to address the evaluation of alternatives, reveal trade-offs, and aid convergence between divergent stakeholders' views, but it relied more heavily on experts and allowed less participation and deliberation in goal-setting than the other two methods. These results show complementarities amongst methods which imply that hybrid or combined approaches would be best for aiding the water planning process. They also reveal problems confronting the use of participatory approaches and constraints which prevent theoretical promise from being converted into practical results.

1 Introduction

There is a growing policy emphasis on the involvement of stakeholders and the public in water resource planning and decisionmaking (Global Water Partnership, 2000). In Europe, participation in water resource planning gained a new institutional stature with the Water Framework Directive (WFD). This calls for the "active involvement" of all interested parties in the implementation process and particularly in the production, revision, and updating of River Basin Management Plans (Article 14; Council of the European Communities, 2000). Planning methods that combine public participation with decisionmaking functions are therefore increasingly in demand (Commission of the European Communities, 2002).

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In recent years there has been a growth in experimentation with such methods within the context of environmental decisionmaking (Holmes and Scoones, 2000). Commonly applied methods include: focus groups, citizens' juries, multicriteria evaluation, mediated modelling, scenario workshops, consensus conferences, participatory and rapid rural appraisal, and 'planning for real' (for reviews see COSLA, 2002; van Asselt and Rijkens-Klomp, 2002). Promotional literature supporting participatory methods often suggests that they can deliver both procedural benefits (for example, dialogue) and substantive outcomes (for example, consensual decisions or action plans). Procedural benefits have been well documented, leading to the use of participatory methods as learning and awareness-raising tools, but substantive policy impacts appear less common. There is a lack of accumulated research critically assessing alternative participatory methods in terms of their applicability and limitations in different contexts (Holmes and Scoones, 2000; Shipley, 2002). Public agencies, facing the implementation of the WFD, need to know the extent to which they can rely upon different participatory methods to achieve planning objectives.

Here we report the lessons learned from a project (ADVISOR) funded by the European Commission, which aimed to investigate the advantages and disadvantages of different participatory methods in the context of the WFD (Antunes et al, 2002). Three methods were applied experimentally in three catchments in southern Europe: a scenario workshop (SW) on the island of Naxos, Greece, mediated modelling (MM) in the Baixo Guadiana, Portugal, and social multicriteria evaluation (SMCE) on the Costa del Sol, Spain. Each case study is presented in turn in the following three sections, which cover a description of the method, the site, the application, results, and a brief coverage of the most relevant findings. In section 5 we then critically compare the three methods and relate them to different decisionmaking goals and planning stages. Cross-cutting issues emerge in terms of the challenges faced when applying these methods in order to achieve their theoretical promise, and this leads to conclusions on the challenges facing the general class of such participatory methods.

2 The Naxos scenario workshop

The origins of can be traced to technology assessment and the use of visioning methods to appraise possible futures (Andersen and Jaeger, 1999; Street, 1997). Scenarios have been used extensively both in conventional strategic and environmental planning (Mexa, 2002) and to facilitate public dialogue (Guimarães Pereira and Funtowicz, 2003; Rotmans et al, 2000). An SW event typically runs two or three days. Figure 1 details the three basic stages of an SW. In the preparatory phase, organisers draft and send to a preselected list of stakeholder-participants four contrasting scenarios about the future of the system or issue under question. In vision making, typically the first day of the two-day workshop, participants use the scenarios to articulate, discuss, and finally agree upon a future vision statement. The rationale behind this (resting partly on insights from psychology and organisational science) is that, in seeking a common vision and liberating discussion from the burden of the present, the 'widest common ground' is meant to be found without forcing or compromising. Focusing on a future goal aims to energise idea generation (Weisbord and Janoff, 2000). In the next day or phase of idea generation and action planning, participants 'back-cast' and identify the measures required to help realise the vision they developed during the first day. Possible actions are debated in detail, voted upon, and ranked, and barriers and opportunities for their implementation identified. For each resulting set of measures participants are expected to create implementation partnerships which allocate tasks, define resources, and set a timetable. The result is an 'action plan'.

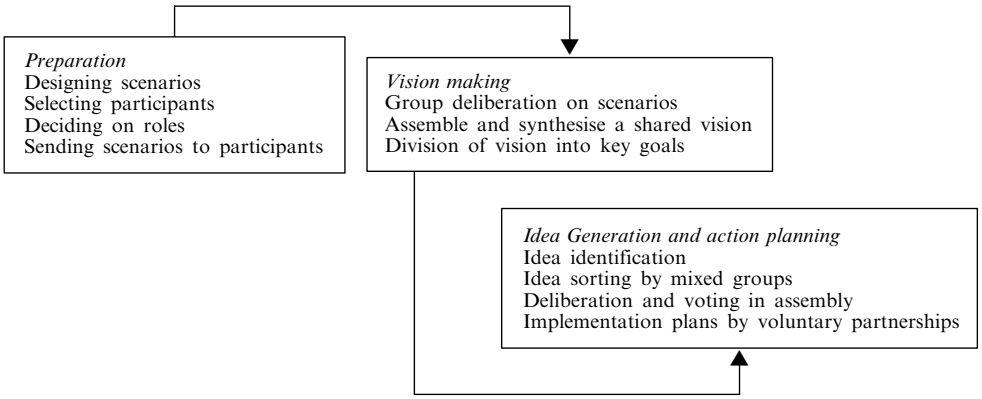

Figure 1. Stages of a scenario workshop process.

The SW approach was applied to the island of Naxos in Greece. Naxos is located 103 nautical miles southeast of Athens. For water management purposes, the whole island is considered as one catchment. Naxos has 18 000 in habitants, a semiarid climate (annual average rainfall of 397 mm) and high variability in interannual precipitation. Zero rainfall is typical during the summer months when the population increases two to three fold thanks to tourism. In the 1990s Naxos started copying neighbouring islands which had rapidly expanded 'sand, sea, and sun' tourism. This created relatively intense urbanisation of the coastal zone. The mountainous hinterland has remained predominantly rural and agricultural. Tensions over development opportunities abound between farmers and the tourism sector and between the two municipalities of the island, which are depicted in figure 2 (over): the coastal and predominantly tourist service-oriented municipality of Naxos and the mountainous and rural Drymalia.

Access to and allocation of water have been central sources of tension. Although total natural water availability exceeds demand, transferring water from downstream reservoirs and boreholes to the upstream, mountainous villages is prohibitively expensive. Coastal settlements have continuous water services, whereas hinterland mountainous village networks have water for only a few hours per day and face prolonged cuts in the summer. Conflicts between users are intense in dry years; for example, in 2000 supply of water from reservoirs to farmers was stopped to secure availability for coastal settlements and tourist facilities. Controversy surrounds the allocation of water from a surface reservoir being constructured on the border of the two municipalities (the Faneromeni Reservoir depicted in figure 2). Despite the cost of pumping water to the mountainous villages, Drymalia demands water from the reservoir, or other compensation for giving up what it considers as 'its' share. Furthermore, although the new reservoir was planned by the Ministry of Agriculture for irrigation, the lack of an irrigation network prevents water transfer to the islands' farms. As a result, the municipality of Naxos plans to use the water exclusively to supply drinking water to the coastal settlements.

Water resource management in Naxos, as in most of Greece, proceeds through ad hoc decisions for the financing and construction of new water works by central authorities (ministries) and ad hoc allocation and network policies by the municipalities. Local administrative structures are weak, with limited human and financial resources and expertise. Hence, there is no long-term strategic or operational planning but instead management responds to demands as they arise (that is, recently to

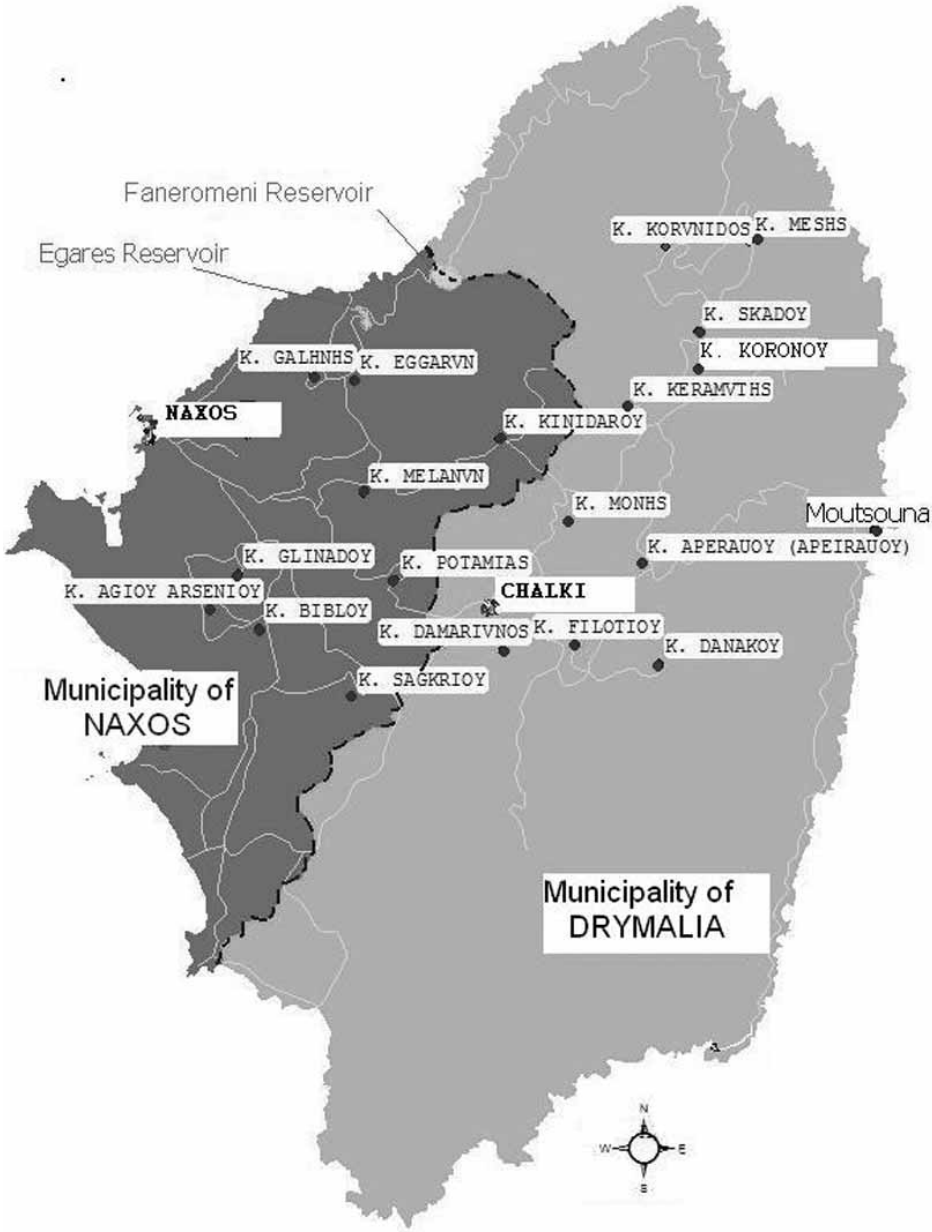

Figure 2. The Island of Naxos, Greece.

coastal tourism). The SW was conceived by the organisers as a method for initiating long-term planning of water resource management in Naxos and for broadening the dialogue between the competing parties and the community at large.

The Naxos SW was run over two days (1 – 2 November 2003). The thirty-six participants were selected after analysis of the key actors involved in water management and through interviews in which interviewees indicated 'key stakeholders'. Attention was given to obtaining representation of women and younger people. A balance was maintained in terms of the number of representatives from authorities, the production sectors, scientists and experts, and citizens.

Four scenarios for water management in Naxos in the year 2020 were formulated on the basis of a review of existing datasets and studies and interviews with stakeholders. Draft scenarios were discussed with locals and tuned to reflect accurately the realities on the island. The four scenarios differed in their underlying 'world-views', expressed in the desired island development and the technical, institutional, and social prescriptions for water management. The 'business-as-usual' scenario (S1) was for growth of mass tourism served by a large waterworks managed by central government authorities. The other scenarios were: (S2) economic modernisation of the island, and globalisation-fuelled growth with the use of new water technologies and privatised water utilities; (S3) balanced development, environmental protection, an emphasis on water conservation, and small-scale technologies with local public administration; and (S4) radical 'ecology' with self-sufficiency, communitarian self-organisation, and a dramatic reduction in water consumption. These scenarios were presented both in a technical format (including elaborated assumptions, data tables, and spatially differentiated demand forecasts) and in a 'user-friendly' form of imaginary letters written by visitors to Naxos in the summer of 2020.

The vision-making stage used four internally homogeneous groups (policymakers from Drymalia with representatives of the agriculture sector; policymakers from Naxos with representatives of the tourism and commerce sector; experts; and citizens with representatives of nongovernmental organisations) in order to obtain contrasting positions. Each group presented their visions in an all-inclusive assembly and, with the help of a trained contracted facilitator, a shared vision was reached. Participants described this vision as a combination of S3 with a touch of technology from S2 and autonomy and self-sufficiency from S4. The vision stressed a diversified island economy in which income and job opportunities for the young would be provided by a 'soft and qualitative' tourism sector while competitive advantage in quality agricultural products was also exploited. Water in sufficient quantity and quality would be secured primarily through water conservation and new waterworks, both technologically 'state of the art' and based on 'traditional knowledge'. Participants debated the organisational structure of the water sector, favouring decentralisation and public control, but without agreeing on the appropriate division of state, regional, and local competencies.

On the second day, participants were divided by the organisers into four thematic subgroups, corresponding to each of the key goals raised in the vision: good water quality, sufficient water quantity, conserving water, and institutional reorganisation. This time groups were deliberately 'mixed' as the goal was to synthesise different stakeholders' views into a common set of actions and to energise partnerships around their implementation. Ideas were prioritised by voting. Each thematic group voted for the three most popular ideas. The assembly then voted and ordered the twelve final ideas. Each participant had five votes to use as he or she wished. In total, more than sixty ideas were recorded, with the three scoring highest being: (1) school education programmes on water saving, (2) repair and preservation of rural land terraces to control rainwater flow, and (3) the establishment of a laboratory on Naxos to analyse water quality. Participants wanted a distinction made between local and tourist-related uses in planning for and allocating the water supply, and also proposed an intermunicipal authority to govern water allocation and manage reservoirs.

The Naxos experiment demonstrated that SW works particularly well as a platform to foster awareness, mutual learning, dialogue, and can open up a public debate. An evaluation questionnaire was administered which showed that almost all participants felt deeply satisfied with the quality of the dialogue and contrasted it with the traditional lack of cooperation and intense conflict on the island. Debate matured quickly and was aided by the scenarios having linked development and water. The discussion

over visions led to a broader debate on issues of democracy and sustainability. Scenarios worked particularly well in promoting long-term thinking and in breaking away from standard decision time horizons. For example, when a mayor referred to the insurmountable barriers in realising the vision, other participants reacted by stating that "much can change in twenty years". The method also performed well at mapping key issues and alternatives, and getting bottom-up input, especially from people who are traditionally excluded from the debate. Several ideas and proposals arose, and these were in stark contrast to the technocratic official debate which has focused exclusively on dams, boreholes, and desalination.

Nevertheless, despite the above successes, there were several problems and the theoretical promise of the SW was unfulfilled. Most participants complained about voting with little information and time. Focusing on a broad vision tended to exclude detailed treatment of information, complexity, and uncertainty. Attempting to use external 'experts' to provide information backfired as their partiality almost destroyed the trust built up amongst local participants. In addition, issues of the legitimacy and representative nature of the participants made agreement on any action contestable and prevented presentation of results as the 'consensus of the community'. The goal of the workshop had to be reframed during the process from agreeing on an action plan to a prioritisation of 'ideas to be investigated further'. The workshop failed to produce either an actual implementation partnership or any indication that the policymakers attending the event planned to consider implementation of the prioritised ideas.

3 Mediated modelling in the Baixo Guadiana

MM draws upon the principles of system dynamics, which assumes the presence of structural cause–effect relationships, and the ability to disentangle observed phenomena into a defined set of variables. The tangible goal of MM is to interactively construct qualitative or quantitative models at the 'scoping level'. Such models have high generality and low resolution in order to help understand dynamic behaviour patterns, rather than attempting to predict precise outcomes (van den Belt, 2004). Scoping models may be further developed into more detailed and complex research or management models. Qualitative models consist of conceptual diagrams depicting the main variables (and associated cause–effect relationships and feedback loops) that describe a dynamic system. Quantification of the model variables requires the synthesis of information disclosed by participants, and its conversion into a computer-based model (Vennix, 1996). The computer model can then be used for policy analysis by comparing and evaluating the results of different simulation runs, which correspond to alternative 'what-if' scenarios. According to the MM methodology, only a quantitative model equips participants with a tool which is capable of analysing the dynamic consequences of different management scenarios.

A typical MM project develops in a series of two to four modelling workshops (each usually being an intensive full-day meeting). The number of participants in these exercises ranges from small (5–12) to large (50–100). The main interactive model-building stages are detailed in figure 3 and include: problem definition, conceptualisation, specification, and policy analysis. Each consecutive stage is usually developed in distinct workshops, although the tool is flexible and variations can be easily introduced into the process. A mediated modeller, using visually oriented modelling techniques and software, facilitates the workshops. Apart from the modelling workshops—the core platform for deliberation—MM involves preparatory activities (establishing the stakeholder group, introductory interviews, and a preliminary model) and follow-up activities (interviews, reports, and model training).

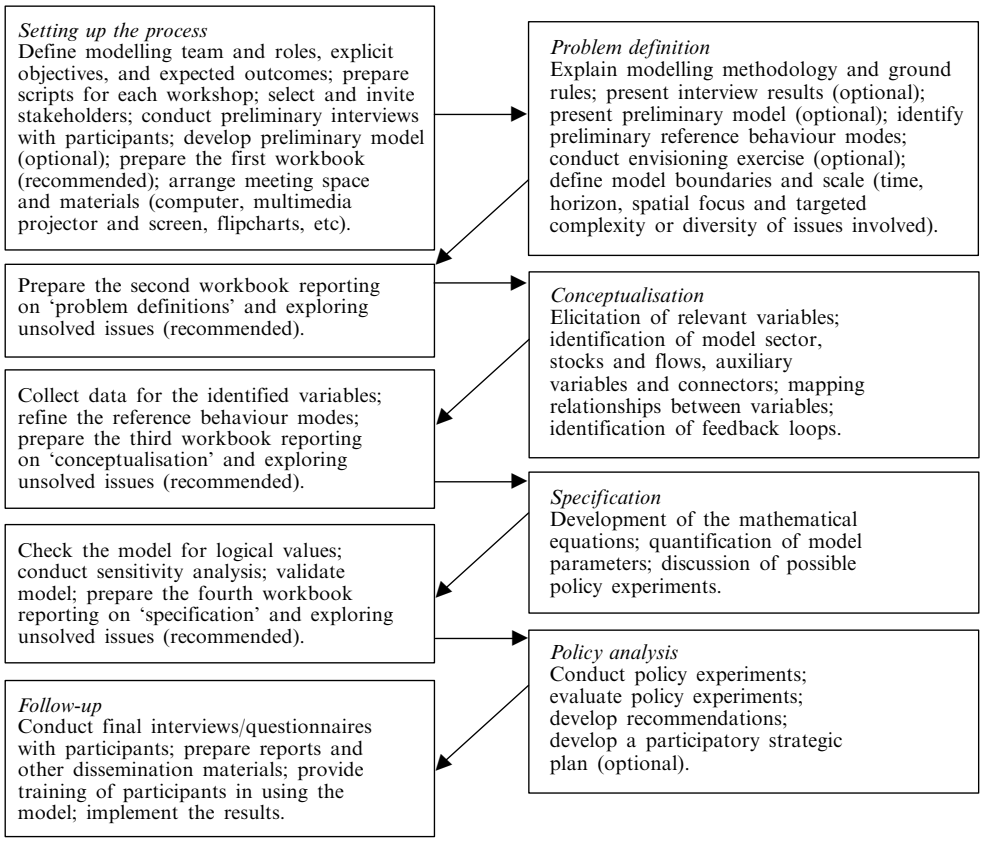

Figure 3. Stages of a mediated modelling process.

The MM technique was applied in the Guadiana river basin (total drainage area of 66 800 km^2) on the border between Spain and Portugal (see figure 4, over). The Portuguese side of the Guadiana (17%) has been selected as part of the Pilot River Basin Network for the integrated testing of WFD guidance documents. The large number of dams built upstream, on both sides of the border, affects the quantity of water reaching the southern part of the basin, the Baixo Guadiana, with implications for domestic water supply to half of the Algarve region, fisheries, agriculture, the salt-making industry, and tourism. The Baixo Guadiana is also an area of high nature conservation value, including the first Portuguese area to be classified as a Natural Reserve (Castro Marim and Vila Real de St.º António Saltmarsh, 2089 ha designated in 1975). Conflicts of interest and values occur between landowners (and other project promoters) and the saltmarsh managers. The MM exercise aimed to develop a shared and integrated view of the problems facing the region, in the context of the WFD, and also to initiate a debate over strategic planning options for the lower Guadiana river basin.

The MM process started with a stakeholder analysis to create a preliminary list of eighty-six participants. Those agreeing to participate were then interviewed to identify key problems affecting the Baixo Guadiana. The main issues identified were water salinisation, sediment inputs, opportunity costs to landowners from nature conservation restrictions, and development of sustainable forms of agriculture and tourism.

The first workshop (held 13 February 2004) had three main objectives: scoping out the pressures and impacts associated with the current problems in the Baixo Guadiana,

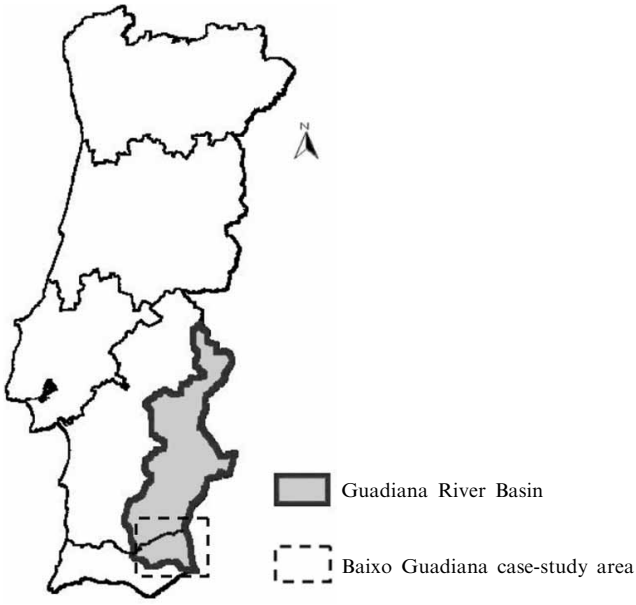

Figure 4. The Guadiana River Basin, Portugal.

facilitating the development of an integrated qualitative model (a causal diagram) for those problems, and raising awareness among the group about the challenges of participation in the implementation of the WFD. This workshop was attended by fifty-seven participants. The group included forty-three representatives from twenty-nine organisations (national water authority, two protected areas, regional directorates for the environment, agriculture, and economics, local municipalities, regional development associations, environmental associations, producers' associations, research institutes, and tourism developers) and fourteen property owners. This provided a mix of decisionmakers, technicians, scientists, and local citizens. However, some elevant organisations failed to send a representative (for example, domestic water supply firms and regional Spanish administrations). Participants collaborated in the development of a qualitative model addressing the problems identified during the preliminary interviews. A facilitator asked for the selection of a 'problem variable' relating to each problem to be placed at the centre of a diagram. Next, the possible causes of the problem were identified. For instance, 'positive links' were built between the construction of physical barriers upstream, altered flow regimes, and water salinisation. This meant, ceteris paribus, an increase in the construction of physical barriers was identified as leading to an increase in altered flow regimes (decreasing downstream water quantities) which could in turn cause water salinisation. Once problems and cause had been discussed, both the consequences of problems and any possible closed loops were identified.

All stakeholders were invited to a second workshop (29 March 2004) although this time only twenty-seven stakeholders attended. The participants worked in two groups for half a day each. They collaborated in the development of the conceptualisation tasks of a quantitative model (see figure 3), which focused on the issues addressed by the integrated causal diagram developed in the first workshop.

The third and final workshop (2 June 2004) gathered, for half a day, with a total of twenty participants. A quantitative model (developed between meetings on the basis of information supplied by participants) was used to simulate and analyse alternative

management scenarios for the Baixo Guadiana area. For example, the model allowed participants to discuss the effects of implementing different projects which have been proposed for the area (for example, restoration of the saltmarsh, construction of a waste-water treatment plan, recovery of saltmarshes). State indicators, such as 'natural capital index' and 'water quality', allowed cross-comparisons. The process culminated in the group defining a list of strategic objectives and measures which would support integrated and participatory planning for and management of the Baixo Guadiana. Participants were also asked to return a questionnaire to evaluate the results of the MM process.

The qualitative modelling approach used in the first workshop appeared suited to early large-group problem scoping. This approach worked very well at developing an integrated and shared view of the pressures and impacts in the area, and also gave structure to group discussions which aided information synthesis using simple cause – effect relationships. Participants could easily follow the modelling process and contribute to the identification of causal links between the variables. The approach provided a transparent and interactive communication platform, which fostered team learning while providing room for dissenting voices to be heard (for example, the initial conflicting positions between landowners and nature conservationists were addressed in a collaborative fashion). In eliciting and structuring mental constructs, MM formalised the linkages between the different problems. This aided recognition of the underlying feedback processes and interrelationships between sectors (for example, salinisation and intensive forms of tourism both contribute to modification or destruction of habitats). The model also highlighted possible intervention points which could be addressed as the structural causes of problems.

However, there are mixed messages from the case study. On the positive side, the simulation model obtained in the final workshop successfully supported the strategic assessment of alternatives and facilitated the analysis of trade-offs. Quantitative modelling proved well suited to addressing complexity and for making participants more comfortable with it, as shown by their structuring of the model. The evaluation questionnaire showed that the technicalities of the method did not estrange the majority of participants at the final meeting. On the negative side, the participation rate decreased dramatically over the workshops, and therefore the quantitative model failed to achieve full potential in terms of engaging people in the planning and decisionmaking process. Some local decisionmakers justified their absence from the final meetings with agenda constraints. However, they may well have regarded time-consuming modelling events as relatively unimportant, especially since the MM process was not institutionally or politically promoted and controlled.

4 The Costa del Sol social multicriteria evaluation

Multicriteria evaluation (MCE) refers to a set of methods used to support decision-making processes with the analysis of alternatives, taking into account conflicting interests and multiple criteria, usually including economic, social, and environmental factors. In participative MCE, evaluation results from a panel of participants. Social MCE aims to overcome the limitations of participatory processes: it emphasises the cyclic nature of all stages, transparency as an essential component of the evaluation, and reflection and mutual learning between researchers and participants (Munda, 2004). Thus it complements MCE with a set of social science techniques, including institutional analysis (analysis of regulatory framework, media, economic, and political processes), in-depth interviews, questionnaires, participant observation, opinion polls, and focus groups.

Figure 5 (over) shows the SMCE methodology applied in the Costa del Sol case. This process was based upon the NAIADE model (Corral Quintana, 2002; Munda, 1995).

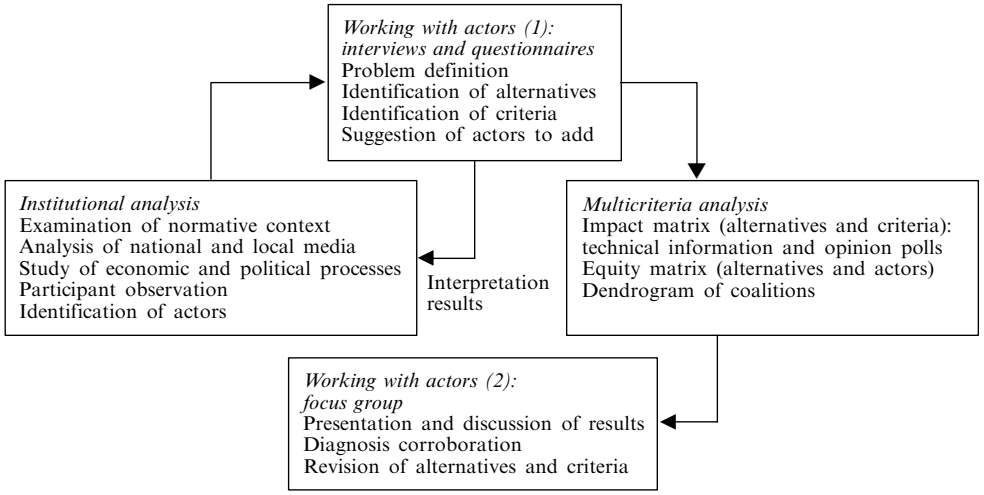

Figure 5. Stages of a social multicriteria evaluation.

NAIADE has been used within participatory contexts to trigger debate and dialogue in the context of water resource management in Sicily (De Marchi et al, 2002) and groundwater governance in southern France (Guimarães Pereira et al, 2003). Initial research ('institutional analysis') is followed by a series of interviews with the pre-selected stakeholders in which alternatives, criteria and additional stakeholders are identified. Next, the MCE is carried out by the organisers and analysts. NAIADE can report two types of evaluation. The first is based on the score values assigned to the criteria of each alternative and produces an 'impact matrix'. The second analyses the value judgments of the stakeholders involved in the evaluation process for each alternative by using an 'equity matrix' and coalitions or groups of stakeholders prepared to defend an alternative, depicted in a dendrogram form. Results of the evaluation are then deliberated with stakeholders in a final focus group, leading where necessary to revisions, and potentially an agreement to a provisional action plan.

The current case study was the Costa del Sol Occidental, Malaga, Spain (figure 6). Costa del Sol is located in the southern end of Spain on the Mediterranean coast, to the east of Gibraltar. The area has experienced rapid growth in tourism and residential development transforming the sociodemographic and economic structures. Population growth was 19% between 1996 and 2001, compared with 2.8% for the region of Andalusia as a whole. Tourism in the summer months triples the population. Urbanisation and tourism growth have increased congestion and land overdevelopment. Average available water resources are around 140 Hm^3 per year. Although the average rainfall in the area is relatively high, annual levels vary significantly (over 1200 to under 300 mm). Periods of drought have led to competition and conflict between water uses, aggravated by uncontrolled growth in water demand and a lack of long-term planning. Responses have tended to be reactive emergency measures. Problems are exacerbated by the conflict between central government and the regional authorities over water management powers, and especially by the failure of the river basin authority—the Confederación Hidrográfica del Sur, under the Ministry of the Environment—to establish adequate channels for public participation.

SMCE was applied to assess the alternatives for improving water supply in the area. According to the guidance of the EC, 'interested parties' should be identified and analysed by conducting in-depth interviews among a random sample of all potential stakeholders (Commission of the European Communities, 2002). The selection of

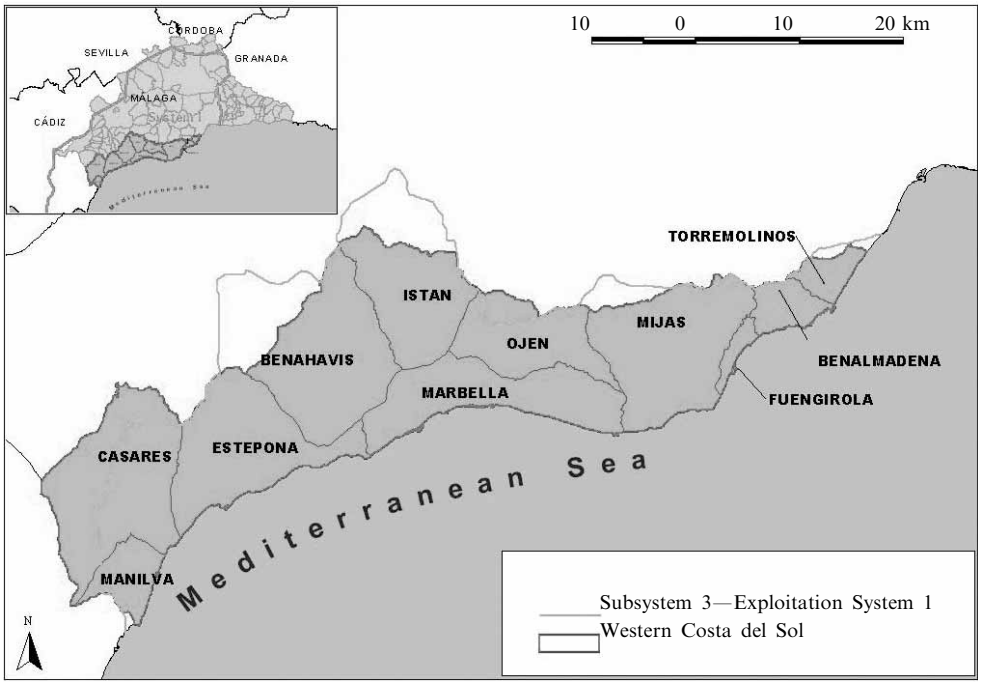

Figure 6. The Costa del Sol, Spain (source: Paneque, 2003).

stakeholders used analysis of the legislative framework, national and local press (some 1200 newspaper articles), and the suggestions of the first stakeholders interviewed as to who else they believed should be included. This helped identify individuals, and public and private organisations playing an active part in the regional water debate. A total of sixteen stakeholders was selected, providing a balance between the public authorities, business organisations, and nongovernmental organisations. Limiting the maximum number of participants prevented the inclusion of important stakeholders (for example, eleven local administrations). Other key stakeholders refused to participate despite repeated invitations (for example, the association of urban developers).

Interviews and a follow-up questionnaire were used to ask these stakeholders to provide an assessment of the current situation and propose water management alternatives and criteria by which to evaluate them. The alternatives proposed and accepted by the majority of the stakeholders dealt with hydraulic works to augment water supply, measures for demand management, and urban development controls. However, identification and agreement on the criteria (economic, environmental, and institutional) for the evaluation proved more contentious as stakeholders felt that some criteria were unclear or overlapping.

On the basis of the alternatives and criteria identified by the stakeholders, an impact matrix was constructed by the analysts with value scores for each of eight proposed water management alternatives, according to eleven evaluation criteria. The matrix was based upon data from specialised literature and technical reports, including quantitative, qualitative, crisp, and fuzzy values. The results allowed a comparison of the alternatives and generated a ranking according to the selected criteria. An equity matrix was constructed by using the value judgments made by the participating stakeholders in their written questionnaires. The equity analysis also gave information about the position of each stakeholder with respect to each alternative, and the possible formation of coalitions among them to defend or veto a given alternative.

This allows an insight into which alternatives are more likely to be accepted, although the highest ranking alternatives may prove least feasible as determined by the power of each stakeholder or coalition of stakeholders.

Once the alternatives had been evaluated using NAIADE, a focus-group meeting with the participation of eleven stakeholders was held (1 December 2003) in Malaga to present and discuss the research process that had been carried out and to provide all those who had been involved with an opportunity to comment on and discuss the issues they considered relevant. This entailed conveying, sharing, and correcting the information collected, and discussing the results. This group involvement proved very important as new alternatives arose: specifically reforestation of the basin, which proved the most strongly supported by all parties present. However, this last meeting also revealed the unwillingness of powerful actors to participate in the process, when representatives of the tourism sector and the Confederación Hidrográfica del Sur refused to attend.

The open and participatory discussion process brought to light unconventional judgments of the situation, changing the identification of solutions and the prioritisation of alternatives. In particular, emphasis shifted from new hydraulic works to the reuse of wastewater, the modernisation of irrigation systems, and improved efficiency and water-saving measures in the urban supply system. Although conventional measures to develop resources were also considered important they were not a top priority. The main issue appeared to be poor water resource management rather than resource scarcity (which is the official diagnosis). The process showed how a structured but open discussion framework allowed reevaluation of the problem. Of course, actual policy change would require acceptance of the alternative position by those in positions of power, some of whom refused to participate.

A drawback of SMCE was that it depended extensively on analysts (interviews, performance of the evaluation, and equity matrices) and that there was no deliberation between stakeholders in problem scoping and identification of alternatives or criteria. Stakeholders thus may feel more 'estranged' from the process and its results, than say in an SW or in an MM.

5 Comparison of the results

Comparing different methods requires a conceptual frame within which key elements are identified. In this section the link is made between the practice used by the three methods and their theoretical promise of addressing key decisionmaking goals: namely, addressing ignorance, resolving conflicts, and enabling policy results. First, the essential features that differentiate the three methods are identified. Then in the context of these differences, the advantages and disadvantages of each method with respect to the three key decisionmaking goals are evaluated. This leads to an identification of the water resource planning tasks to which each method can best contribute. In section 6 we go further in discussing some cross-cutting issues of concern with participatory methods.

On a practical level, a participatory method can be classified in terms of: (1) the selection and composition of participants (for example, identified stakeholders, random selection, open invitation); (2) the platform used for deliberations (for example, groups, panels, forums, workshops, polls); (3) the tools used to facilitate deliberation and aid choice (for example scenarios, models, or multicriteria matrices).

All three applications presented in this paper were based on the same selection process: that is, preselected stakeholder groups (of varying sizes). They all used similar platforms based on workshop group deliberations. Furthermore, all three shared an approach whereby the participatory events were complemented by preparatory and

supportive work carried out by the research teams (for example, interviews, scientific analyses, reporting). In SMCE these activities played a decisive role because interview and survey were used to formulate the matrices. In MM the preliminary interviews provided a blueprint for the discussion in the first workshop and workbooks were produced by the research team to assure continuous feedback to participants throughout the process. Procedural differences between the methods included the multiworkshop sequence of MM versus the single-workshop structure of SW and SMCE, and the additional use of a public survey by SMCE.

The essential difference between the three methods was in the distinctive tools or aids that each employed. The tools structure the deliberative process and affect the nature of mental and learning processes fostered, and the type of substantive outputs delivered. For example, scenarios reveal 'common ground' by basing deliberation on desirable futures, and deliver a consensual planning statement in the form of a desired future vision. Models promote learning by appreciating complex systems dynamics, and produce a consensual model of problem dynamics. Multicriteria matrices contribute to a better appreciation of options and trade-offs and deliver an impact and equity ranking, which also characterises divergence between stakeholders. Such differences determine the applicability of the methods for different decisionmaking and planning purposes and to these we turn below.

Three categories of policy goal can be linked to the theoretical promise of participatory approaches: (1) addressing ignorance through discursive education, (2) reducing conflict by consensus seeking and (3) contributing to concrete policy outcomes via commonly agreed implementation strategies (Holmes and Scoones, 2000). Under this conceptualisation, a participatory process can contribute to three policy goals (education, consensus seeking, and policy implementation) by achieving set objectives as shown in table 1. Objectives can be instrumental to more than one goal; for example, objectives instrumental to policy implementation require some degree of capacity building amongst participants which addresses outstanding conflicts. At the same time, achieving objectives will be constrained by time and resources for running any

Table 1. Goals and objectives of participatory decision processes (source: after Holmes and Scoones, 2000 based on Button and Mattson, 1999).

Goal	Description	Objectives
Education	Aims for participants to learn about a problem or issue	Information provided *to* participants Local information *from* participants Mutual expert–citizen learning; coproduction of knowledge Conflict exposure, unconstrained discourse Appreciation of differences in values
Consensus	Aims to produce shared agreements between participants on issues, values, or actions	Agreement on 'win–win' solutions Resolution of conflicting issues
Implementation	Aims to deliver direct political, legislative, or other policy results	Produce a substantive specified output (for example, an Action Plan) Improve instrument design for achieving results efficiently and effectively Determine means for effective incentive provision via management instruments

process and each participatory method is best suited to only a limited range of objectives.

In terms of education, each method has different strengths and weaknesses. Evaluation questionnaires in Naxos documented an appreciation of the active-learning aspects of scenario building; the majority of participants praised the 'unprecedented' dialogue that took place between island stakeholders in the workshop and linked this success to joint work in scenario deliberation and vision making. On the other hand, many participants also complained that the general, all-encompassing nature of visions concealed real trade-offs, and hence differences in values were inadequately exposed. Furthermore, they felt that the workshop failed to provide the necessary level of scientific information in order to make informed choices on the best ideas for an action plan. In comparison with SW, the system-dynamics emphasis of MM appears to have helped immerse participants more in the complexity of problems. Ability to 'play' with model variables exposed trade-offs and interdependencies and provided an active way for participants to appreciate how their actions affected the system, something that the SW lacked. Similar learning features were also delivered by SMCE. The equity matrix allowed a deep appreciation of differences in values, exposing the roots of conflict. On the other hand, the future orientation of scenarios and their more flexible structure and content (compared with models or matrices) facilitated unconstrained discourse, the emergence of innovative ideas, and creative thinking.

Consensus seeking was also emphasised in different ways by the three methods. Scenarios encourage participant appreciation of 'common ground', hence paving the way for consensual solutions. However, although vision making serves to diffuse conflict and shift attention to win – win opportunities (Weisbord and Janoff, 2000), this does not necessarily help resolve important conflicts. In Naxos some stakeholders complained that discussion over the controversial new reservoir was suppressed, in favour of less contentious solutions such as a water education programme. This SW also confirmed Shipley's (2002) observation that the pressure for agreements shared by all leads to watered-down visions that provide a weak guide for action. Although MM has been successfully used in the past as a tool for fostering consensus (van den Belt, 2004), the quantitative model-building stage of the Baixo Guadiana exercise moved away from this goal. Advancing the development of the simulation model required compromise, the 'I can live with it' facilitation rule because time was unavailable for conflict exposure and resolution. Although, the Costa del Sol focus group had no explicit conflict-seeking design, the SMCE appears easily amenable to combination with conflict-resolution techniques: for example, a negotiation process to deliberate over the equity matrix and agree on a final ranking of alternatives for an action plan.

The initial implementation goal of all three applications was the production of an action plan for catchment management in each case-study area. Each method found this to be an overambitious expectation given time and resource constraints. Whereas promotional literature often portrays individual methods capable of producing consensual action plans within their limited period of time and number of events, in the ADVISOR project it was asserted that useful policy outcomes require participatory processes with much longer time frames. Furthermore, as each method has certain advantages and disadvantages a combination of methods appropriate to different decision-making needs vis-à-vis policy or planing stages, appears a much better strategy than relying on a single method. This in turn raises the importance of understanding the 'stages' of the planning process at which each method might be best targeted so as to improve policy effectiveness, and to this we turn below.

To facilitate discussion, and admittedly overabstracting from complex, real-world decisionmaking, a stylised water resource planning process can be thought of as

consisting of the stages of: problem scoping; goal setting; identification of alternative measures and evaluation criteria; evaluation and ranking; and agreement on an implementation plan of selected measures. River basin planning in the WFD follows this logic whereby river basins should be characterised and problems identified, ecological objectives set, measures to achieve them identified and compared upon cost-effectiveness and other criteria, and finally a programme of measures agreed upon and implemented (Council of the European Communities, 2000).

The strong educational and discursive components of SW and MM make them suitable for the first stages of this planning process. MM in particular, with its emphasis on the creation of shared mental models, appears ideal for problem scoping and for early capacity building by participants. The Baixo Guadiana case also demonstrated that MM can be used for the identification of pressures and impacts, a task useful for the characterisation of a river basin. The future-oriented, visionary aspects of SW make it ideal for goal identification (goals can easily be inferred from the shared vision). Visioning provides a more structured way of identifying goals than that provided by MM, in which the loose proposal of goals contrasts with the more formal modelling process. SW and MM also appear well positioned for the active generation of alternatives by the participants (through the idea-generation process in SW, and interactions with model building in MM). In comparison, the SMCE approach to the same tasks is more passive and less participatory, because it relies upon the analysts' work (literature reviews) and interviews, rather than structured participatory deliberations. These complementarities hint at potential hybrid methods or combined applications of the methods. For example, an SMCE design which allowed for deliberative events in the SW or MM spirit to identify goals and alternatives.

None of the methods appeared to be particularly well suited to aid the identification of evaluation criteria. In Costa Del Sol, stakeholders were unable to elaborate on criteria and resorted to general economic, environmental, and social ones; analysts had to take an active role in drafting a provisional list of criteria and then offering these for consideration. Initial plans by SW and MM organisers for deliberation over evaluation criteria for ranking alternatives went unrealised because of a lack of time. Those participatory processes explicitly designed to deliver a set of evaluation criteria should be expected to produce more articulate results, although this remains untested. Indeed, there can be a divergence between the ways in which people might best articulate their values or concerns and the needs of a particular participatory method.

The relative weaknesses of SW in conflict-resolution and consensus-reaching functions make it less useful for the decisionmaking stages of a planning process (for example, evaluation of alternatives or selection of measures, and consensus on an action plan). In the Naxos case the goal of producing a comprehensive action plan was abandoned; only a vision and list of proposed alternatives were produced. The MM case achieved production of a list of alternatives and planning goals. Nevertheless, both SW and MM appeared to lack depth in terms of deliberation over alternative solutions. SMCE in comparison is explicitly designed for evaluation (impact matrix) and for consensus seeking (equity matrix). It also allows for the use of additional sources of information and other types of evaluation (scientific, technical, or economic), which improve the defensibility of rankings. Furthermore, SMCE supports 'feedback loops' relating to learning in the planning process, that is, deliberation and evaluation of alternatives contributing to a refinement of a problem, options, goals, and criteria.

An issue that merits more consideration concerns the limitations of the participatory identification of alternatives. Letting stakeholders freely identify the alternatives runs the risk of comparing 'apples with oranges' because alternatives may be expressed

at different levels of generality or refer to different characteristics (for example, educating schoolchildren on the value of water versus upgrading treatment to reuse wastewater). Furthermore, integrated water resource planning emphasises 'packages' and combinations of mutually supportive measures; however, stakeholders may propose individual solutions, failing to see the 'larger picture'. An action plan consisting of ranked individual measures may fail to capture the integrative potential and economies of scale presented by combined solutions (for example, there is little sense in choosing between education and new technologies because education should support the adoption of new technologies as part of an integrated policy). Evidently, this shifts responsibility to analysts for combining, aggregating, or rejecting measures, but this can conflict with the principle of unconstrained deliberation and participants' sense of 'ownership' of the final outcome.

6 Limitations of participatory methods

A comprehensive plan, as opposed to statements of general intent, requires that actors take ownership of the process and that their efforts can be implemented in practice. This is where a research project diverges from an institutionalised application aiming to deliver agency or government goals and backed by legislative power. Nonetheless, even the 'experimental' application of the participatory methods in this project yielded some important insights into potential constraints and problems faced by participatory methods in policy application. Here we explore four specific issues with respect to the role of participatory methods, reflecting upon the experience gained from the case studies. These are: representation; the use of information; tensions between unconstrained deliberation and institutionally set goals; and the role of participatory processes within the overall institutional context.

All three applications used a type of a preselection of participants based on 'stakeholder analysis'. Stakeholder representation has several limitations. For example, when focusing on politically active community personas or groups there is a tendency to confine the search to the existing policy networks. Furthermore, stakeholders neither necessarily represent their constituency 'for everything, all the time' nor do they always have the power to pass their decisions or changed preferences to them (Holmes and Scoones, 2000). In southern Europe social interests are seldom clearly organised and articulated by interest groups or organisations, in contrast to 'northern – western' societies from which the participatory methods originate. Party politics and affiliations are often much more important. Participatory workshops may turn out to be more a collection of active individuals than of groups' representatives. Furthermore, questions of legitimacy are raised if community personas or groups, 'losers' in representative processes (for example, elections or party politics), manage to influence community decisions through participatory processes. Whereas stakeholder-based representation is sound if the goal is to ease conflicts and seek consensus between powerful groups, there are several other possible selection rules which might be appropriate when a more inclusive 'community verdict' is sought (for example, open or random invitation of participants). But they are not without their own disadvantages (Holmes and Scoones, 2002). Ideally, input from different processes with different selection rules should be combined with input from legitimate democratic structures to achieve sound and defensible decisions. In practice, time and cost, as well as potential participant fatigue, may prevent this.

Use of scientific information and data appeared to be an issue in all three applications. In the Naxos SW participants complained that they could not propose and vote on measures to achieve the future vision, as they had very limited knowledge of the facts (for example, water availabilities, and costs and feasibility of alternative measures). As Holmes and Scoones (2000) note, lay people may be capable of identifying some

overlooked solutions or probing local specificities of generalised policies, but they are not necessarily capable of choosing between alternatives or understanding the interrelationships between local and external factors (this relates also to a tendency to 'externalise' problems beyond the spatial and organisational borders of the system under discussion). Methodologically, MM and SMCE are better positioned than SW to incorporate scientific information. In MM, scientific information is input to quantify the qualitative model and in SMCE to formulate the matrices. In both cases, data-collection and computation tasks are undertaken by the research team (with some consultation of participants in terms of pointing to sources of data). All three applications, however, reported that there was a notable lack of previous studies and available data. This is the rule rather than the exception in countries with poor monitoring and administrative systems. More seriously, existing data are typically produced by administrations or other bodies with a 'stake' in the decision; challenging this 'partial' knowledge is the very essence of a participatory method. Collecting additional data for sound deliberations can be extremely intensive in terms of research, resources, and time, if possible at all. SMCE can, in principle, analyse qualitative evaluations of alternatives, based on 'experts' judgments', but even vested interest groups seldom possess substantive 'knowledge' covering a range of different alternatives. In the Naxos SW an invited 'expert' (a consultant contracted by the region to prepare a water-supply – demand model for the island) found his presentation proved controversial because his analysis failed to distinguish views from facts or to discuss data uncertainties. This expert refused to debate scientific information in an open and deliberative way, and those objecting to his presentation lacked adequate knowledge or alternative sources of information to confront him. There is inadequate research covering how participatory methods can be supported by and linked to formal procedures for: providing quantitative information, building the capacity of participants to use and debate information, and assuring the 'quality' of information [for example, a 'protocol for quality assurance' as used by the MM research team (see Corral Quintanta and Guimarães Pereira, 2004)].

Any participatory method rests on the idea that participants are free to structure the process and determine its goals and outputs. Yet, although desiring participation, the WFD, for example, also sets very specific, ecologically-related constraints which may be neither appreciated nor shared by communities. Constraining public discussion on how to achieve the predefined goals of the WFD may jeopardise the very idea of engagement and participation. Indeed, none of the three applications reported here managed to address the ecological objectives of the WFD, although this was an initial concern of the research. In Naxos, for example, the initial focus on ecological objectives estranged stakeholders who were unaware of the WFD and suspicious of an externally imposed environmental agenda. As a result of preliminary deliberations with stakeholders, researchers decided to leave the goals of the debate open (adopting the title 'sustainable water management'). In practice this meant that mainly 'quantitative' water management issues of which the stakeholders were aware and which interested them were addressed. This implies that leaving the debate open to various combinations of economic, social, and environmental goals may lead to a watering down of legislation-set ecological objectives. Such pressures are expected to be the most intense in such socioeconomic contexts as those of the three applications where there are few, mainly exogenously defined, economic opportunities, leaving less room to manoeuvre between ecological constraints and economic growth.

The above raises the broader issue of how participatory methods and processes match with existing policymaking processes and institutional arrangements (Holmes and Scoones, 2000). One possibility is their use as a consultation mechanism by agencies (for example, for setting ecological objectives under the WFD). An increasingly

observed second possibility is their use by motivated citizens and organised interests who have the resources to run them outside of established institutional arrangements and without assistance from government actors (Plein et al, 1998). Whereas consultation strengthens decision relevance, it may estrange citizen-participants and increase the leverage of decisionmakers in the process itself (knowing the administration will have the 'final' word). Bottom-up participatory processes may increase community ownership of the outcome, but raise issues of democratic legitimacy (who decides who participates; how are differences resolved; how are power and information asymmetries addressed, etc?) Indeed, concerns for the political legitimacy and the positioning of participatory methods within existing democratic structures were raised on some occasions by participants during the applications. The experimental nature of the applications and their loose linkage to actual policy processes meant that these concerns did not have to be explicitly addressed. A challenging question, however, for other practitioners, who have also developed processes in similar experimental or 'quasi-political' contexts, is whether the relatively liberated, 'bipartisan' dialogue and radical agreements would be realised if the process really *did* matter. There are good reasons to suspect that the greater the decision impact of a participatory process, the more the process would be governed by power games, strategic behaviour, and attempts by powerful vested interests to capture the process.

7 Conclusions

In this paper we tested the applicability of three participatory methods for water resource planning. Contrary to common promises, concrete policy outcomes proved substantially removed from the type of end outcome achieved. Instead, different participatory methods, or even different designs of individual methods, can be identified as serving different decisionmaking objectives. For example, SW and MM can promote collective learning and educate the participants whereas SCME may help resolve conflicts and rank alternatives. In the context of the WFD, this calls for a more careful selection of participatory methods in terms of the planning and decision tasks being addressed. To this end there is a need for a thorough review of existing applications of participatory methods and for more comprehensive classifications of different methods and designs according to different decision features.

Furthermore, there is fertile ground for methodological experimentation with innovations in prototype methods to address additional decision features. The development of 'hybrid' methods could combine features from different tools, for example, conflict-resolution techniques in an SMCE. Different tools, platforms, and selection processes could be combined with more traditional decision aids (for example, opinion polls) and several events to increase the legitimacy of a decision process. For example, key elements of the three methods presented here could be used together, sequentially, to support the development of a river basin management plan.

This research also confirmed that, although the procedural benefits of participatory methods are strong, there are important limitations to their instrumental contribution to decisionmaking. This can be the result of structural socioeconomic and political barriers but may also reflect deficiencies in methods and foundational limitations of participatory decisionmaking. The latter relate to: making scientifically sound decisions in a context of limited data and knowledge and high complexity and uncertainties; power, resource, and information asymmetries; and representation and, by extension, legitimacy of the processes. The more participatory processes begin to matter, the more there will be efforts from vested interests to control them. Importantly too, there is a tension between commitment to unrestricted inclusive deliberative participation, and the unavoidable requirement to comply with constitutional, institutional, or policy rules

expressing public choice which have been set at different organisational and spatial scales. This poses the crucial question of how such participatory processes can become operative within existing institutional structures.

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References

Andersen I E, Jaeger B, 1999, "Scenario workshops and consensus conferences: towards more democratic decision-making" *Science and Public Policy* **26** 331 – 340

Antunes P, Videira N, Kallis G, Santos R, Lobo G, 2002, "Integrated evaluation for sustainable river basin governance in Europe", in *Proceedings of Third Iberian Congress on Water Management and Planning* (University of Seville, Seville) pp 161 – 166

Button M, Mattson K, 1999, "Deliberative democracy in practice: challenges and prospects for civic deliberation" *Polity* **31** 609 – 637

Commission of the European Communities, 2002 *Guidance on Public Participation in Relation to the Water Framework Directive—Active Involvement, Consultation and Public Access to Information, Common Implementation Strategy* Working Group 2.9, Brussels

Corral Quintana S, 2000 *An Integrated Methodology for the Exploration and Comprension of the Elaboration of Public Policies* (in Spanish) (EUR 19724 ES, Italy)

Corral Quintana S, Guimarães Pereira Â, 2004, "Protocol for Quality Assurance of Information and activities undertaken in the Portuguese case study of the ADVISOR Project", WP3 report of the ADVISOR project (EVK1-CT-2000-00074)

COSLA, 2002 *Focusing on Citizens: A Guide to Approaches and Methods* Convention of Scottish Local Authorities, Edinburgh

Council of the European Communities, 2000 *Directive of the European Parliament and of the Council Establishing a Framework for Community Action in the Field of Water Policy: Joint Text Approved by the Conciliation Committee* 0067(COD) C5-0347/00

De Marchi B, Funtowicz S O, Lo Cascio S, Munda G, 2002, "Combining participative and institutional approaches with multicriteria evaluation: an empirical study for water issues in Troina, Sicily" *Ecological Economics* **34** 267 – 282

Global Water Partnership, 2000 *Integrated Water Resources Management* background paper 4, Technical Advisory Committee (Global Water Partnership, Stockholm)

Guimarães Pereira Â, Funtowicz S, 2003, "Methods for citizen involvement in new governance: reflections based on three empirical cases" *Technikfolgenabschätzung—Theorie und Praxis* **2** 57 – 62

Guimarães Pereira Â, Rinaudo J D, Jeffrey P, Blasques J, Corral Quintana S, Courtois N, Funtowicz S, Petit V, 2003, "ICT tools to support public participation in water resources governance and planning: experiences from the design and testing of a multi-media platform" *Journal of Environmental Assessment Policy and Management* **5** 395 – 420

Holmes T, Scoones I, 2000, "Participatory environmental policy process: experiences from North and South", WP 113, Institute for Development Studies, University of Sussex, Brighton, Sussex

Mexa A, 2002, "The scenario method in strategic environmental planning" *Topos* **18 – 19** 215 – 227 (in Greek)

Munda G, 1995 *Multicriteria Evaluation in a Fuzzy Environment: Theory and Applications in Ecological Economics* (Physica, Berlin)

Munda G, 2004, "Social multi-criteria evaluation: methodological foundations and operational consequences" *European Journal of Operational Research* **158** 662 – 677

Paneque P, 2003 *Evaluación integrada de la gestión del agua en territorios vulnerables a riesgos hídricos: aplicación a la Costa del Sol Occidental (Málaga* [Integrated evaluation of water management in risk-prone areas: application in Costa del Sol Occidental, Malaga], doctoral thesis, Department of Humanities, University of Pablo de Olavide de Sevilla, Seville

Plein L C, Green K E, Williams D G, 1998, "Organic planning: a new approach to public participation in local governance" *The Social Science Journal* **35** 509 – 523

Rotmans J, van Asselt M, Anastasi C, Greeuw S, Mellors J, Peters S, Rothman D, Rijkens-Klomp N, 2000, "Visions for a sustainable Europe" *Futures* **32** 809 – 831

Shipley R, 2002, "Visioning in planning: is the practice based on sound theory?" *Environment and Planning A* **34** 7 – 22

Street P, 1997, "Scenario workshops: a participatory approach to sustainable urban living?" *Futures* **29** 139 – 158

van Asselt M B A, Rijkens-Klomp N, 2002, "A look in the mirror: reflection on participation in integrated assessment from a methodology perspective" *Global Environmental Change* **12** 167 – 184

van den Belt M (Ed.), 2004 *Mediated modeling: a system dynamics approach to Environmental Consensus Building* (Island Press, Washington, DC)

Vennix J, 1996 *Group Model-building: Facilitating Team Learning Using System Dynamics* (John Wiley, Chichester, Sussex)

Weisbord M, Janoff S, 2000 *Future Search: An Action Guide to Finding Common Ground in Organizations and Communities* (Berrett-Koehler, San Francisco, CA)