

Readiness and willingness of the public to participate in integrated water management: some insights from the Levant

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Abstract

Although public participation has received much attention in the context of integrated water resources management, little is known about the readiness and willingness of the wider public to participate. The top-down perception that the public is poorly organised, has limited knowledge and is not interested in participation is a major barrier for the implementation of participation. We illustrate, through four medium-scale surveys in the Levant, that the potential for public participation is present, even in countries with limited exercise of democracy. The study demonstrates that the public is willing to participate and knowledgeable about water management challenges at both the institutional and household level. These conditions for participation are particularly present in countries where water stress is high. The preferred style of participation is active involvement, in order to have a channel to communicate, express opinions and exchange personal understanding of the situation in which one lives.

Keywords: Bottom-up versus top-down views; Cross-national comparison; Environmental governance; Integrated water management; Public participation

1. Introduction

Integrated Water Resources Management (IWRM) as an aspirational approach to sustainable development is based on a participative model of access to both information and just decision-making processes (ICWE, 1992; UNCED, 1992; UNEP, 1992; UNECE, 1998; CEC, 2000; GWP, 2000). However, the transition to participative forms of environmental resources management is a pressing

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issue, particularly in countries where climate change is stretching the availability of environmental resources such as is the case for water in the Levant (Eastern Mediterranean) (Lancaster & Lancaster 1999; Roudi-Fahimi *et al.*, 2002; UNDP, 2003; World Bank, 2003; Karousalis *et al.*, 2006). Public participation has been attributed with the virtues of enhancing good governance, promoting sustainable development and meeting the needs of concerned populations (UNEP, 1992; UNDP, 1993; UNECE, 1998; ADB, 2003; CIS, 2003). The principle of participation derives from an acceptance that people are at the heart of both change and development (Parenteau, 1988; Goulet, 1989; Blair, 2000). In this paper, we study whether such aspirations, based as they are on ideals from deliberative democracy, can be worked out and yield results in situations where this basic principle is not embraced wholeheartedly or is compromised by wider sociopolitical considerations. We conducted a grounded investigation using household surveys in four countries of the Levant: the Amman Zarqa Basin in Jordan, Chekka Bay in Lebanon, the Tartous Mohafaza in Syria, and Gökova Bay in Turkey, as indicated in Figure 1. Our work elicited the local population's knowledge of water management challenges and their attitude towards participation. This has led to intriguing and surprising findings, challenging expert perceptions or expectations.

Ker Rault & Jeffrey (2008) identified a number of barriers to the implementation of public participation related to the stigmatisation of society. Interviewed experts perceived the public as (inter alia):

- not sufficiently well organised to be involved in water management debates (other than through water users'/farmers' associations);
- not aware of environmental problems;
- lacking a holistic appreciation of water management.

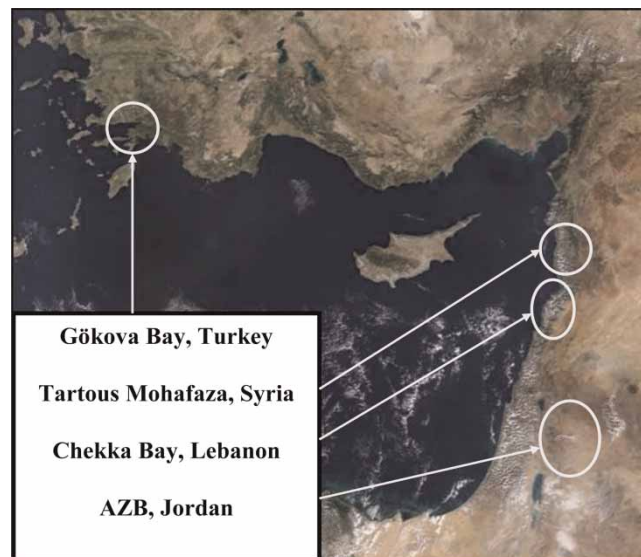


Fig. 1. Map of the four study areas in the Levant (Source: adapted from http://visibleearth.nasa.gov/view_rec.php?id=4201 and <http://veimages.gsfc.nasa.gov/4428/Turkey.A2002264.0845.500m.jpg>).

The reasons given by the experts interviewed were that the public is poorly educated compared with decision-makers and lacks an interest in environmental issues – except maybe for the young generation. In other words, the public is perceived as having limited readiness and willingness to participate in IWRM challenges. ‘Why should they and how?’

As the public is inhomogeneous, one also needs to assess the extent to which socio-demographic and awareness descriptors might structure respondents’ attitudes and knowledge towards water management challenges and their willingness to be involved in water debates. The questions addressed in the study reported below are:

- What is the individual knowledge of water management challenges at the river basin level in the Levant?
- What is the wider public’s attitude to public participation in water management: their experience, willingness to participate and expectations of public participation?
- Are there statistical correlations between (a) sociological descriptors such as gender, age, level of education, (b) perceptions of the need to improve water management and (c) the level of understanding of water management challenges?

Following a review of current awareness of public participation in water management, we present the questionnaire survey used in the study, the exploratory value of a medium-scale survey, and the survey quality assurance process. To elicit the public’s knowledge, respondents were asked to indicate the extent to which water management challenges are present in their river basin and what suggestions for improvement they have. To elicit willingness to participate, the respondents were asked if and how they want to participate in debates, for example, through direct or indirect involvement. The discussion on the readiness and willingness of the wider public to participate in water management is articulated around physical water scarcity (Total Actual Renewable Water Resources (TARWR)) and the governance regime.

2. Public participation in integrated water management

Just as there is no common detailed understanding of and objective for IWRM, so the definition and objectives of public participation remain ambiguous (UNESCO, 2006). Public participation or any synonymous term is much like motherhood and apple pie, everybody agrees on the principle but understandings quickly diverge once it comes to implementation and practice (Webler *et al.*, 2001). Indeed participation is a ‘catch-all’ term, with as many objectives as there are stakeholders, leading to a loss of specific and consensual meaning (Roberts, 1995; Webler, 1999).

Managing water is complex not only because of the necessity to encompass several types of qualitatively different systems, but also because it concerns everybody – a range of experts, of sectors, of institutions, of associations of users. Different powers, beliefs and uncertainties may potentially lead to disputes and conflicts. There is a need to reconcile rights and duties over water management within and outside the public sphere prior to defining an integrated water policy, but also to query which type of participation is perceived as suitable for IWRM. Since the concept of public participation is not well formulated, stakeholders (whether power holders, experts, academics, citizens, etc.) might

disagree with the scope of activities implicitly or explicitly included within the concept by others (Söderberg & Kärman, 2003).

The implementation of public participation for IWRM faces many challenges when deconstructing it in terms of what, who and when. These three elements are interlinked, affecting both the content and process of public participation (Ker Rault, 2008). One of the challenges to initiate public participation identified in a previous study (Ker Rault & Jeffrey, 2008) is the top-down view that the public is unwilling and not ready to participate in IWRM, at least in the case-study areas.

Little is known about the wider public attitude towards participation, little is known about the readiness and willingness of the wider public to participate, and even the aspirational approach that public participation is promoting sustainable development is a top-down approach. In this paper we address particularly this challenge: involvement of the wider public in water management challenges; so we are not prevented by assumptions related to whether the public wants to participate, what they know and what their perceptions are.

3. Methodological framework and explorative value of the social survey

In line with the postmodern approach adopted in this research (Giddens, 1984; Denzin & Lincoln, 1994; Hajer, 1995; Charmaz, 2000; Flyvbjerg 2001, 2006; Briant, 2003; Clarke, 2003; De Marchi, 2003; Bergman & Coxon, 2005), one must be aware that knowledge and understanding of the real world are by nature incomplete; uncertain; subject to cultural, political and behavioural factors; and subject to *a priori* theoretical framing; this is referred to as 'epistemic uncertainty: the uncertainty due to the imperfection or our Knowledge' (Walker *et al.*, 2003, p. 13).

The purpose of the four surveys is exploratory and explanatory and is realised through comparative analysis. Consequently the value of the four surveys reported below is to provide some insights about the understanding of water management challenges, the perception of the urgency to improve water management practices and outcomes, and preferences for participative modalities and objectives. Although there is no claim of sample representativeness or statistical significance in the medium-scale surveys, basic statistics (percentage of categorical, ranking of preferences, correlation factor) help to organise and structure the exploratory value of the survey and to compare results.

Consequently, to gain validity, comparability, credibility, and to ensure comparability of the four cases, quality control has been ensured from the questionnaire as presented in Figure 2.

3.1. Description of the questionnaire

To identify the knowledge of the public on water management issues and their willingness to participate in the debate, we conducted 1,800 household surveys across the four countries. They yield rich quantitative and qualitative data on attitudes to public participation in water management. Extensive quality control actions were undertaken throughout the design, implementation and data analyses phases. The questionnaire consisted of 46 items: socio-demographic descriptors (gender, age, level of education – five items), knowledge of the drinking-water cycle (six items), attitudes to participation (six items), water uses/water quantity (five items), water uses/perceptions of water quality (seven items), responses to water policy mechanisms (11 items), and socio-demographic data (six items). The design of the questionnaire was the result of prior investigation and is in line with the Grounded

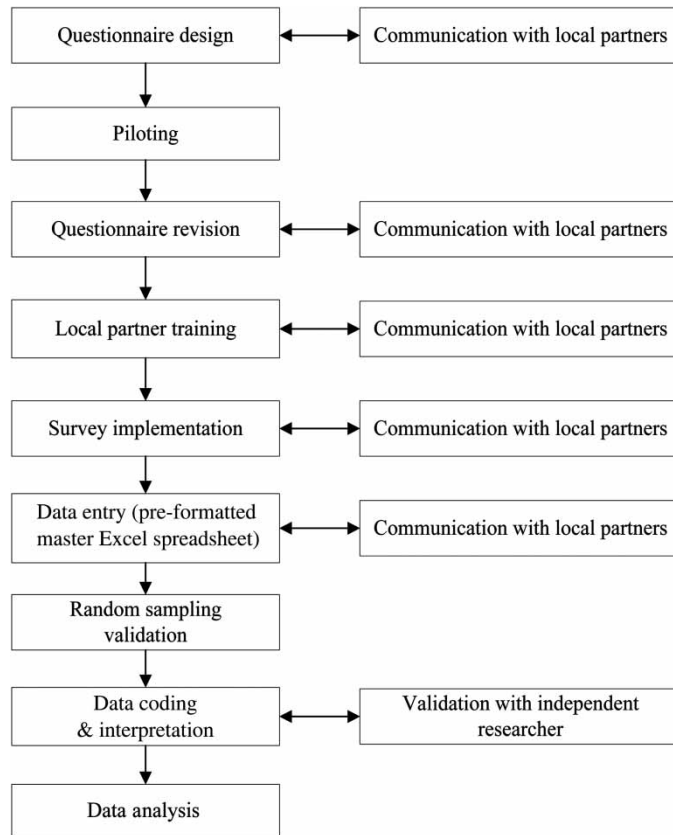


Fig. 2. Flow chart of social survey's quality assurance process.

Theory Methodology: eight expert scoping interviews and 60 initial questionnaires addressed to local stakeholders (Ker Rault & Jeffrey, 2008). The presentation of the results focuses on only nine questions as the most pertinent to inform this article's goals (Table 1). The survey was conducted in collaboration with other research institutions (presented in Table 2). The full questionnaire is available in Ker Rault (2008).

3.2. Survey quality assurance

To ensure that a respondent understands the questions as intended by the research team, the questionnaire was tested with both English and translated versions. Questionnaires were independently translated into Jordanian Arabic, Lebanese Arabic, Syrian Arabic and Turkish by local researchers. Reciprocally, answers provided by respondents should be understood by the researcher as intended by the respondent. Survey implementation guidelines contributed to quality control. The survey was implemented in association with local, appropriately experienced partners, each administering at least 400 surveys (Table 2). Partners were trained to implement the surveys.

From data input to translation and interpretation (coding, classification and statistics), careful consideration must be given to data handling processes. Consistency of data input was ensured by

Table 1. Questions informing key research topics, response format and type of analysis.

Key topics	Sub-theme	Questions as reported in the article	Response format	Analysis
Individual knowledge of water management challenges	Perception of need to improve water management	Q1 – How urgent is the need to make more effort to manage water efficiently in your region?	Likert response format (Very urgent, Urgent, Neutral, Not urgent, Not at all urgent)	Descriptive percentage
	Suggestion to improve water management	Q2 – If you wanted to influence the way that water is managed in this region, how might you do this?	Open, verbal answers (open coding)	Suggestions / non suggestion, % of categories, Very Rich Answers
	Suggestion to reduce household water consumption	Q3 – If you are prepared to help reduce your household consumption, which two ways would you do this?	Open, verbal answers (open coding)	Suggestions / non suggestion, % of categories
Attitudes to participation	Experience & familiarity with PP*	Q4 – Have you ever been asked for your views on water management in this region or attended a meeting where water issues were discussed?	Closed (Yes, No, Don't know)	Percentage of categories
	Who asked	Q5 – Can you tell me who asked you ...	Nominal	Descriptive
	When	Q6 ... and when this happened?	Nominal	Descriptive
	Willingness to be involved in water management	Q7 – Would you like the opportunity to be involved in discussions and debates on the present and future management of water resources?	Closed (Yes/No)	Descriptive percentage
	Preferred type of involvement	Q8 – You have stated that you would like to be involved in discussions and debates, through which type of method would you like to participate?	Rank pre-defined categories of answers (theoretical coding)	Average of rank
	Reasons and objectives for participating in water issues	Q9 – Why would you like to be involved in a public debate over environmental and water resources management?	Rank pre-defined categories of answers (theoretical coding)	Average of rank

*PP: public participation.

providing each local partner with an identical pre-formatted master Excel spreadsheet. Quality control for data input was ensured through checks on correct entries (data input) from the original paper questionnaires into the master spreadsheet and through direct clarification of specific translated answers to avoid misinterpretation. The developed codes and classifications were repeatedly reviewed using subsets of the data for individual countries and comparing between the four study area data sets. The final step

Table 2. Social survey implementation.

Study area	Implementing partner	Implementation period	Questionnaires executed & analysed
Jordan	Department of Statistics, Jordan University	March–April 2006	600
Lebanon	IPSOS	May–June 2006	402
Syria	Central Bureau of Statistics, AECS	November 2005–February 2006	400
Turkey	Department of Statistics, Hacettepe University	February 2006–March 2007	401

to enhance consistency in interpretation of the rich text responses was further categorisation of the answers by an independent researcher using the classification constructed by the first author (Figure 2).

4. Results

As presented above, the perceived hurdles to initiating public participation were the view that the public has little awareness of the need to improve water management and that the public has little knowledge on the issues. A strong interest in the need to manage water more efficiently would facilitate the initiation of public participation. In this section we report the results of the survey addressing (i) individual knowledge of water management and (ii) attitudes towards participation. The strategy for reporting the results is twofold. First, results are presented by themes. This provides a comparison between countries for each key topic. Second, pertinent and suitable data for cross-tabulation analysis are presented per country to build a coherent picture of the perception of public participation in water management.

4.1. Readiness to participate: individual knowledge of water management challenges

The Jordanian and Turkish cases present similar patterns in the perception of the need to manage water more efficiently (Figure 3): 50% and 47% of the population sampled in Jordan and Turkey, respectively, do consider that more efficient water management is ‘urgent’ or ‘very urgent’; 37% in both cases consider it as either ‘not urgent’ or ‘not at all urgent’. This is despite strong differences in the characteristics of physical water scarcity in the two catchments. Results from the Lebanese and

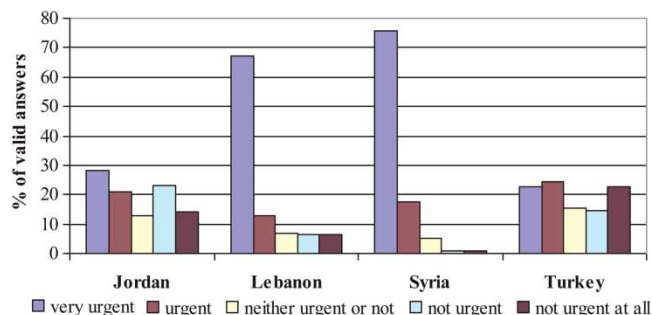


Fig. 3. Perception of the need to manage water more efficiently in study area locations.

Syrian cases also present strikingly similar patterns with remarkable proportions of respondents considering that the need to improve water management is ‘very urgent’ for 67% and 76% of the respective samples.

Suggestions to improve current water management and to reduce household water consumption were elicited through two open questions. Prior to presenting the actual results we provide some explanation on the interpretation of responses. The presentation of data elicited through these questions is organised around (i) quantitative analysis through the classification of all instances of different categories of suggestions, and (ii) qualitative analysis taking into account the proportion of those answers classified as ‘Very Rich Answers’ (VRAs). All answers were classified for all study areas. The classification (Table 3), constructed post hoc, organises identical or similar types of answer according to a substantive (water quality or quantity, infrastructures, maintenance regime, etc.) or intentional aspects such as motivation to change or dissatisfaction with the current situation.

4.1.1. Analysis of all answers to address water management challenges. The interpretation of the answers first concentrates on the frequency of all instances (1,127 in Jordan, 823 in Lebanon, 650 in Syria and 403 in Turkey) for all answers according to the classification presented above. All instances for all answers were combined per country and presented as percentages by study area as the sample sizes are of different size (Figure 4).

For the Amman Zarqa Basin (Jordan), the main suggestions are of a technical nature: ‘increase supply’ (25%), ‘improve quality’ (23%) and ‘build or renew infrastructure’ (11%). The second type of suggestions concerns governance issues (‘management and politics’ (11%), water price (10%)) and behaviours towards water usage (‘sustainable use and education’ (10%)). The results for Chekka Bay (Lebanon) show that the main suggestion to influence the water system is to ‘build or to renew drinking-water and waste-water treatment and networks’ (31%). This suggestion is directly linked to the technical issues of ‘improve water quality’ (24%) and ‘increase supply’ (15%). The second-most elicited type of suggestion concerns the current ‘management and politics’ (11%, this category includes public/expert involvement in debates and to establish participative committees). This lack of satisfaction with the water policy and decision-making process is complemented by ‘coercive measures’ (10%),

Table 3. Classification of suggestions elicited to influence water management.

Category title	Example
Increase supply	Increase supply time, collecting water, alternative source
Improve quality	Unsatisfactory water quality, monitor drinking water, pollution
Build/renew infrastructure	Water and/or waste-water treatment works, supply and/or collection network maintenance (leakage)
Agriculture	Water for irrigation, new water-saving technology and/or waste-water reuse
Coercive measures	Increase water price, fines for illegal use, law enforcement, water usage restriction, water meters, ‘polluter pays’ principle
Sustainable use and education	Water-saving measures at home, awareness campaign, no misuse of drinking water
Management and politics	Change current management & water policy, making managers accountable for their actions, taking into consideration expert & public opinions, open debates & participative commission
Decrease water prices	Decrease price, free water
No suggestions	No answer, no problem

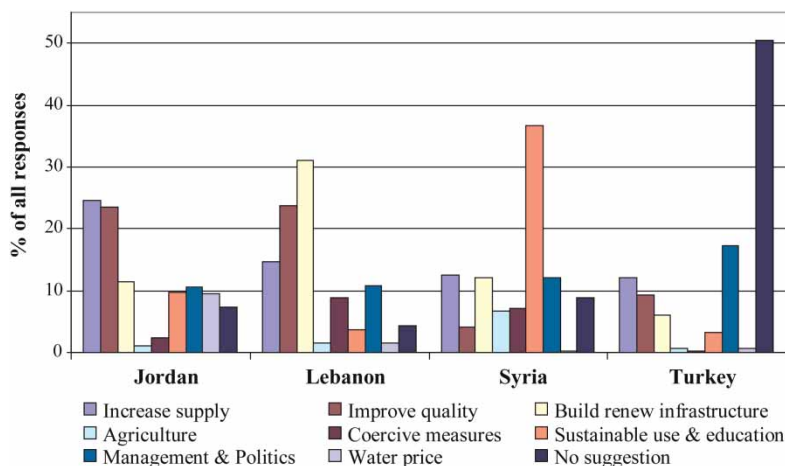


Fig. 4. Respondents' suggestions to influence water management in their living areas, all answers in percentage per study area (percentage).

including increased water prices, fines for illegal usage, law enforcement, water usage restriction, water meters, and making managers and officials accountable for their actions.

The grounded suggestions to improve water management in Jordan and Lebanon present similarities in the ways to address the problem: first, scarcity of physical resources (increase supply, improve quality), and second, scarcity of organisational capacity (e.g. build and renew infrastructure). The differences in suggestions concern issues associated with governance scarcity like 'coercive measures' (3%, 9%), lower water price (9%, 2%) and behavioural scarcity 'sustainable use and education' (10%, 4%). Water is expensive in Jordan and Jordanians pay their water bills. However, Jordanian respondents favour sustainable use and education over coercive measures, while the Lebanese favour the opposite.

In Syria, the main suggestion for water management in the Tartous Mohafaza basin is 'sustainable use and education' (37%). This category highlights a concern to address behavioural scarcity through education on sustainable water usage and awareness campaigns to explain how 'to use water the right way' (as expressed by several respondents). The second group of suggestions refers to physical scarcity and organisational capacity, and are of equivalent weight: 'increase supply' (13%), 'build and renew infrastructure' (12%) and 'management and politics' (12%). One might notice that improving water quality is of low importance here. Water quality in the coastal area is naturally good (high annual precipitation and natural filtration through a karstic geology). From a topographic and geological perspective, the Syrian and Lebanese study areas are comparable, but suggestions to improve water management differ; respondents from the former area emphasised behavioural scarcity while respondents from the latter area focused on physical scarcity.

Results from Gökova Bay (Turkey) indicate an apparent satisfaction with current water management: 'no suggestion' (51%). The main categories of substantive suggestions concern first, current 'management and politics' (17%), followed by 'increase supply' (12%), 'improve water quality' (9%) and 'build and renew infrastructure' (6%). The grounded suggestions to influence water management focus first on scarcity of organisational capacity and then on tackling the scarcity of the physical resources.

As introduced above, a significant number of responses in Jordan, Lebanon and Syria included up to five suggestions to influence the way water is managed. Those responses that contained more than three discrete suggestions, of which at least two fall into different categories (see [Table 3](#)), are counted in this interpretation as ‘Very Rich Answers’. VRAs indicate the diversity of aspects through which respondents consider water management could be changed. This discursive interpretation provides a proxy qualitative measure of the awareness of the local population about the far-reaching aspects of water management. Examples of VRAs are:

- using drip irrigation; not wasting water in houses; using water in the right way, especially in public institutions;
- attending debates to discuss the water issues; increasing the perception of people about the importance of water; using modern technologies in irrigation; reducing domestic consumption;
- holding debates to enlighten people about the importance of the water management process; reducing the amount of wasted water; identifying the ideal use of it; treating waste-water to reuse it in agriculture and industry sectors;
- fines for people not complying with rules; monitoring and repairing network leakage; purifying drinking water;
- preventing illegal use of water; water-saving measures; harvesting rainwater;
- harvesting rainwater in every house/farm; using modern irrigation techniques; water-saving measures in houses;
- improving water quality; increasing water supply; monitoring and repairing water supply network.

The percentage of respondents giving VRAs is 24% in Jordan, 24% in Lebanon and 13% in Syria. The interpretation of the results using the VRA category indicates first, that the Turkish respondents have individually and instinctively little awareness of the different causes of poor management and ways to influence it. This low level of awareness is reinforced by the high percentage of people providing ‘no suggestion’ and considering that there is ‘no urgency’ to improve the way water is managed. However, whereas a significant proportion of respondents in Jordan also perceived that there is either ‘no urgency’ or ‘no urgency at all’ to make more effort to manage water efficiently (37%), almost one in four provided a VRA. In Syria, one in eight respondents gave a VRA. Those two population samples perceived the need to make more effort to manage water efficiently as either ‘very urgent’ or ‘urgent’. When the sampled population perceived that improvement to manage water efficiently is at least ‘urgent’, it also provided a significant proportion of VRAs, indicating a significant awareness of causes of poor water management and knowledge of the diversity of ways to influence water management.

4.2. *Willingness and attitude to participate*

The second key topic of the social survey investigates attitudes to participation, starting with an assessment of the populations’ experience of and familiarity with public participation (PP), then assessing their willingness to be involved in debates about water management. If they expressed willingness to be involved in such activities, they were then asked to rank their preferred mode of representation for participation, and the reasons and objectives for participating in water issues, according to codes constructed by the first author (based on a literature review and on the information resulting from the interpretation of the stakeholder questionnaire) (Ker Rault, 2008; Ker Rault & Jeffrey, 2008).

4.2.1. Willingness to be involved in water debates. The majority of respondents in Jordan and Syria were willing to be involved in discussions and debates on the present and future management of water resources (64% and 65%, respectively), while only 37% in Lebanon and 27% in Turkey indicated a willingness to do so (Figure 5). The respondents had the choice to answer ‘I don’t know’ and this answer was selected by 15% and 19% in Jordan and Turkey, respectively, indicating a relatively high level of indecision or a lack of interest amongst the population sampled. On the other hand, respondents in Lebanon and Syria appear to have a clearer position with regard to being involved in public debates on water issues with a very low proportion of them answering ‘I don’t know’ – 3% and 5%, respectively.

4.2.2. Preferred type of involvement in discussion and debates. Respondents were subsequently asked to rank their preferences for modes of engagement (Table 4). A simple average of frequency of rank was used to compare the populations sampled. The proposed choices that respondents were offered were: (i) electing spokespersons to represent your opinion; (ii) participating yourself in public debates and public consultation; (iii) being consulted to give an opinion about suggested propositions; and (iv) voting on options. In all cases, respondents clearly favour involvement in water debates via direct participation themselves, and this is reinforced by the fact that the average rank frequency for second, third and fourth choices was very close (except for the second choice in the Syrian study area). Electing a spokesperson to represent respondents’ opinion is ranked low: third in Jordan and Syria, fourth in Lebanon, but second in Turkey, the country with the most mature democracy (World Bank, 2003, 2007; World Bank Institute, 2007). The lowest rank in all study areas except Lebanon was for voting on options, indicating that respondents favoured this type of distant decision-making process least, as opposed to types of

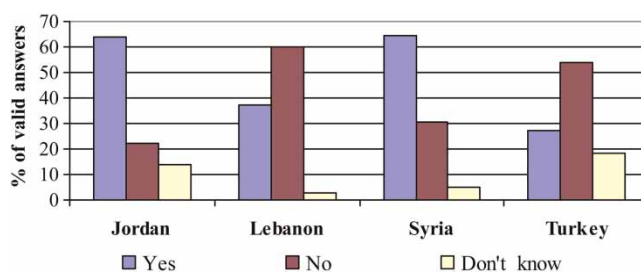


Fig. 5. Respondents' willingness to participate in water debates.

Table 4. Preferred types of involvement in water debates, aggregated rank for the population sampled.

Rank	Jordan	Lebanon	Syria	Turkey
1st choice	Participating in public debates	Participating in public debates	Participating in public debates	Participating in public debates
2nd choice	Giving my opinion about options	Voting on options	Giving my opinion about options	Electing spokesperson
3rd choice	Electing spokesperson	Giving my opinion about options	Electing spokesperson	Giving my opinion about options
4th choice	Voting on options	Electing spokesperson	Voting on options	Voting on options

representation involving direct forms of communication. In all study areas, the population sampled favoured involvement in water debates through direct participation in public debates rather than distant representation or voting on options (Table 4).

4.2.3. Reasons and objectives for participating in water issues. Respondents were asked to rank a series of six reasons for seeking involvement in discussions on water management with the predefined choices generated from the answers elicited through previous grounded research (Ker Rault, 2008; Ker Rault & Jeffrey, 2008). Table 5 displays the ranks of preferred reasons for each study area. The first observation to be made is that in all the river basins studied, the least important reason to be involved in a public debate about water resources management is to ‘have power over the decision-making process’. To ‘define a common solution that is to be implemented democratically’ and to ‘avoid or to resolve conflict over the use of water’ are overall ranked fifth and fourth. Consequently, from a bottom-up perspective, the reasons for participating in dialogue and debate are neither related to pursuing power over the decision nor to ‘define a common solution’ nor to ‘resolve conflict’. The second observation is that the three main reasons to be involved are to ‘give my opinion to the public authority about future plans’, to ‘exchange views with other citizens and stakeholders’ and to ‘receive some information about future plans the public authority will implement’. Let us notice that two of the three preferred reasons imply a two-way communication process. Table 6 summarises the findings of the survey, integrating the various components to present an overview of responses from the four case-study sites.

5. Discussion

We shape our discussion of the study findings first around the population’s understanding of water management challenges and attitude towards public participation. Then follows a discussion on the potential structuration of the public’s answers according to a set of societal descriptors.

5.1. Public understanding of water management challenges: awareness and quality of knowledge

More than two-thirds of the population sampled in Lebanon and Syria consider the need to manage water more efficiently as ‘very urgent’ whilst in the Jordanian and Turkish study areas, perception is much more balanced between high and low urgency levels. The perception of the need to improve water management might be similar in Jordan and in Turkey but the actual quality and quantity of answers providing information on public knowledge have little in common. There is *a priori* no straight

Table 5. Preferred reasons to be involved in water debates, aggregated rank for the population sampled.

	Jordan	Lebanon	Syria	Turkey
1st choice	Give my opinion	Receive information	Exchange views	Give my opinion
2nd choice	Exchange views	Give my opinion	Give my opinion	Receive information
3rd choice	Receive information	Exchange views	Receive information	Exchange views
4th choice	Resolve conflict	Resolve conflict	Resolve conflict	Resolve conflict
5th choice	Common solution	Common solution	Common solution	Common solution
6th choice	Have power	Have power	Have power	Have power

Table 6. Summary and synthesis of results from the surveys.

Key topics	Sub-theme	AZB, Jordan	Chekka Bay, Lebanon	Tartous Mohafaza, Syria	Gökova Bay, Turkey
Individual knowledge of water management challenges	Perception of need to improve water management	Balanced: 50% at least urgent	80% at least urgent	93% at least urgent	Balanced: 47% at least urgent
	Suggestion to improve water management	Suggestion Type 93% Increase supply, improve quality, WTW	96% WTW, increase supply & improve quality, politics	91% Sustainable use, education, technical & planning	49% Management & politics
	Suggestion to reduce household consumption	VRA Suggestion Nature of measures 24% 76% Coercive, Technical, Behavioural	24% 58% Behavioural	13% 32% Behavioural, Coercive, Technical	0% 17% Behavioural, Technical, Coercive
Attitudes towards participation	Experience & familiarity	Anecdotal			
	Willingness to be involved	64%	37%	65%	27%
Synthesis	Preferred type of involvement	Participating in public debates, give my opinion	Participating in public debates, voting on options	Participating in public debates, give my opinion	Participating in public debates, electing spokesperson
	Reasons and objectives for participating in water issues	Give my opinion, exchange views	Receive information, give my opinion	Exchange views, give my opinion	Give my opinion, receive information
	Causes for water scarcity	Physical scarcity and technical issues, scarcity of accountability & governance Behavioural	Scarcity of organisational capacity, accountability & governance issue	Sustainable use, education, technical & planning	Scarcity of organisational capacity, accountability & governance issue
	Public understanding of WMCs	Moderate concern, good knowledge, integrated understanding	Strong concern & knowledge, technical suggestions before all	Strong concern, moderate knowledge, behavioural & usage focused	Moderate concern, moderate knowledge
	Societal descriptors of influence	Age, Level of Education, Perception of Urgency	none	Level of Education, Perception of Urgency	Level of Education, Perception of Urgency

correspondence between the perception of the need for change and the quality of understanding of water management challenges (the diversity of challenges to be addressed). Results from Gökova Bay, Turkey, indicate that the principal proposal to improve water management is actually ‘no suggestion’ (51%), indicating a lack of suggestions or an apparent satisfaction with current water management. In Jordan, not only did more than three-quarters of the respondents give substantive answers, but one in four gave a VRA. The perception of urgency to improve water management is nevertheless similar in both countries. In Jordan, a country with severe physical water scarcity, the population is knowledgeable about the complexity of water management but the perception of urgency is similar to that in Turkey, a relatively water-rich country where the population does appear to have a moderate interest in and knowledge about water management challenges. Lebanese and Syrian respondents are aware of the need to manage water efficiently and also provided VRAs, indicating an acute concern about the situation and a sound knowledge of the diversity of water management challenges.

5.2. What about ways that water management can be improved?

The Jordanian respondents are solution-focused, wishing to increase the water supply and improve the water quality through planning and managerial interventions, tackling physical scarcity and organisational and managerial scarcity. Suggestions concerning behavioural scarcity and scarcity of accountability are of similar weight. Their suggestions are focused neither on agriculture nor on coercive measures but they do frequently mention technical, behavioural and coercive measures, indicating a comprehensive understanding of the diversity of measures required to tackle water scarcity.

Lebanese respondents focused on the need to renew or rebuild infrastructure (treatment works and networks) as a means to improve water quality and increase supply. They also strongly suggested changing current management practices to make managers accountable for their actions, addressing what was identified in Ker Rault (2008) as scarcity of organisational capacity and of accountability. To reduce household water consumption, they mainly suggest behavioural changes.

Syrian respondents focused first on the means to tackle behavioural scarcity to both improve water management in general and to reduce household water consumption (sustainable use of water through education and awareness campaigns). They also suggested renewing the infrastructure and changing current management, addressing scarcity of organisational capacity and of accountability.

Turkish respondents were not that concerned with ways to influence water management, only one in two respondents gave a suggestion. For them, water management is above all a managerial and political issue. Only one in ten would recommend increasing the supply or improving quality. Indeed, water is generally of good quality and of sufficient quantity in the study area. There is no immediate threat to water resources and services.

It is interesting to notice that the proportion of people providing a suggestion to address water management challenges and to reduce household water consumption increases as the TARWR per capita decreases. The public is overall more concerned and knowledgeable about water management in Jordan, Lebanon and Syria than in the water-rich Turkish study area.

5.3. Attitude to public participation

There is no formal experience with public participation in the four study areas. However, two-thirds of respondents are willing to participate in the Jordanian and the Syrian study areas but only 37% and

27%, respectively, in Lebanon and Turkey have the same willingness. The willingness to participate does not appear to be associated with the countries with the longest experience of democracy but rather with those having a combination of water stress and political stability.

In all study areas, respondents favour direct types of involvement (direct participation in public debates). The second-favoured choice emphasises some difference in the type of involvement. In Jordan and Syria it was ‘to give my opinion on suggested options’. Lebanese respondents favoured to ‘vote on option’; while Turkish (with the longest experience of democracy) favoured the election of a spokesperson to represent them. The four populations sampled clearly favoured direct involvement in water debates rather than distant representation or voting on options. Moreover, one learns that the three main reasons to be involved are to ‘give my opinion to the public authority about future plans’, to ‘exchange views with other citizens and stakeholders’ and to ‘receive some information about future plans the public authority will implement’.

Even more surprising is that the least-favoured reason to be involved in a public debate on water resources management is to ‘have power over the decision-making process’. To ‘define a common solution that is to be implemented democratically’ and to ‘avoid or to resolve conflict over the use of water’ are overall ranked fifth and fourth. Consequently, from a bottom-up perspective the reasons for participating in debate are neither related to pursuing power over the decision nor to ‘define a common solution’ nor to ‘resolve conflict’. This evidence challenges the normative claims that ‘actual’, ‘real’, or ‘meaningful’ public participation is related to the pursuit of power over decisions. A comprehensive analysis of public participation in water management would hence benefit from an alternative focus to power over decisions (the output), and would gain from a Foucauldian approach to take into consideration how power is exercised to communicate, to be informed, and to give an opinion, that is, power in relation to defining what the problem is, prior to defining a set of solutions.

These results reinforced earlier work conducted in Europe and North America, highlighting the importance of interactive communication between competent authorities organising participative activities and participants (Glass, 1979; English *et al.*, 1993; Pahl-Wostl, 2002; Ridder *et al.*, 2005; Rowe & Frewer, 2004, 2005; Mostert *et al.*, 2007; Pahl-Wostl *et al.*, 2007). Also, one might start to strongly challenge the normative claims that ‘actual’, ‘real’, or ‘meaningful’ public participation is related to the pursuit of power over decisions (Arnstein, 1969; House, 1999; Pirk, 2002; Kessler, 2004), at least not for the wider public at the involvement stage. Respondents are willing to participate themselves, even some of those with a low level of education and even in countries where democracy has not yet flourished, such as Syria.

5.4. Structuration of the society: do gender, age and level of education influence attitude to public participation and how?

There are no statistically significant distinctions in responses to the various questions reported above as a function of gender or age group. Responses from women and men are overall of a similar nature in the four study areas. Women and men have a similar individual knowledge of water management challenges and attitude towards participation. There seems to be no statistical basis to differentiate between those two groups when eliciting suggestions to build a water policy or to organise participative activities.

Knowledge and interest in water management issues and willingness to participate in water debate are observed to be slightly higher amongst the mid-age group (26–45 year olds) than amongst the youngest

and the oldest respondents. This evidence rather conflicts with much currently received wisdom that the youngest generation is more likely to be receptive to behavioural change to tackle water scarcity (a trend also identified through the scoping interviews for this study). However, respondents in the four study areas favour awareness campaigns and children's education to promote water-saving measures.

Level of education is observed to have a consistent impact on the quality of answers, interests in water management and willingness to participate, although respondents with a lower education level were very knowledgeable and willing to participate in Jordan and in Lebanon, the two countries with the lowest TARWR.

Finally, a constructive attitude towards the need to improve water management is clearly correlated with (i) the quantity and quality of ideas to improve water management in general, (ii) the quantity and quality of ideas to improve personal water-consumption habits, and (iii) the willingness to be involved in water debates.

6. Conclusions

As noted above, an uneducated public with poor knowledge of the far-reaching consequences of water management challenges is often cited as a hurdle to initiating public participation (Ker Rault & Jeffrey, 2008). The evidence from this study is that many communities exhibit both public aspirations for water management and a willingness to express their opinions and preferences.

The proportion of respondents interested in being involved in public participation activities increases as the TARWR decreases (FAO-AQUASTAT, 2005). In the country with the lowest TARWR, Jordan, the population has the most comprehensive understanding of the causes of poor water management. Their suggestions to improve water management address the four types of water scarcity: physical water scarcity, scarcity of accountability (governance issues), scarcity of organisational capacity (managerial and planning issues), and behavioural scarcity (World Bank, 2007; Ker Rault & Jeffrey, 2008). In Gökova Bay (Turkey), a water-rich catchment, interest, knowledge and awareness are the lowest of the four cases.

The first conclusion to be drawn from this study on the public's attitude to public participation is that the prime objective of public participation for the public themselves is not to have power over decisions, but to have 'power to communicate' and 'to exchange personal understanding of the situation in which one lives'. In all the river basins studied, the least important reason to be involved in a public debate about environmental and water resources management is to 'have power over the decision-making process'. To 'define a common solution that is to be implemented democratically' and to 'avoid or to resolve conflict over the use of water' are overall ranked fifth and fourth. Consequently, from a bottom-up perspective (grounded in an exploratory medium-scale survey of the wider public) the reasons for participating in environmental debate are not related to the pursuit of power over the decision nor to 'define a common solution' nor to 'resolve conflict'. These findings challenge the normative justification of participation from academics and experts based on empowerment (Eidsvik, 1978; Wilcox, 1994; Deleon, 1995; UNDP, 1997; Fischhoff, 1998; Parenteau, 1988; Beierle & Cayford, 2002; ADB, 2003; Kessler, 2004; Ridder *et al.*, 2005). Indeed, the results emphasise the aspiration for an open and direct communication.

The second conclusion is that the three main reasons to be involved are to 'give my opinion to the public authority about future plans', to 'exchange views with other citizens and stakeholders' and to

'receive some information about future plans the public authority will implement'. These insights on the social learning dimension of participation support the view that interactions among stakeholders are an essential component of social learning and problem identification. Mostert *et al.* (2007) present similar evidence based on European study areas where governance styles and opportunities for participative activities are seemingly incompatible. Consequently, public participation in integrated water management is not exclusively about power over the decision-making process. It is initially about power to take part, to be listened to and to be able to meet up to exchange views. The performative power of participation is initially to construct a rich inclusive reality of the situation that people experience. Thus, the wider public in the four study areas is willing to participate in debates about water management and preferably through direct involvement with the objective to express their opinions. Here again the public's preference is for a direct mode of communication.

The study showed that the main hurdle to public participation is not that the public is uneducated and lacks interest and knowledge in water management challenges. Rather, the main hurdles for implementing public participation may be that the wider public is not structured in stakeholder groups and that the decision-making culture does not encourage the involvement of interested parties.

So, to foster public participation, one might investigate strategies on how to structure interested groups from apparent societal disorder. What appears really important is to exercise participation in relation to both the object and the actors: we propose a three-step approach to public participation in integrated water management to create a structurative link between social actors over water management.

1. Structuration of the problem: what the problem is, and who is impacted by, or has hegemony over, its various aspects. Discussions here might focus on the history as well as the nature of the challenge as this can often expose valuable perspectives and insights. Appropriate scales of management and performance priorities for appropriate solutions will also be discussed. The objective of the first step is to initiate the identification of the challenges.
2. Structuration of the social actor and participative stakeholder maps: here, the full range of existing and potential future stakeholder groups needs to be identified and engaged. The objective of the second step is to compare and contrast problem constructs and stakeholder maps, to involve other stakeholders and new entrants if necessary and to validate the prioritisation of challenges.
3. Structuration of the process: this step involves close definition of a solution space and responsibilities for delivering and winnowing options and interventions. Details of who will participate for what ends and at what stages of the process will need to be delineated. The objective of the third step is to consensually define with the stakeholders the problem-solving process.

This study has thrown up some unexpected findings about the motivation for public participation, which challenge accepted understandings. Further work in more mature democracies should confirm whether these insights are more widely evident or merely an artefact of the nation states that hosted our surveys. If the results are replicable elsewhere, then both academics and practitioners may need to refine their theories of, and approaches to, public involvement in natural resource management. However, our findings only re-emphasise much previous work that urges competent agencies and practitioners to involve stakeholders early in the process of defining water management challenges to encourage stakeholder-based problem definition and to consider participation as an iterative process.

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The authors would point out that the research reported in this paper was conducted between 2005 and 2008, prior to the societal and political turmoil that much of the region is currently experiencing. The study's findings are likely to be impacted by these events, although to what extent it is difficult to assess.

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