

Cranfield University

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**Public participation in Integrated Water Management
A Wicked Process for a Complex Societal Problem**

**Which type of Public Participation
for which type of water management challenges in the Levant?**

School of Applied Sciences

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Supervisor: Dr Paul Jeffrey

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Abstract

The meaning of both Integrated Water Management and Public Participation (PP) are subject to interpretation by stakeholders, because the concepts of uncertainty, risk management and construction of a societal project challenge scientific expertise, political power and democratic decisions concerning public good management. I do not study PP and IWM with a normative aspiration to identify the ‘true’ problem and participation, but to investigate constructions of reality of water management challenges (WMCs) and of participation from different perspectives: which type of participation is perceived as appropriate for which type of water management challenges? The study areas are river basins in Jordan, Lebanon, Syria and Turkey. The EU Water Framework Directive provides an analytical framework to study meanings of PP in River Basin Management Plan.

Grounded Theory Methodology is used to elicit understandings of both PP and WMCs via qualitative and quantitative data (questionnaires, interviews, medium-scale survey). This thesis presents grounded typologies of objectives of PP, types of PP, of WMCs, of the roles of the competent authority and of hurdles to initiate PP.

Even in countries where criteria characterising a democratic society are not all entirely satisfied there is a case for promoting PP in IWM. Although an uneducated public, with poor knowledge of the far reaching consequences of WMC is seen as a hurdle to initiate PP, the evidences show the contrary: a public aspiration, readiness and willingness to express ones’ voice. Conditions to foster PP require both political stability and an open society where opinions can be formed and exchanged; but also pressure on resources and services for the public to be interested and willing to take part in water management, and for the competent authority to be willing to engage with both stakeholders and the public in order to complement experts’ understandings of complex societal problems.

Public Participation is not only about the pursuit of power over the final decision, but about defining what problems are about according to different constructs of reality. The newly developed grounded typologies of objectives of PP and of types for PP help identifying appropriate forms of participatory practices in relation to the contextual water management crisis.

Which type of participation for which type of water management challenges?

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...pour toit, j'utilise l'intuition émotionnelle...

Which type of participation for which type of water management challenges?

A Antonin

Which type of participation for which type of water management challenges?

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List of Abbreviations

ABD:	Asian Development Bank
AZB:	Amman Zarqa Basin, Jordan Study area
B&T:	Business and Tourism
CA:	Competent Authority also used for Central Administration in Chapter VII
CEC:	Commission for the European Community
COWRM:	Coastal Water Resources management, Syria
DA:	Discourse Analysis
DAD:	Decide Announce Defend
DOS:	Department of Statistic, Jordan
DSI:	Devlet Su İşleri Genel Müdürlüğü, Directorate of State Hydraulic Works, Turkey
EBDR:	European Bank for Development and Reconstruction
EC:	European Commission
EEB:	European Environment Bureau
EIE:	General Directorate of Electric Power Resources, Survey and Development Administration, Turkey
EU:	European Union
EU WFD:	European Union Water Framework Directive also abbreviated WFD
FS:	Farming Sector
GCWRM:	General Commission of Water Resources Management, Syria
GDRS:	General Directorate of Rural Services, Turkey
GTM:	Grounded Theory Methodology
GTZ:	Deutsche Gesellschaft für Technische Zusammenarbeit, German Technical Cooperation
GWP:	Global Water Partnership
ICR:	Interpretive Challenge Ratio
II:	International Institutions
IWM:	Integrated Water Management
IWRM:	Integrated Water Resource Management
JVA:	Jordan Valley Authority, Jordan
LA:	Local Authority
MAAR:	Ministry of Agriculture and Agrarian Reform, Syria
MENA:	Middle East North Africa
MEW:	Ministry of Energy and Water, Lebanon
MHU:	Ministry of Housing and Utilities, Syria
MoA:	Ministry of agriculture: Jordan same abbreviation used for Lebanon, and Turkey
MoCT:	Ministry of Culture and Tourism, Turkey
MoE:	Ministry of Environment, Syria
MoI:	Ministry of Irrigation, Syria
MoIA – SPO:	Ministry of Internal Affairs – State Planning Office, Turkey
MoS:	Ministry of State: Jordan
MoT:	Ministry of Tourism, Syria
MWI:	Ministry of Water and Irrigation, Jordan
NGO:	Non Governmental Organisation
NLWA:	North Lebanon Water Authority, Lebanon
PP:	Public Participation

RBMP:	River Basin Management Plan
SD:	Sustainable Development
TARWR:	Total Actual Renewable Water Resource
TASWA:	Tartous Water Supply and Sanitation Authorities, Syria
UN:	United Nation
UNCED:	United Nation Conference on Environment and Development
UNEP:	United Nation Environmental Programme
UNDP:	United Nation Development programme
UNECE:	United Nation Economic Commission for Europe
UNESCO:	United Nation Educational Scientific and Cultural Organisation
U&RI:	University and Research Institute
USAID:	United States Agency for International Development
VRAs:	Very Rich Answers
WAs:	Water Authorities
WAJ:	Water Authority of Jordan, Jordan
WHO:	World Health Organisation
WMCs:	Water Management Challenges
WR:	Water Resource
WRIC:	Water Resources Information Centre, Syria
WTW:	Water Treatment Works
WWTW:	WasteWater treatment Works
WWF:	World Wildlife Fund

Scientific work

Article:

Ker Rault, Ph. A., Jeffrey P. J. (2008). Deconstructing public participation in the Water Framework Directive: implementation and compliance with the letter or with the spirit of the law? *Water and Environment Journal*. **22**, p. 241-249. Available online at:

<http://www3.interscience.wiley.com/cgi-bin/fulltext/120126406/PDFSTART>

Ker Rault, Ph. A., Jeffrey, P. J. (2008). On the appropriateness of public participation in Integrated Water Resources Management: some grounded insights from the Levant. *Integrated Assessment*. **8**(2), p. 69-106.

Proceedings papers:

Ker Rault, P.A., Bouzit, M., Jeffrey, P., Salman, A., AL-Karablieh, E. Attila, O., Yüzereroğlu, S. (2006). Application of a participatory foresight methodology at river basin scale in Jordan and Turkey. *International Association of Hydrogeology, GIRED- Integrated Water Resources Management and Challenges of the Sustainable Development, Marrakech 23rd - 25th May 2006*.

Posters and other presentations:

Ker Rault, P., Jeffrey, P. (2007). Public Participation in Integrated Water Resource Management A wicked concept for a complex problem, *International Conference on the Implementation of the European Water Framework Directive, 8-10th November 2007, Rome, Italy*. <http://www.inbo-news.org/friobang.htm>

Ker Rault, P. (2007). Constructivism applied to IWRM. Presentation of a grounded theory methodology to construct wicked problem's understanding. "People and science: sharing methodological insights". *Cranfield 27-28th February 2007*.

Ker Rault, P. (2007). Public Participation in Integrated Water Resource Management. A wicked concept for a complex problem. *Celebrating Silsoe: Past, Present, Future. Saturday 23rd June 2007*.

Which type of participation for which type of water management challenges?

Chapter I

1 Introduction - water crisis or water management crisis?

1.1 Limited efficiency in current water management practices

Traditional or fragmented approaches to water management which distinguish between resources and services, between potable water production and supply and wastewater collection and treatment and between water for municipal, industrial and agricultural purposes, have shown limited efficiency (GWP, 2000; World Bank, 2004a), and are suggested as contributing factors to what is now referred to as the “*world water crisis*” (UNESCO, 2003, p.1) or more pertinently as the “*water management crisis*” (GWP, 2000, p.9). Integrated Water Resources Management (IWRM) as an aspirational approach to sustainable development, is based on a participative approach (UNCED, 1992; UNECE, 1998; UNEP, 1992), and is defined by the Global Water Partnership as “*a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*” (GWP, 2000, p.22). IWRM principles affirm that economic, environmental and social systems are linked and change through reciprocal interactions. Broadly speaking, human activities impact on the hydrological cycle as a whole, and reciprocally the water cycle influences human life and the decisions that need to be made to continuously construct human societies. As a resource, water is fragmented between surface water and groundwater. Water services are fragmented between drinking water treatment and distribution, collection and wastewater treatment. The expression Integrated Water Services Management has not yet become the literature’s most favoured leitmotiv, but it would already be obsolete.

This differentiation between water resources and water services management lack coherence when a holistic approach is demanded as claimed by the EU and UN agencies (CIS, 2003; UNESCO, 2006) because responsibilities, competences, and resources are scattered over a multitude of institutional layers and private actors’ interests which prevent the commended integrated approach (World Bank, 2007). Water is also considered as a valuable resource in terms of economic added value for farming and industry, as a local-essential element for human and social development, as a strategic resource for the state, and sometimes as a means for economic

domination and a justification for conflict. Hence to address water resources management is to address the interconnections between open systems that are socially and economically anchored with technical and environmental challenges managed by local, national and international institutions; a conclusion widely drawn by, inter alia, Berkes *et al.* (1991), Biswas (2001), Borrini-Feyerabend (1997), Darier *et al.* (1999), De Marchi (2003), De Marchi & Ravetz (1999), Dietz (1995), GWP-TAC 04 (2000), GWP-TAC 10 (2004) and Jeffrey (2006). Fragmented and uncoordinated traditional top-down decision-making practices have been challenged by both insiders (those who “have” power/voice in decision making process) and outsiders (“have not” power/voice) (Forrester, 1999a, 1999b; Kravchenko, 2003; Webler, 1999; Webler *et al.*, 2003).

At the heart of the IWRM paradigm is the concept of public participation, characterised by the twin demands of access to information and access to just process¹.

1.2 Public participation and Integrated Water Resource Management

Just as there is no common detailed understanding of, and objective for, IWRM, so the definition and objectives of public participation (as commended by milestone declarations from the UN and alike bodies) 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 (Robert, 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, powers, beliefs, uncertainties, leading to disputes, conflicts and the pursuit of a just share of what I would characterise as a ‘state strategic local public good’. 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.

¹ See for example the Dublin Principles (ICWE, 1992), Rio de Janeiro Declaration (UNEP, 1992), Aarhus Convention (UNECE, 1998; 2000) or the European Water Framework Directive (CEC, 2000).

Many authors (e.g. Arnstein, 1969; Berks, 1994; Beierle & Cayford, 2002; Dorcey *et al.*, 1994; Eidsvik, 1978; English *et al.*, 1993; Fischhoff, 1998; House, 1999; Kessler, 2004; Motion, 2005; NRC, 1996; Pomeroy, 1995; Pretty & Shah, 1994; Rowe & Frewer, 2000, 2004; Wilcox, 1994) define decisional participation using terms such as ‘actually’, ‘actual’, ‘real’, ‘meaningful’, and they insist on the early stage relevance of stakeholder engagement as a central feature of participation. Webler (1999, p.61) recognised that even popular typologies of participation are not universally accepted, because there are still “*reasonable people [who] disagree about the appropriateness of empowering citizens that are not legal representatives to make public choices*”. However, in broad terms, the function of participation encompasses three different concepts, reflecting an increasing depth of ownership of public good management based on both power and communication; (i) informative participation, (ii) consultative participation and (iii) decisional participation (CIS, 2003; English *et al.*, 1993; Green & Hunton-Clarke, 2003; Rowe & Frewer, 2005). Any synonymous participative concepts whether called ‘involvement’ or ‘engagement’ referring to ‘stakeholders’, ‘affected’ or ‘interested parties’ are included within the concept of public participation as discussed in this thesis. A debate concerning the extent to which they are similar or not, especially within the context of IWRM is pursued in Chapter II. Unless otherwise stated, Public Participation (PP) as used in this thesis, has a voluntarily vague definition in order to avoid discriminating any given meaning (as presented above) and with the strategic intention to not bias or influence the stakeholders’ own understandings – one of the objective of this thesis is to reconstruct meaning of participation from social actors’ perspectives .

Although a review of typologies suggested by the authors mentioned above helps in presenting the major characteristics of PP, it does not support a holistic approach to the issues at stake, because the design of a specific participative approach (and *a fortiori* a sequence of participative exercises) will be context and issue dependant, and all socio-political situations are fundamentally unique. One can anticipate that the definition of the issue at stake will impact on the form of PP considered relevant by the competent agency. Moreover, PP is a dynamic process that becomes more efficient in producing consensual and inclusive decisions as practice and trust are gained (De Marchi, 2003; Pahl-Wostl, 2002; Pateman, 1970). Participation has produced decisions that were responsive to community interests and values, and also helped resolve user conflicts, build trust, and educate the public about the

environment, within conflicting relationships of power, communication and objectives (Kessler, 2004). The confusion that surrounds the analysis of public participation is partly generated by the dissonance between the purpose for initiating a participatory process and the expectations of those involved, including the Competent Authority (CA) because participation “*remains an empty word until procedures are set in place to make it real and effective*” (De Marchi, 2003, p.174).

1.3 Making sense of Public Participation in IWRM

Hence, the meaning² of both IWRM and PP are subject to interpretation by different stakeholders, because the concepts of uncertainty, risk management and construction of a societal project challenge scientific expertise, political power, and concepts of democracy especially in terms of the representation and legitimacy of decisions concerning public good management (Dobson, 2003; De Marchi, 2003; Dryzek, 2000; Feeny *et al.*, 1990; Fiorino, 1990; Funtowicz & Ravets, 1993; Laird, 1993; Sidaway, 2005). Furthermore, interpretations of the objectives of IWRM and the participatory practices that support them evolve as problems are being identified and as solutions are being developed. These types of societal problem are known as “*wicked*” (Rittel & Webber, 1973, p.160; Fisher, 1993, p.172), “*ill-structured*” (Simon, 1973, p. 181; Dunn, 1988, p.721), “*unstructured*” (Hisschemoller & Hoppe, 1996, p.43) or “*complex*” (Stacey, 1996, p.183; Conklin, 2005, p.1). Societal problems are indeed ill-structured or unstructured and difference in meanings is vague. Hisschemöller & Hoppe (1996) comments that ill-structured problems constitute a subset of unstructured problems. Solving an unstructured problem required structure which is essentially a political activity to produce new insights. Nevertheless all the authors mentioned above agree that to face uncertainty of knowledge, lack of consensus about norms and values and the activities required to define the ‘right’ problem, one needs to involve a group as heterogeneous as the problem situation requires and that “*problem structuring without PP is inadequate*” (Hisschemöller & Hoppe , 1996 p.53). Changing interpretations and expectations, or the lack thereof, affect the flexibility of actors and institutions making the implementation of PP in IWRM a complex problem. In this thesis the adjective ‘complex’ will be used to qualify the kind of societal problem explored (i.e. water

² ‘Meaning’ is used here to express the link between the representation of a concept i.e the descriptive definition, and the semantic consequence i.e. the performative implications of words and language (Butler, 2004).

policy) while ‘wicked’ is preferably used to qualify a conceptual tool, a means for addressing a problem and structuring a problem solving process (i.e. public participation). This point is clarified and justified in Chapter II.

1.4 What is lacking in previous work?

Most of the literature on IWRM and on PP consists of series of case study reports and ‘successful stories’ promoting a tool box attitude (Cuff, 2001; GWP, 2000, 2004; World Bank, 1993, 1996a, 1996b, 1998;) rather than a methodological approach to understanding the complex dynamics of a water management crisis in its political, economic, social and technological context. Currently, experts, consultants, and the competent authority³ focus on problem solving but not on problem understanding. Experts’ reports are descriptive of successes (but of failure) and prescriptive, with little causal analysis on the problem and on the problem definition. Nowadays, the challenge is the construction of the problem (environmental, economical, social dimensions), because the water crisis is a social construct (as illustrated in the first part of Chapter II). Although PP in the services of IWRM had aroused much attention as a practice, little is known about stakeholders’ understanding of and expectations towards the process. How can one make headway on a mutually acceptable solution if the concerned parties cannot agree on what the problem is, nor on the problem solving process?

I argue, with others, that the implementation of the principles of PP in IWRM is no longer a technical or scientific issue, it is a socio-political affair that questions what a democratic decision is, and what sort of risk governance one wants to live with (Deleon, 1995; De Marchi, 2003; De Marchi & Ravetz, 1999; Funtowicz & Ravetz, 1993; Graffy, 2006; White, 1996). Nevertheless, little is known about the understandings which stakeholders and the public in general have concerning water management challenges. Symmetrically, the analysis of PP, of its claimed objectives, rarely focuses on stakeholders’ understandings and preferences concerning the level or form of participation. Although participation is advocated to promote a consideration of stakeholders’ views on issues that affect them, little is known about their motivations for taking part in participative initiatives, and their preferred definition of, and role for, participation.

³ ‘Competent Authority’ refers to administrative authority in charge of definition and implementation of water policy. In the context of the European Union Water Framework Directive ‘Competent Authority’ means an authority or authorities identified under Article 3(2) or 3(3) of the (CEC, 2000).

In order to advance knowledge of the diversity of understandings of public participation, it is important to compare and contrast the claimed objectives of PP as expressed by different stakeholders. The goals of public participation may be viewed very differently, depending on the perspectives taken by the various actors on their respective roles in the deliberation process. This confusion can be partly clarified by direct elicitation of the reasons for engaging in PP, and the objectives being pursued by following a participatory approach. This thesis focuses then on investigating understandings and expectations of participation in the context of IWRM.

1.5 Political and geographical background for the study

The EU Water Framework Directive (WFD) is currently one of the few bodies of legislation that is based on IWRM and on public participation. The implementation of the WFD consists mainly in defining a River Basin Management Plan (RBMP) aiming at reaching good water status by 2012. The construction of such plans needs to integrate economic, environmental and ethical dimensions taking into consideration the diversity of realities of the actors and users via “*active involvement*” (Article 14, CEC, 2000). A credible study on the exercise of public participation in integrated water resources management can not ignore the pertinence of this recent legal document, the implementation of which will have far reaching political and societal implications for the future of IWRM and PP, within and outside European political borders and more generally on sustainable development and participative democracy because as Diez *et al.* emphasise “*policy Europeanization does not only take place among EU members*” (2005, p.4).

Indeed, EU democratic ideals and political influences are also conveyed via the Water Framework Directives and twinning European-third countries river basins initiatives (Quevauviller *et al.*, 2005). The WFD does not only apply to EU member countries but also to candidates countries, such as Turkey (Hermans, 2005) and other countries having bi-lateral agreement with the EU such as signatories to the Barcelona process and participants in the MED EU-Water Initiative Joint Process⁴ (Quevauviller *et al.*, 2005). Several countries of the Levant region are members of this partnership. Here, water scarcity is already a well acknowledged problem and the local water infrastructures in many states will soon not be able to meet the

⁴ http://ec.europa.eu/external_relations/euromed/

demand for domestic, agricultural and industrial growth. The need for a holistic⁵ and innovative approach based on stakeholders' needs, sharing knowledge, and a sustained commitment towards the protection of the resource to control competition for water and to learn to cope with rapid change is widely recognised (Allan, 2002; Karousalis & Koundouri, 2006; Lancaster, 1999; Roundi-Fahimi *et al.*, 2002; UNDP, 2003; World Bank, 2003, 2007).

As highlighted above (§1.4.1) I argue that the exercise of public participation in integrated water resources management is more a socio-political issue rather than a technical one. A study of several cases in a given country would still present the same institutional setting and water governance and elude socio-political contextual plurality. Consequently, I decided to select one study area in four neighbouring countries with different political and social context in the Levant: Jordan one of the most stable country in the region, Lebanon still under reconstruction, Syria a military state and Turkey a functioning democracy moving towards EU standards. Jordan, Lebanon and Syria do not have the same political obligations regarding implementation of the EUWFD as Turkey does, but economical and social pressure for managing water scarcity appears to be of similar nature and order (this point is developed in Chapter IV). The study is focused in each country on a single catchment only, respectively the Amman Zarqa Basin, the Chekka Bay, the Tartous Mohafaza and the Gökova Bay as described in Chapter IV.

1.6 Initial thesis objectives and research questions

The main challenge for the implementation of river basin management plans is that both Integrated Water Resources Management priorities and the meaning of Public Participation are based on different social constructs and are subject to diverging interpretations. There is a lack of understanding of what IWRM is and of what PP in such a context implies. This thesis investigates which types of public participation are perceived by different actors as appropriate for specific water related issue. This subject requires the analysis of the construction of meaning of what is the issue at stake for whom. In other words: to what extent different understandings of PP for IWRM might facilitate sustainable management of water resources and services?

The objectives of this thesis are fourfold:

⁵ Studying water management as a system in its entirety, including economic, environmental and social dimensions and not through the traditional reduction to resources or services management only.

1. The identification of Water Management Challenges (WMCs) at stake according to different stakeholders at river basin level in Jordan, Lebanon, Syria and Turkey (top-down and bottom-up perspectives); to organise and prioritise these WMCs, to compare and contrast them to highlight similarities and discrepancies of perception of the problem and elicited set of solutions: What are the water management challenges according to different stakeholder (top-down and bottom-up views)?
2. The identification of motivations and reasons for taking part in water management, and preferred mode of involvement; the development of a panel of type of participation taking into consideration different level of empowerment, of communication practices and of societal objectives: What is the meaning of PP and how is PP understood according to a top-down and a bottom-up perspective?
3. Assessing the wider public knowledge of water management challenges and attitude toward participation: What is the wider public understanding of WMC and expectation toward PP?
4. Investigating the gap between current and desirable water governance to foster PP in IWM: What are the perceived existing practices of PP and perceived hurdle to a desirable implementation?

In short, the thesis overarching research question is ‘which type of PP is perceived as appropriate for which type of WMCs according to whom’, and this study aims to develop some grounded recommendations on how PP could be exercised in relation to integrated water management policy. However, as relevant themes and issues raised-up by the actors studied and interpreted by the author will become more specific, research questions will be reviewed in order for epistemology to adapt to the refined ontology (Chapter II §2.5.2, Chapter V §5.5, Chapter VI §6.1.3, §6.5.5, Chapter VII §7.2.3). This study is reflective and based on constant dialogue between information grounded in actors’ constructs, theoretical background and the authors’ interpretation of the nature of the problem at stake.

1.6.1 Approach to research

The nature of both IWRM and of PP calls for a multi-method and trans-disciplinary approach to research because understanding complex societal problems requires information from several sources and the production of new knowledge from both qualitative and quantitative paradigms (Chalmers, 1999; Maxim & van der Sluijs,

2007; Nowotny, 1999; Nowotny, Peters & Gibbons, 2006; Saarikoski, 2007; Stacey, 1996;). The methodology deployed in the study is a flexible design yielding to qualitative and quantitative data (Robson 2002) and based on the principles of Grounded Theory. Grounded Theory Methodology (GTM) is a general qualitative research methodology aimed at developing theories that are grounded in systematically gathered data (Glaser, 1978; Glaser & Strauss, 1967; Myers, 1997; Pandit, 1996; Strauss & Corbin, 1994). GTM is not a theory as such, but a methodological approach to research based on an abductive research strategy involving interpretation of interacting constructions of meaning for the agency studied. GTM is thereby both the construction of a theory and of a methodology (Dick, 2005) because data collection, analysis and conceptualisation are not sequential, but can, and generally do, take place simultaneously, hence both method and theory are concomitantly developed (Charmaz, 1994; Glaser, 1978; Mehmetoglu & Altinay, 2006; Strauss & Corbin, 1998).

GTM can be described as a two phase approach to research: first the familiarisation (inductive) phase based on open questions presented through interviews of experts and local stakeholders questionnaires (qualitative analysis only). The analysis of open questions/discussions highlights themes and concepts that are then refined (deconstructed) during the theoretical (deductive) phase where research focused on these induced themes. The analysis of the theoretical phase will also enrich the observation of themes and concepts requiring potentially a secondary open phase. The theoretical phase allows both refined qualitative analysis and quantitative analysis of the categories elicited during the familiarisation phase.

The ambition of this research is to understand the construction of meaning of public participation in IWRM and a GTM approach based on iterative data collection and analysis is considered a pertinent methodology to explore actors' perceptions and understandings of complex societal problem, because through this approach one can deepen the scope of the study and investigate detailed aspects of a phenomenon as well as the interactions between them. The dialogue induction–deduction is materialised in the alternance interviews, questionnaires, survey and interviews.

Although the methodological approach to research is presented in Chapter III, specific details and justification on method for data elicitation, and process for quality assurance and for data interpretation are included in each relevant section of Chapters reporting the five fieldwork activities (method and process): Chapter V for the

scoping interviews and initial stakeholder questionnaire, Chapter VI for the medium-scale survey implementation and data interpretation and in Chapter VII for the decision-influencers questionnaire and interview.

1.6.2 Limitations of the study

This study is not based on the actual development of RBMPs in the study areas but was conducted as part of a small scale planning process provided by an EC funded project. Consequently it is somewhat inconveniently not based on a real time process, but has the advantage of accessing stakeholders and decision influencers during a relative peaceful time detached from real time negotiations and politics. The author did not spend more than two weeks at a time in any of the study area countries⁶, does not speak the local languages (Arabic and Turkish) and is not familiar with local customs, but good relationships with local partners and previous work experience in Arab countries facilitated fieldwork implementation. This precludes the possibility that understanding current political, societal and cultural issues might influence and re-direct the focus of research. However, these conditions allow a naive discovery of the local situation with little *a-priori* conceptual baggage. This study has no anthropological aspirations.

Long term political instability, especially in Lebanon, affected the quality of work and access to relevant stakeholders. This risk was acknowledged when selecting the study areas and the implementation of fieldwork was adapted to each local situation. Finally, cultural specificity impacted on the initiation process organising participatory and interactive workshops, meeting stakeholders, logistics, time keeping, working habits. Perhaps more influential than the specific political and cultural situation, personal relationship and trust built with local partners was very rewarding and positively influenced the overall quality of the fieldwork.

1.7 Structure of the study

This thesis investigates the relationships between forms of public participation, water management challenges, and engaged actors. Chapter II analyses the ontological dimension to integrated water management and illustrates the complexity of the IWRM-PP relation via some potential ambiguous interpretations of the WFD. Chapter III presents the methodological approach to research and the epistemological strategy

⁶ Short stays in the field were dictated not only by financial constraints but more by personal responsibility independent to research; the reader might appreciate the author's circumstance when reading the last part of the acknowledgements.

undertaken. Chapter IV briefly describes the four study areas. Chapter V displays the results of a familiarisation phase that defines an interpretative analytical framework for use in exploring water management concerns and initiates an investigation on the appropriateness of different forms of PP. The findings elicited through scoping interviews and an initial stakeholder questionnaire are further through a medium scale questionnaire survey and reported in Chapter VI (the quantification phase). In Chapter VII, the water management challenges previously elicited are organised in terms of priorities and tested against a newly developed typology of participation based on findings from the literature review and the fieldwork. I also investigate the potential roles of the competent authorities to open the public sphere to deliberation and I assess the preferred strategy of communication to raise awareness and involve the public in IWRM. Chapter VIII synthesises the findings and Chapter IX concludes the thesis. Figure 1.1 illustrates the structure of the thesis.

Which type of participation for which type of water management challenges?

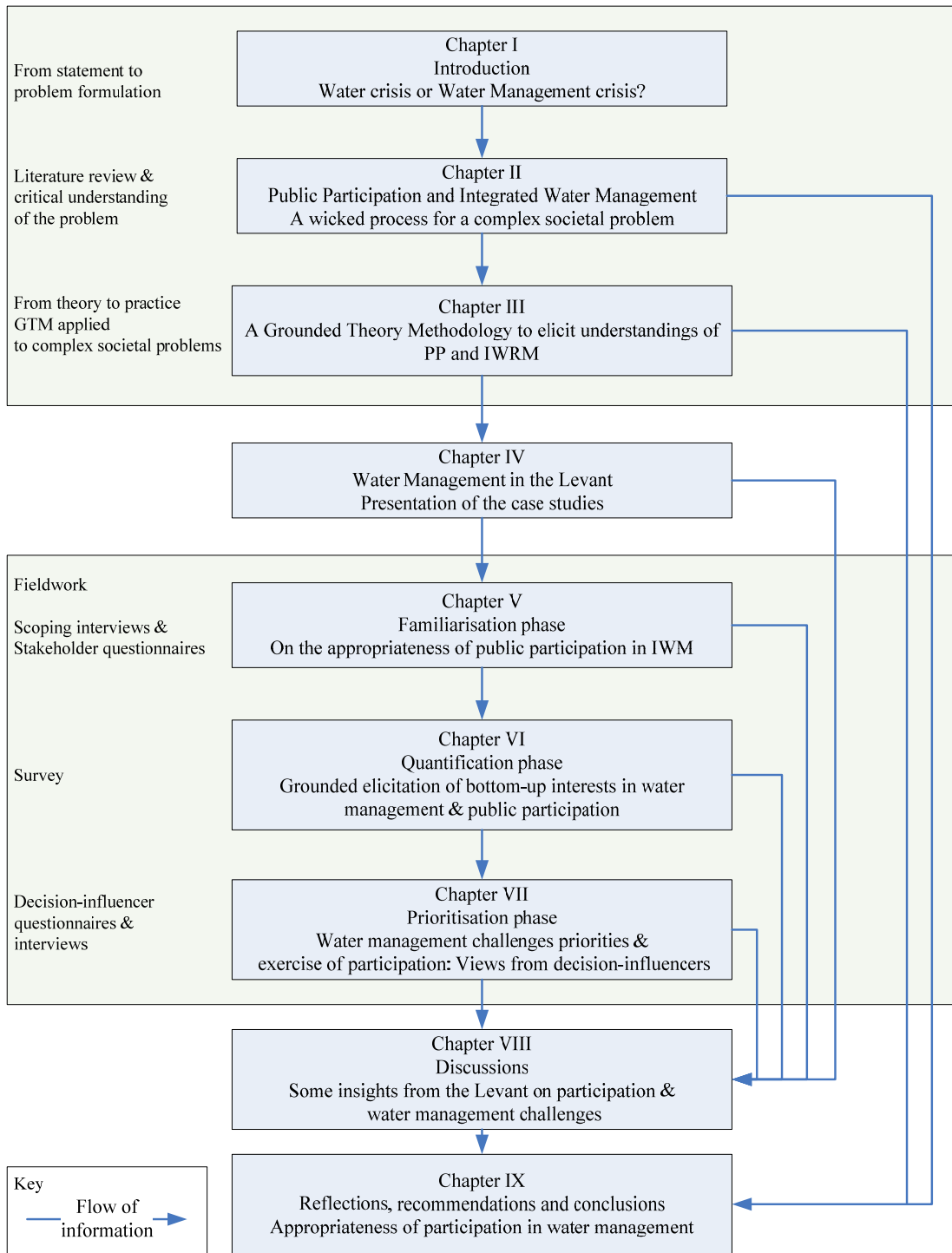


Figure 1.1: Structure of the study

Chapter II

2 Public Participation and Integrated Water Management

2.1 Introduction to Chapter II

Thirty six years after the Stockholm declaration on the Human Environment and twenty one years after the Brundtland Commission defined sustainable development (SD), there is a consensual recognition that the management of environmental resources requires that societies utilise a variety of sources of knowledge to manipulate those economic, environmental and ethical dimensions which shape modern societies and influencing our common uncertain future. I am here specifically interested in water management. Sustainable development as applied to water management is referred to as Integrated Water Resources Management (IWRM). IWRM tackles increasing water scarcity through coordinating demands for limited water resources of which the degradation impacts on both human development (health, hygiene and culture) and on economical development present and future. Despite the far reaching consensus on the need for a broadly based consideration of economic, environmental and societal dimensions, the implementation of IWRM is challenging because in practice it calls for different understandings of priorities and practices, at different scales of responsibility. To overcome the diversity of views, opinions and the potential conflicts emerging over the management of a state strategic and local public good, milestone international declarations and conventions advocate public participation (e.g. the Dublin Principles, the Rio de Janeiro Declaration, the Aarhus Convention⁷). However the implementation of a participative approach to IWRM is problematic. The EU Water Framework Directive (WFD) is currently one of the few bodies of legislation that reflect both IWRM and public participation (Article 14) principles. Despite the abundant literature reporting case study specific success and or a failure of participatory initiatives, there is no blue print for public participation in IWRM (ADB, 2001; CIS, 2003; Ridder *et al.*, 2005; UNESCO, 2003,

⁷ IWRM's principles have been recognised through several milestone declarations starting with the first UNESCO International Conference on Water, Mar del Plata (UNESCO, 1977) in Argentine. The most significant milestones are set in the Dublin Principles on Water and Sustainable Development (ICWE, 1992), the Rio de Janeiro Declaration on Environment and Development (UNEP, 1992) and the Aarhus Convention on Access to justice in Environmental Matters (UNECE, 1998). Since, then all international environmental focused conferences are re-commending these principles (International conference on freshwater, Bonn 2001; World Summit on Sustainable Development, Johannesburg 2002; World Water Forums in The Hague 2000, in Mexico 2006, etc...).

2006). This is not a new issue. Carol Pateman noted back in 1970 that there is no blue-print for participative democracy in general (Pateman, 1970). There is hence a theoretical and practical gap between aspirational principles and a practicality of participation in IWRM (EEB-WWF, 2004, 2005; WWF, 2004). I propose that a central barrier to implementing PP in general and Article 14 of the EU WFD in particular is that IWRM problems are complex in character and that participation is a wicked process in practice.

The first part of this chapter presents the background to and principles of IWRM, the challenges over the integration of those principles and illustrates to what extent water management is complex in character. Conceptual differences between societal complexity and wickedness are then clarified. Public participation is at the heart of IWRM and is based on the notion of deliberative democracy which challenges the elitist model of decision making in public policy and the interactions between public, private and associative actors i.e.: the hegemonic Rational Choice Theory approach criticised by Reich (1985), Laird (1993), Dietz (1995) and Dryzek (2000). The second part of Chapter II briefly presents the diversity of theoretical approaches to participation and illustrates to what extent participation is considered in this thesis as a wicked process.

The third part of Chapter II presents the interpretative challenges in implementing PP in IRWM through a critical reading of the EU WFD (used as an example of a legal framework that impacts on third countries water policy). Finally the research questions articulated in Chapter I are revisited to focus on how PP is exercised in relation to water management policy.

2.2 What is this thing called IWRM?

There is a general consensus amongst national and international institutions (ADB, 2001; EBDR, 1995; GWP, 2000, 2004; UNESCO, 2003, 2006; World Bank, 1993, 1996a, 1996b, 1998, 2007) on the theoretical principles of IWRM, but one can anticipate that the implementations of a participative river basin management plan might be subject to diverging interpretations (illustrated in §2.4). One can easily challenge that there is little integrated approach despite what is claimed because what IWRM is and implies, are value judgments based on a specific (time and space dependant) political, economic, social and technical context with attendant constraints; IWRM is thereby a social construct.

2.2.1 Definition of IWRM

Sustainable development was defined by the Brundtland Commission as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987). Loucks defines IWRM as “*those systems designed and managed to fully contribute to the objectives of society, now and in the future, while maintaining their ecological, environmental and hydrological integrity*” (2000, p.8). The Global Water Partnership (GWP) defines IWRM as a “*process which promotes the co-ordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*” (GWP, 2004, p.22). These definitions of IWRM acknowledge that systems are linked and non dissociable and are non-independent; a brief review how water it is referred to in the WFD helps to grasp the depth of these interconnections.

2.2.2 Multiple identities of water

Traditionally water, as an object, is fragmented between water resources and water services (EU, 2004). As a resource, water is fragmented between surface water, groundwater and estuary waters. Water services are fragmented between drinking water treatment and distribution, collection and treatment of wastewater. All these distinctions resist holistic management as claimed by the EU and UN agencies (CIS, 2003; UNESCO, 2006) because the relevant responsibilities, competences, and resources are scattered over a multitude of institutional and private actors preventing the commended integrated approach. There is a need to reconcile rights to and duties over water resources and services management within and outside the public sphere. As an object water is also considered as a gift form mother-nature or from God (here again, there is a cultural and an interpretive perspective). Water is also considered as a valuable resource in terms of economic added value, as a local-essential element for human and social development, as a strategic resource for the state, as a weapon for domination and justification for conflicts (Allan, 2002; Hajer & Zonneveld, 2000; Selby, 2003). The WFD attempts to reconcile these different understandings, and defines the several facets of ‘water’ as illustrated in Box 2.1.

Box 2.1: Water as legally defined in the EU Water Framework Directive

Box 2.1

Preamble 1: *“Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.”*

Preamble 15: *“The supply of water is a service of general interest as defined in the Commission communication on services of general interest in Europe.”*

Article 1: *“The purpose of this directive is to establish a framework for the protection of inland surface waters, traditional waters, coastal waters and groundwater...”*

Article 2 (38): *“‘Water services’ means all services which provide, for households, public institutions or any economic activity:*

(a) abstraction, impoundment, storage, treatment and distribution of surface water or groundwater,

(b) waste-water collection and treatment facilities which subsequently discharge into surface water”.

Article 2 (39): *“‘Water use’ means water services together with any other activity identified under Article 5 and Annex II having a significant impact on the status of water. This concept applies for the purposes of Article 1 and of the economic analysis carried out according to Article 5 [economic, environment and ethic dimension] and Annex III, point (b).”*

The interconnections between environmental and managerial systems with other water bodies is outlined for coastal and estuary ecosystems in Preamble 17 (vulnerability and interdependence of ecosystems), in Preamble 21 (acknowledgement of past convention and Council decision for the protection of marine and coastal environment) and in Preamble 23 (coordinated action between Member states to control transboundary water problems, in Article 1 & 2). The environmental and managerial continuity with groundwater is outlined in Preamble 26 (“good water status” concerns also groundwater), Preamble 28 (long term planning), Preamble 33 (coordination of measures for all water bodies part of the same ecological, hydrological and hydrogeological system), Preamble 34 (integration of qualitative and quantitative aspects) and in Articles 1, 2, 3 (administrative arrangement), Article 4 (environmental objectives), Article 7 (water used for the abstraction of drinking water), Article 8 (ecological monitoring), Article 11 (programmes of measures) and Article 17 (strategies to prevent and control of groundwater).

This clear physical continuity is crucial because it shapes the issues of responsibility over resource and service management, the issue of usage (consumption), and it influences who are the concerned or affected parties with

regards to policy development and implementation. Therefore the definition of the object (water resources) affects in the construction of the definition of the management challenges (resources and services): there is no stopping rule and no definitive formulation of what is water as a resource or as a good. In other words, the identification of the actors is concomitant with the definition of the objectives and means for implementing IWRM paradigm.

2.2.3 Challenges for integration

Economic, environmental and social systems are indeed not closed, they are deeply interlinked. The depth of these interactions is open-ended, and requires comprehensive investigation. The GWP (GWP, p.30) defines IWRM with three overriding criteria – economic efficiency in water use, ethical (social and institutional) and environmental / ecological sustainability (the three E's). Indeed they are overriding because the systems to which these criteria referred to, are complexly interlinked as highlighted by Collins & Ison (2006) who characterise IWRM as having a high degree of interdependency, uncertainty and controversy. Due to ease and practicability of financial commensurability, one might assess environmental, social and technical priorities according to a list of economical key performance indicator's (Norman & MacDonald, 2004). Restricting water management policy to a single dimension biases the plurality of analytical frameworks for IWRM and ordinates other social and environmental systems according to a single economical perspective. There is no immediate nor ultimate one-dimensional test (Freeman, 2000), whether economic or other, to assess values or benefits of IWRM. These three dimensions as well as the various sectors across which IWRM seeks to balance utilities, need to be integrated in the construction of the problem, in the definition of a set of solutions and during the evaluation of implementation. Integration in IWRM also refers to coordination across areas of planning, not just the triple bottom line, i.e.: the relationship within rather the sum of its components.

The WFD contains a strong emphasis on the need for integrated actions as presented in Preambles 4 & 9: "*it is necessary to develop an integrated community policy on water*", Preamble 19, and obviously in Article 13 with the key product of the directive being the River Basin Management Plan. The Common Implementation Strategy guidance document n.8 on Public Participation details the areas where integration is needed: in setting environmental objectives, "*all water resources*[...],

all water uses[...], function an values[...], of disciplines[...], of analyses and expertises[...], of water legislation into a common and coherent framework[...], of significant management and ecological aspects[...], of a wide range of measures, including pricing and economic and financial instrument, in a common management approach[...], integration of stakeholders and the civil society in decision making[...], integration of different decision-making levels that influence water resources and water status[...], and integration of water management from different member States [...]” (CIS, 2003, pp.5-6). The WFD’s preambles and articles are shown according to their emphasis on one or more of each of the three E’s in Figure 2.1. This organisation indicates the frequency of articles and preambles related to one or more elements of the triple bottom line, but does not infer the strength or emphasis of any of them.

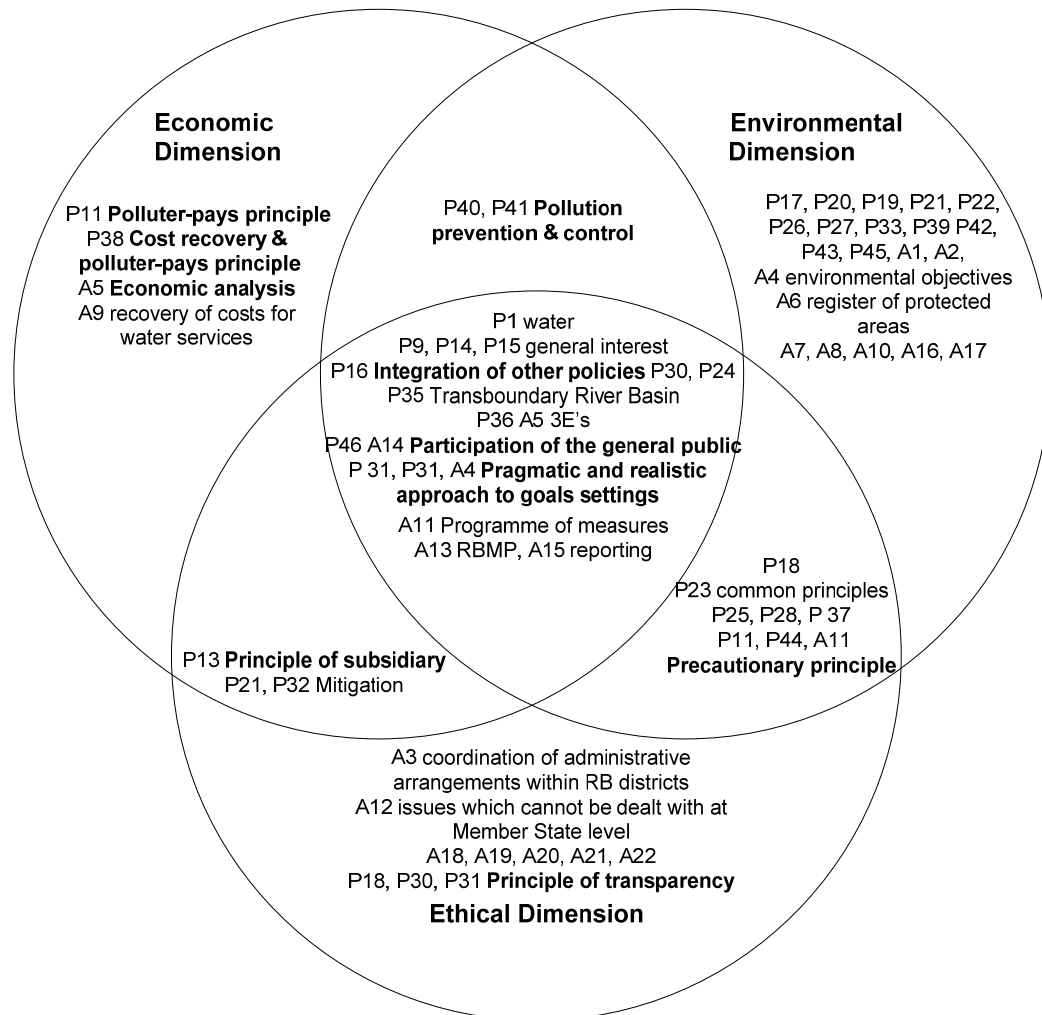


Figure 2.1: Presentation of selected WFD preambles (P) & articles (A) according to the 3E’s dimension of IWRM.

This organisation of articles and preambles highlights three key aspects of water policy development as understood in this study:

- It provides an example of the multi-dimensional nature of the IWRM challenge;
- It anchors IWRM in a WFD context and it manages to illustrate how the WFD capture the ambitions of IWRM, however superficially since restricted to a categorical approach to problem solving and not on interactions between the 3 E's;
- It emphasises the inherently social nature of IWRM.

The main conclusion to be drawn from this section on the meaning of IWRM is that a differentiation between water 'resources' and water 'services' in the context of the term 'integrated' is counter productive as the management of both resources and services must be taken into consideration for integration to be meaningful. Consequently, from this point onwards I will refer to Integrated Water Management (IWM)⁸. The acronym IWRM will nevertheless be used when referring to other works and when reporting fieldwork activities because it was the convention used when working with experts and stakeholders.

2.2.4 Integrated Water Management problems are complex in character

The increasingly frequent use of the terms 'complex' and 'wicked' is part of a steady intellectual attempt to construct a contemporaneous and post-modern approach to understanding societal issues and re-phase (re-tune) scientific method to the diversity of areas involved to define what the problem is (Blaikie, 2007; Francis, 2006; Kolkman *et al.*, 2005; Patterson & Williams, 1998; Schindler & Cramer, 1999). There is still a high degree of confusion in the literature between social complexity and wickedness. In the following I differentiate between the societal issue itself (which is perhaps better described through a systemic approach as defined by Morin [2005]), from the means or tools commended as method to cope with the inherent uncertainty of these complex problems. In other words, PP as a discursive or deliberative tool is a wicked process (series of tools and exercise constituting a participative approach) that in some circumstances is claimed to strengthen the public sphere (Hall *et al.*, 2007)

⁸ The expression Integrated Water Management was been used by Geldof to emphases that in integrated urban water management "*surface water and groundwater cannot be considered separately, in the same way water quantity and water quality cannot...*" (1997, p.265) and as a generic term by Kolman *et al.*, (2005). I will use IWM in the theoretical discussions all along this study, but I will continue to use IWRM especially to report fieldwork because IWRM is the current conventional acronym in use.

where the community of interested and affected actors can argue the extent of the consequence of their actions and hence contribute to solve complex societal problems like water scarcity (wickedness of PP is illustrated in § 2.3.2).

2.2.4.1 What is a complex societal problem?

As there is no unified theory of complex system and characteristics of complexity, there is no unified use of concepts or of vocabulary to define social complexity. Based on the work of Asher (2001), Blaikie (2007), Collins & Ison (2006), Conklin (2005), Dobuzinski (2004), Dunn (1988), Morin (1997, 2005a, 2005b), Mitleton-Kelly (2003), and Stacey (1996), I propose to define societal complexity with seven characteristics:

1. Interconnection of systems or high degree of connectivity (Mitleton-Kelly, 2003; Morin, 2005b). For example, the polluter pays principle makes the boundary of the problem diffuse: (i) the definition of pollution is blurred: what are the standards and how to legally define a chemical threshold...; (ii) who pollutes: the farmers, industries, people in general, roads, wildlife or pest?; (iii) paying for what and to whom? One can prevent pollutants to enter the system (ecological, economical, system of production and of consumption) or one can remove them from the wastewaters at a cost that is to be paid, but by whom and to whom?
2. Interdependence of actors & complicateness of social phenomena (Collins & Ison, 2006, Dobuzinski, 2007), principle of recursion reciprocal interactions agencies-society (Morin, 2005b). On the one hand there are numerous actors, interacting (willingly or not) with each other. On the other hand, individuals are part of a social and professional group interacting with members of the group and being influenced by the group.
3. Uncertainty of knowledge source (Collins & Ison, 2006; Flyvberg, 2001; Geldof, 1997; Hajer, 2000; Nowotny, 1999, Nowotny *et al.*, 2001; Morin, 2005b; Selby, 2003). Measuring water quality (or pollutants) for either drinking, irrigation or bathing purpose and claiming that it meets specific standards can be challenging and challenged.
4. The interpretive ontology (the nature of the problem is a matter of construction of reality) and the confusion subject-object especially when studying a societal problem shape what becomes the focus of a policy. The role and responsibilities to produce knowledge and how it is used to make decision is not value-free

- (Foucauldian approach knowledge-power). Experts, civil-servants and research actors (public and private funds) that study environmental management and the relationships between institutions and users influence the quality of new knowledge, norms, values and provide truth claims (that are typically engineering or economical based) on which decisions are made.
5. Character of irreversibility: decisions such as dams, privatisation of water services, combined or separate sewer system and its management, agriculture (irrigation) policy (etc...) are long-lasting and often irreversible; one cannot undo policy decisions and nor their impacts on society.
 6. Character of unpredictability: it becomes then difficult to anticipate all facts and consequences of draining a wetland, or changing drinking water quality standards, of a new water pricing policy etc...
 7. Order and disorder: organisation and adaptation of actors and of institutions to the changing context with new norms, laws, transfer of technology, will affect behaviours and impact on each-other. For example, allocation of water for agriculture impacts on the types of culture, crop patterns, soils, surface and ground water quality, and finally on the effort to produce drinking water and on its economical, ethical and environmental value. Treated wastewater could also be used for irrigation but at which economical, environmental, technological, cultural and political cost? From one equilibrium in the relation actors-context to another will emergence new properties, strategies, behaviours via the exploration-of-the-space-of possibilities and interwoven feedbacks (Dobuzinski, 2007; Mitleton-Kelly, 2003; Morin, 2005b; Stacey, 1996).

From this point onwards, when committed to understand societal complexity, I adhere to the view that research should focus more on the relationship than on the distinction between an open system and its environment (Flyvbjerg, 2001; Morin; 2007).

2.2.4.2 *IWM is a complex societal problem*

Implementing the principle of 'good water status' will require consideration of a wide range economical, environmental and social dimensions and is subject to the interpretations of a multitude of stakeholders' interests (Collins *et al.*, 2007). In this sense the WFD and the Integrated Water Management (IWM) principles it articulates, presents a complex societal problem, one based on a multitude of components with relationships of changing qualitative and quantitative nature. Inherent to a complex

system is the uncertainty of the nature of the issues at stake and the way each actor interprets the problem and the set of solutions on offer. IWM is a social construct where the values, education, culture and interest of different actors are conflicting. The water cycle is hence characterised by a high degree of inter-relationship, interactions, interconnectivity of entities within a system and with its environment (Loucks, 2000). The management of these complex societal problems is subject to interpretation and engenders emergent behaviours or strategies to adapt to new conditions. A water management policy is often irreversible in the sense that once a dam or a wastewater treatment plant is built the consequences will last for a long time. The same irreversibility applies for land use impacting on water bodies, standards for water quality and religious or traditional water usage. Uncertainties involved in water management policy are not only restricted to the quantity of technical knowledge but also to the quality of knowledge production that is incomplete by nature, unpredictable, and subject to diverging interpretations by a multitude of stakeholders.

The objectives of “*maintaining and improving the aquatic environment in the Community*” (CEC, 2000, Preambles 19 & 33), and the construction of a RBMP subject to public consultation and active involvement from a wide range of interested parties are clearly presented in the WFD and the CIS n.8. However, the details of implementation can only be defined *a posteriori*, once the problem has been constructed, once interested parties have reflected on process and content of a RBMP, once they have holistically reflected on the nature of a complex societal problem and on a strategy to address it. There is neither water management challenge nor policy priority without human kind. Water catchments are complex social and ecological systems and water management problems have complex characteristics (Collins & Ison, 2006; Collins *et al.*, 2007; Sigel *et al.*, 2007). The management and policy elaboration of such complex societal system constitutes a complex societal problem (Stacey, 1996; Mitleton-Kelly, 2003). Consequently, one might question what are the water management challenges according to different stakeholders (top-down and bottom-up views, §2.5.2.).

2.2.4.3 *Difference between complexity and wickedness*

These types of societal problem are also known as “*wicked*” (Fisher, 1993, p.172; Rittel & Webber, 1973 p.160), “*ill-structured*” (Dunn, 1988, p.721; Simons, 1973, p.181), “*unstructured*” (Hisschemoller & Hoppe, 1996, p.43) or “*complex*” (Conklin,

2005, p.1; Stacey, 1996, p.183). Changing interpretations and expectations, or the lack thereof, affect the flexibility of actors and institutions making the implementation of PP in IWRM a complex problem. Allan & Gould (1986) attempt to make a distinction between complex and wicked problems. For them, complex problems related to natural systems (forestry management) while “wicked” problems related to social systems and values. This distinction is biased when one understands that the management of natural system is anthropogenic and as such a social construct. There is no water or forestry management problem without human kind.

In this study the adjective ‘complex’ will be used to qualify the kind of societal problem explored, (i.e. water policy) while ‘wicked’ is preferably used to qualify a conceptual tool (and by extension a process made of a series of tools), a means for addressing a problem and structuring a problem solving process (i.e. public participation as explained in §2.3.2).

2.2.5 Public Participation as a means to design IWM policy

At the heart of Integrated Water Management is public participation, access to just process and participation of all stakeholders (CIS, 2003; UNECE, 1998; UNESCO, 2002, 2003, 2006; GWP, 2000, 2004). Public participation is both central to the implementation of the WFD and for the construction of complex societal problems because in simple terms, if the problem is the definition of the problem then let us define the problem together. Just as there is no detailed understanding of, and objectives for IWM, so the definition and objectives of public participation, remain ambiguous. The meanings of both ‘participation’ and ‘stakeholders’ are changing (very unstable definitions) and evolve as people are involved. So, why is public participation so important to the implementation of IWM and what is the rationale for PP in the WFD?

The EU’s rationale for public participation in IWM

The fundamental rationale for PP in the WFD is “*to ensure the effective implementation and achievement of the environmental objectives of water management (good status in 2015). The main purpose of public participation is to improve decision-making, by ensuring that decisions are soundly based on shared knowledges, experiences and scientific evidence, that decisions are influenced by the views and experience of those affected by them [...]*” (CIS, 2003, p.14). The benefits of public participation in the WFD are seen as:

- *“Increasing **public awareness** of environmental issues as well as the environmental situation in the related river basin district and local catchment;*
- *Making use of **knowledge, experience** and **initiatives** of the different stakeholders and thus improving the quality of plans, measures and river basin management;*
- ***Public acceptance**, commitment and support with regard to decision taking processes;*
- *More **transparent** and more **creative** decision making;*
- ***Less litigation**, misunderstandings, **fewer delays** and more **effective implementation**;*
- ***Social learning** and experience – if participation results in constructive dialogue with all relevant parties involved then the various publics, government and experts can learn from each other’s ‘water awareness’” (CIS, 2003, p.14 author’s emphasis).*

Furthermore, PP is viewed as a way to *“avoid potential conflicts, problems of management and costs in the long term” (ibidem, 2003, p.14).*

This rationale for public participation is not novel, but it is important to realise that the EC, via the Water Directors of the European Union, itself commends PP. The different reasons and benefits of PP serve as a basis for interpretation of the practical participative exercise in supporting the development of a RBMP. Public participation underlies all objectives of the WFD and its very success as stipulated in Preamble 14 and reinforced in the CIS n.8: *“public participation plays a key role in the Water Framework Directive” (CIS, 2003, p.9).* The Common Implementation Strategy is the closest document to a guideline that is available to competent authorities. The CIS n.8 is very clear that implementation is a complex issue, but denies its own value as a blue-print, preferring to label itself as a reference document. In this respect, *“a clear signal should be given that no blue-print exists for public participation and that the public participation process should be organised and adapted to national, regional and local circumstances” (ibidem, pp.iv-v);* this point is emphasised several times (*ibidem*, p.1, p.26, p.57 and p.60). The expectation from competent authority towards some sort of blue-print is high. While waiting, in vain, for a set of prescribed measures to apply or guidance on preferred or recommended techniques and processes, the questions that must be asked is how come such an important element

has no blue print? One must also question what is participation, which are the theoretical approaches used to define and to categorise different types of participation? This question is (partly) answered by presenting the notion of power, of communication and the objectives to initiate participation (§2.3). I will attempt to illustrate to what extent PP is a “wicked” process (§2.3.2). One cannot avoid this wickedness because both the Directive (and overall IWM) and the participatory process that is expected to guide and support its implementation are subject to interpretations. Consequently, one can anticipate conflicts over the implementation of Article 14 and its impact in other aspects of the WFD (§2.4). A key research focus of the study will address the wider public’s understanding of water management challenges and expectation towards public participation (§2.5.2).

2.3 What is this thing called public participation?

Rowe & Frewer (2005) depict the confusing plethora of terms used in the public engagement field and list more than 100 public engagement mechanisms and they acknowledge that their list is not exhaustive and does not take into account the discussions on participation that occur in the vast grey-literature⁹. The diversity of meaning has led to misunderstanding amongst stakeholders (Arnstein, 1969; Beierle & Cayford, 2002; Dorcey *et al.*, 1994; Edmont, 1975; Glass, 1979; Kessler, 2004; Nelkin & Pollak, 1979; Parenteau, 1988; Rowe & Frewer, 2000, 2004, 2005). While PP has been attributed with the virtue of enhancing good governance, decentralisation and democratisation of decision making process, it has also generated scepticism and disillusion (Motion, 2005; Petts, 2008). The issues of trust, accountability, fairness, level and time of involvement of different type of stakeholders are determinants of conflict avoidance/resolution but poorly defined (English *et al.*, 1993; Fiorino, 1990; Fisher, 1993; Laid, 1993; Pateman, 1970; Reich, 1985; Rowe *et al.*, 2005).

At present the field of public participation is characterised by an interesting juxtaposition of a rich experimental knowledge and growing, but scattered theoretical literature (Webler, 1999). There are indeed a number of definitional issues that need resolution before research can meaningfully, be directed toward the development of such a theory or model of contingent utility of participation mechanisms (Rowe &

⁹ This section is not intended to review the history of participation, nor to provide a list of the participative practices. The reader might be willing to refer to Beierle & Cayford (2002), Forester (1999b), Parenteau (1988), Kasemir *et al.* (2003), van Asselt *et al.* (2001), or to some of the following guidelines and handbooks: EBDR (1995), UNDP (1997, 2000, 2002), Wilcox (1994) and the World Bank (1993, 1996a, 1996b, 1998).

Frewer, 2005). The concept of public participation is not well formulated, such that 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). Misunderstanding, manipulation, lack of consideration for alternative opinions lead to frustration, loss of trust, disillusion in democratic governance and participative approaches can generate more conflicts (Motion, 2005; Mouffe, 1999; Wiedemann & Fremers, 1993).

In next four sub-sections I briefly present three theoretical approaches to public participation through the concepts of power, of communication and of the objectives to initiate it, and I introduce the important role of the competent authority in fostering or inhibiting participation opportunities.

2.3.1 Public Participation for what end? Some theoretical approaches

Many academics and practitioners distinguish public participation, stakeholder involvement or engagement based on the extent to which citizen or stakeholder are empowered in the final decision-making process (Collins & Ison, 2007; Forrester, 1999a, 1999b; House, 1999; Rowe & Frewer, 2000, 2004, 2005; Wilcox, 1994). Others (Beierle & Cayford, 2002; Glass, 1979; Kessler, 2004; Parenteau, 1988; Ridder *et al.*, 2005) emphasises that the meaning of participation, involvement and engagement overlap and are used interchangeably to “*denote a process by which individuals and groups come together in some way to communicate, interact, exchange information provide input around a particular set of issues, problems or decisions, and share in decision-making process to one degree or another*” (Ashfort & Rest, 1999, p.3). Since there is no consensus on the meaning of those terms they are used in this study interchangeably.

A similar semantic confusion surrounds the terms of stakeholders, citizens, the public, the community. English *et al.* (1993) and Ridder *et al.* (2005) distinguish stakeholder from the public by pointing out that the latter are unorganised, as opposed to stakeholders who are organised either around industrial interests or through unions and association. According to Kessler (2004) the community often includes not only those relying on the protection of the resource in need to protection, but extends to all of those interested or affected by environmental management. Clearly, the public, the community, citizens and stakeholders overlaps especially in IWM. In fact, the boundaries of who has an interest in the decision-making process or who will be

impacted by the decision are changing with the nature of the issue, time, decision-making process and the types of participation. I will refer to ‘stakeholders’ to any organised group of individuals that are not part of the public administration including water users, small and big businesses, experts, Unions, NGO’s etc... and to ‘the public’ otherwise.

Attempts to clarify definitions of participation are focused on three concepts: power, communication flow and objectives for initiating PP.

2.3.1.1 Participation and power

Participation has been most described through the extent to which stakeholders or the public are involved in the decision-making process because empowerment of stakeholders is claimed to improve decision making procedure, acceptability of the decision, its legitimacy (ADB, 2003; Beierle & Cayford, 2002; Deleon, 1995; Dorcey *et al.*, 1994; Kessler, 2004; Parenteau, 1988; Ridder *et al.*, 2005; UNDP, 1997). Most typologies (Eidsvik, 1979; Fischhoff, 1998; NOAA, 2000; Pretty & Shah, 1994; UNDP, 1997; Wilcox, 1994; presented in Table 2.1) developed to classify the diversity of participative practices are based or inspired on Arnstein’s ladder of citizen participation (1969). This approach to participation focuses mainly on the extent to which stakeholders are empowered to influence or to make the final decision. Arnstein describes eight level of practices that are all claimed to be participative gathered into three categories: i) “*non-participation*” encompasses “*manipulation*” and “*therapy that have been contrived by some to substitute for genuine participation*”; ii) “*tokenism*” includes “*informing*”, “*consultation*” and “*placation*” these practices allow the have-nots to hear and to have a voice, and iii) “*citizen power*” that covers “*partnership*”, “*delegated power*” and “*citizen control*” where “*citizens have increasing degree of decision-making clout*” (Arnstein, 1969, p.217). The authors mentioned above tend to be normative and use truth claim such as ‘actual’, ‘real’ and ‘meaningful’ to emphasises that only power over the final decision characterise participation. This approach to participation tends to minimise the temporal and procedural character of participation; somehow eluding that informed decision for policy making takes time, information, interpretation of and some degree of consensus through socially constructed shared values. Foucault (1984, 1991, 1994) emphasised that instead of studying who owns power for what, one should study how power is exercised through the network of relationships that produce truth through

discourse and that knowledge is power-laden. The sole focus on power in decision-making is not able to offer an adequate analytical framework to tackle the appropriateness of participation in complex societal problem.

2.3.1.2 *Participation and flow of communication*

The above gap between theoretical approach and the reality of environmental decision is partly bridged by considering the dimension of communication and the flow of information between the competent authority (traditionally in charge of the decision making process or coordinating the several local, regional and national administration layers), the stakeholders and the wider public. EBDR (1995), English *et al.*, (1993), Green & Hunton-Clarke (2003) and Rowe & Frewer (2005) distinguish between informative, consultative and decisional participation¹⁰. With “*informative participation*”, stakeholders receive selected and interpreted facts from the competent authority. There is no involvement of stakeholders *per se* since that public feedback is not especially required or sought. Via “*consultative participation*”, the competent authority solicits stakeholders’ opinions and views on proposals. The opportunity to actually influence the final decision relies on the accountability and the transparency of the competent authority to take the elicited opinions into consideration. Through “*decisional participation*”, information is exchanged between stakeholders and the CA with the intention to share power and eventually to let the public make the final decision (Table 2.1).

Approach to participation based on communication is anchored in the habermasian concept of deliberative democracy (Dietz, 1995; Dryzek, 2002; Eriksen & Weigård, 2004; Fischer, 1993; Hartley & Wood, 1995; Motion, 2005; Mouffe, 1999; Tewdwr-Jones & Allmendinger, 1989; Webler, *et al.*, 1995; Webler, 1999). Habermas (1989) envisioned an idealised public sphere in which citizens legitimate positions by presenting and justifying views in a public forum which appeal to the common interest and ideally, subsequent decision making reflects a rational, agreed-upon common good (Motion, 2005; Hall *et al.*, 2007). The main theoretic flaw with this

¹⁰ English *et al.* (1993) and Rowe & Frewer (2005) use “*Public communication*”, “*public consultation*” and “*public participation*” grouped under the generic umbrella of “*public engagement*”. The EBDR (1995) used “*advisory participation*”, and Green & Hunton-Clarke (2003), “*informative participation*”, and then both use “*consultative participation*” and “*decisional participation*”. The nomenclature from Green & Hunton-Clarke (2003) was preferred because more explicit. This typology is presented in Table 2.1. It will be enriched and adapted from grounded results and finally submitted to decision influencers as reported in Chapter VII.

approach is to consider a state where communication is free from power issue, where all participant should have equal opportunity to present and criticize validity claims, where existing difference between participant are neutralised (no hierarchy), where power holders (competent authorities) and power influencers (experts, private interests, and pressure groups) are all willing to open the public sphere to such unconstrained deliberation (Dietz, 1995; Dryzek, 2002; Flyverbjerg, 2001; Motion, 2005; Parenteau, 1988; Tewdwr-Jones & Allmendinger, 1998; Webler, 1999).

Tewdwr-Jones & Allmendinger, question the ability of Habermasian collaborative planning to address “*the complex configuration of power relations in which planners and partners are enmeshed*” (1998, p.1988). Additionally, Motion (2005) and Petts (2008), warn-us that participative public relation in which stakeholders are discursively engaged with pre-determined solutions and conflict suppressed or ignored, may in fact, simply be a means of masking power relations rather than deliberative democracy. Although the communicational aspect of PP complement an approach simply based on power over the final decision, it remains focused on an ideal distant target. Shortfalls of this theoretical approach to participation can be anticipated when objectives to initiate PP are clarified.

2.3.1.3 Objectives to initiate Public Participation

The literature (both academic and ‘grey’) is very rich in lists of claimed benefits of PP, but although drawn from practical experience, reports remain top-down views and rarely analysed views from participants (Chilvers, 2007; Webler, 1999; Webler *et al.*, 2001). The mismatch between expectations of participation (including stakeholder and the public) and the reality of practices lead to disillusion in participative approach and can generate more conflicts (Kessler, 2004; Motion, 2005; Mouffe, 1999; Petts, 2008; Sidaway, 2005; Wiedemann & Fremer, 1993; White, 1996). Glass (1979) and Dorcey *et al.* (1994) suggest to give attention to the objectives to initiate PP with respect to an issue at skate when designing participative exercise in order to avoid potential misunderstanding between the competent authority and the public. Their two typologies of purposes are compiled as follow and included in Table 2.1 below:

- **Information exchange:** Inform the public of a government initiative and its decision making process;
- **Education:** Educate the public about the background to a decision or policy, indicating the alternatives and their pros and cons;

- **Support building:** Involves activities to create a favourable climate for implementation of proposed plan and or the resolution of conflict between groups and the authority;
- **Representative input:** Gather information and perspectives of the entire community in order to supplement other sources of information in developing a policy or decision;
- **Decision-making supplement:** Test ideas and seek advice from the public on proposed options regarding a policy or decision, asking for additional proposals;
- **Define issues:** Involve the public in defining issues regarding a policy area.

One the one hand, information in the first three objectives is not used to empower the stakeholders to shape decision making but rather to promote its acceptability. Support building introduces the objective of conflict resolution amongst groups with potentially diverging vested interests. On the other hand, communication in the last three objectives is two-way and enables to influence the decision making process. Glass (1979) emphasises that the former are associated to the administrative perspective, while the latter to the citizen perspective. A key research question that this study addresses (§2.5.2) is then: what is the meaning of public participation and how is PP understood from a top-down and a bottom-up perspective?

2.3.1.4 Roles of the Competent Authority

As seen above whether participation implies empowerment in the decision making process, communication exchange of different nature and objectives, the type of participation relies on the decision-making culture of the Competent Authority. The culture of the administration in decision-making can foster or inhibit a favourable context into which communication will flow and power will be shared depending on the objectives to initiate participation, as pointed out by Dahl (1989), Deleon (1995), Dobson (2003), Dryzek (2000), Fiorino (1990), Hamlet (2003), Laird (1993), Pateman (1970), Reich (1985), Renn et al (1993), Robert (2003), Sewel & O’Riordan (1976) and van Ast & Boot (2003).

According to Dahl (1989), Dietz (1995) and Reich (1985), there are (basically) two traditions in modern politics to public decision making: (i) the administrator is an analyst which according to the rational-actor theory, bases public policy decisions on a maximisation of net-benefits (these are obviously value-laden and this point is not extended here), or (ii) the administrator acts as an inter-group mediator which

according to the pluralist democracy theory bases public policy decision on arbitration between interest-groups. They also argue that under both traditions to public policy making, the Competent Authority can either favours existing wealthy organised groups and to transform the public sphere into a lobbyist-corporatist arena (or to one extreme nobody but the administration itself through a Decide Announce Defend style of governance), or the CA can promote inclusion of citizens and newly formed (and usually small) groups of interests through discursive policy analysis and foster social learning of both citizens, organised stakeholders and administrator. The degree to which the CA is inclusive and promotes discursive decision-making process for public policy seems to be associated to its capacity to adapt its governance style to the context and issue at stake and to the degree of social interactions between social actors (Ridder *et al.*, 2005).

On the model of Arnstein ladder to citizen participation, Pröpper & Steenbeek (1998, 1999) propose an “*Interactive Ladder of Governance*” in which they draw six parallel style of governance and role of participant according to an increasing degree of interactions between decision-maker and the participants (either targeted stakeholders or the public). At the bottom of the ladder there is no participation, societal actors do not interact with the CA in the decision-making process (Table 2.1). The first degree of interaction is where the CA can be characterised as “*open authoritative*” governance, and stakeholders are mere target group of information. At the second level the government is “*consultative*”, and participants are mainly asked about possible actions to be taken by the government. The third step of the ladder is called “*participative*” governance, where stakeholder takes on a role as “*advisor*”. At the fourth level, the government delegates tasks, and actors become “*co-decision makers*”. At the fifth level of the ladder, with a “*co-operative*” government, stakeholders are “partners” in policy making. At the highest degree of interaction, the CA plays a facilitative role where participation is initiated by the social actors (Pröpper & Steenbeek, 1998, 1999; van Ast & Boot, 2003). Consequently, this study investigates the gap between current and desirable water governance to foster public participation in Integrated Water Governance (§2.5.2).

In conclusion for this very short review of theoretical approach to public participation, the typologies exposed above are presented in Table 2.1 below.

Which type of participation for which type of water management challenges?

Table 2.1: Selected typologies of Public Participation

Nature of approaches used to define typologies of public participation											
Empowerment				Communication	Objective	Role of initiator	Style of governance	Role of Participants			
Arnstein (1969)		Eidsvik (1978)	NOAA-Bens (2000)	Pretty & Shah (1994)	English <i>et al.</i> (1993) EBDR (1995) Rowe & Frewer (2005)	Glass (1979) Dorcey <i>et al.</i> (1994)	Wilcox (1994)	Propper & Steenbeeck (1999)			
Citizen Power	Citizen control	Control	Level IV Decision making and delegated Power	Self mobilisation	Decisional	Define issues	Supporting	Facilitative	Initiator	Interactive participation	
	Delegated Power			Interactive participation		Decision making supplement	Acting together	Co-operative	Co-operating partner		
	Partnership	Cooperation		Functional participation	Consultative	Representative input	Deciding together	Participating	Advisor		
Tokenism	Placation	Consultation	Participation by consultation	Support building		Consultation	Consultative	Consultant	Non-interactive participation		
	Consultation	Persuasion	Level II Consultation	Participation by information giving	Education	Information	Open Authoritative	“Target group” of information			
Non-Participation	Information	Information	Level I Information				Passive participation	Informative	Information exchange	Closed Authoritative	None
	Therapy										
	Manipulation										

2.3.2 Public participation is a wicked process

In Section 2.2.5 (above) I pointed-out that there is no guideline on PP. I argue that the inherent wickedness of PP prevents early and off-the self guidelines. With the intention to develop an innovative approach to modern policy problems that are characterised by a high degree of uncertainty of knowledge (what is hard fact?), by interconnections between open systems, high degree of interdependence of social actors (not all yet identified!), uncertainty in ontology (where the definition of problems is not value-free), Funtowicz & Ravetz, see the involvement of “*extended peer communities*” to complement experts and consultants understandings of the societal problem (1993, p.753). In this sense public participation is conceptualised as a method to attempt to solve the core challenge of modern societal policy development and implement: defining the problem. But as illustrated above public participation is neither consensual in terms of objectives and who take part, nor a linear process applicable to any context. Building on this short literature of selected theoretical approach to public participation, I propose to characterise Public Participation as a wicked process using the criteria proposed by Rittle & Webber (1973)¹¹.

1. There is no definite formulation of what participation is: a communication process like giving out information, or gathering people’s opinion, or about sharing power in defining the problem, making a decision or implementing a policy;
2. There are no stopping rules to indicate when participation stops; it can be one-off even short or long, or continuous involvement;
3. A proposed type of participation is not right or wrong but good or bad in addressing the contextual needs (normative assessment);
4. There is no ultimate test to evaluate the efficiency of participation (the output and/or the process); Rowe & Frewer describe a non exhaustive list of evaluation criteria, and emphasizes the methodological difficulties to “*develop suitable measurement instrument*” (2000, p.25). One can wonder to what extent social interactions are actually commensurable.

¹¹ The author has found no references of the term ‘wicked’ used to characterise a problem solving process but societal problems. However, the criteria proposed by Rittle & Webber (1973) to characterise policy making problem are transferable to characterise the problem solving process itself.

5. There is no consensual, comprehensive set of potential solutions. Various stakeholders will have differing view on acceptable or appropriate type of participation; the plethora of participative exercise and methods illustrate the diversity of potentialities. The details of the participative process will be the results of social interactions between engaged actors;
6. Every situation is essentially unique so that there are no classes of solutions that can be readily and *a priori* applied to a specific case. Participation is issue and stakeholders' specific;
7. The quality and quantity of social interactions between the several layers of administration (local to national) and between stakeholders are changing so that the level of organisation within a society affects communication flow, interests commitment and empowerment.

In a nutshell, Public Participation is a wicked process because the understanding the stakeholder have will change as they are confronted to the several realities of participation. The wickedness of PP in relation to IWM, is illustrated in next section by highlighting five challenging interpretation of the WFD:

- Consultation when plans are already drafted;
- Written consultation might not encourage the commended social interactions;
- “Shall encourage active involvement” – the role of the Competent Authority in promoting participative River Basin Management Plan;
- The nature of who is appropriate to participate is subject to value-judgement and shapes the process;
- When to involve: sooner or never?

2.4 Interpretative challenges – making sense of PP in IWM a critical reading of the Water Framework Directive

I argue that a central barrier for the implementation of the Water Framework Directive is that both Integrated Water Management and Public Participation are subject to different interpretations, and this within and outside EU's political borders. As introduced in Chapter 1 (§1.5), a critical reading of the WFD, is pertinent because a) EU political democratic ideals does not only impact on EU member States environmental public policy (Diez *et al.*, 2005), but also on candidate countries and is of particular relevance in twining European- Southern Mediterranean counties river

basins (Quevauviller *et al.*, 2005); b) the challenges over its interpretation provide an analytical framework to study meanings (and implication) of PP in IWM.

Having presented the rationale for public participation in Integrated Water Management (§2.2.5), and knowing that the implementation of the WFD is subject to different interpretations, - the how- needs to be deconstructed in terms of what, who and when. These three elements are interlinked, affecting both content and process of PP, and providing some perspective on the characteristics of relevant participative approaches. I set these issues out as five interpretative challenging readings. These interpretive challenges are presented as an introduction and an illustration of the inherent subjectivity to understand PP as a wicked problem solving process.

As a preface to this component of my critique, I would note that the expression ‘public participation’ does not appear in the Directive itself, but three forms of public participation with an increasing level of involvement are mentioned in the CIS n.8: informative, consultative and decisional participation. The first two are to be ensured, the latter should be encouraged. It is interesting to note that information supply is referred to as a form of PP, and later on in the same document, as of no real significance since “*the first level of real participation is consultation*” (*ibidem*, p.12). There cannot be any type of PP without information, but access to information, although a necessary condition is by no means a type of PP in its own right. Such type of PP are characterised as non-participation or manipulation according to Arnstein’s ladder of citizen participation (1969).

2.4.1 Consultation

Consultation would appear as an exercise where the public (a more vague term than stakeholders), is informed and then react to plans proposed by the authority. Consultation could hence happen after such plans have been drafted or even after a decision is actually made. Hence, the first interpretative challenge I would like to address is what would be point of asking the public how to solve these issues or how to proceed with a given working process if intervention plans have already been drafted. This approach is embedded in a Decide Announce Defend (DAD) tradition of decision-making, the one that has been widely disparaged (CIS, 2003, p.52), and that PP (according to the very same CIS n.8) seeks to change. Consultation can be understood as a post-process, used for commenting on a proposed solution. As seen

above, solution construction is affected by the construction of the problem. What is the value of consultation when the public is considering a proposed solution instead of addressing what the public considers as being the problem? More specifically, the CIS n.8 informs us that “[w]ritten consultation is regarded as a minimum requirement for implementation of the Directive, oral consultation as best practice” (*ibidem*, p.37). The compulsory requirement is to ensure written consultation that allows the public to comment on draft plans (via the internet as suggested in the CIS n.8). The means used for comment act as a filter on the type of ‘participants’, because the internet is not yet fluently used by the entire population, and written expression can be a barrier to communication. This practice is unlikely to promote opinion exchange, consensus building, social learning or adaptive management. A second interpretative challenge is that one might question how written consultation actually meets the objectives of “improving decision-making, of creating awareness of environmental issues and helping increase acceptance and commitment towards intended plans” (*ibidem*, p.iv).

There is indeed no obligation to pursue consultation if one selects its source of interpretation, and written consultation could become a window-dressing activity for PP.

2.4.2 Active Involvement

The WFD contains an obligation to encourage active involvement, and this constitutes a third interpretative challenge. The expression “*shall encourage*” (Article 14) is confusing in many respects. First, because the term “encourage” refers to the will of the competent authority to promote and to facilitate active involvement. How can someone demonstrate that member-states have indeed supported and promoted active involvement, or otherwise? Which and whose criteria will be used to assess a compliant encouragement of active involvement? One can expect conflicting interpretations over the implementation of this legal requirement. Second, the WFD confers a role to the competent authority of both promoter and facilitator, which diverges from the culture of DAD. Should competent authorities consider the WFD as a statutory document where only written consultation is compulsory, or should they adapt their strategy in developing the RBMP to the spirit of the WFD where oral consultation is best practice and where active involvement is to be encouraged? The implications for the implementation of the WFD is that on the one hand, competent authorities can use their resources to demonstrate that their current practices are

meeting the WFD's obligations, and implicitly challenge the renewal in decision-making practices. On the other hand, they can be proactive and entrepreneurial, making the decision-making process open and transparent, involving new stakeholders, acting as a facilitator and as a co-learner (also advocated in CIS, 2003, pp.50-60).

How can one verify, or differentiate a genuine will to engage in active involvement from the manipulation of existing practices to demonstrate compliance with the WFD?

2.4.3 Who is participating?

Prior to inviting stakeholders to participate in the preparation of RBMPs, the competent authority must identify who the stakeholders are with inclusiveness and transparency. The use of the expression "*as appropriate*" to refine the notion of stakeholders, constrains the inclusiveness and the transparency necessary for a robust stakeholder analysis (CIS, 2003, p.26). The fourth interpretative challenge is that the competent authority has a responsibility to select 'who' is 'appropriate'. There is indeed a practical obligation to make the process manageable in terms of human and financial resources within the given timetable. However, closing the doors too early will inevitably compromise the transparency of stakeholder inclusion. As indicated above consultation refers to the public, while active involvement refers to interested parties or stakeholders. The public is not defined in the Directive but the CIS n.8 uses the definition given in Article 2(4) of the Aarhus convention (UNECE, 1998) "*One or more natural or legal persons, and, in accordance with national legislation or practice, their associations, organisations or groups*". With regards to active involvement, interested parties are synonymous with stakeholders (CIS, 2003, p.15). An interested party (or stakeholder) is defined as "*any person, group or organisation with an interest or "stake" in an issue, either because they will be directly affected or because they may have some influence on its outcome. "Interested party" also includes members of the public who are not yet aware that they will be affected (in practice most citizens, small NGOs and companies)*" (*ibidem*, p.11). It becomes difficult to distinguish also in the CIS stakeholders from the wider public or to which socio-professional category it is referring too, unless the distinction emerges through

time and practice¹². The fact that some people are organised to defend their interests while others are not, changes with time. This changing qualitative and quantitative level of organisation, or evolving disorganisation induced by changing environmental pressures is a key characteristic of complex systems as explained above. When the CIS n.8 refers to “*members of the public who are not yet aware that they will be affected*” (*ibidem*, p.11), it emphasises that the state of equilibrium changes: an unaware affected citizen today can become a key stakeholder tomorrow.

It might be good governance practice to initially take the wider public into account because participative and representative democracies strengthen each other. The structuration of the public into active stakeholders changes with time. This is why stakeholder identification should not be static, and would need to take into consideration newcomers. Public participation as a wicked process has no such artificial end point.

2.4.4 When: sooner or never?

The fifth interpretative challenge to be articulated here is that, whilst the CIS n.8 is pragmatic and considers two extremes of involvement altogether, it leaves open the possibility of avoiding involvement. On the one hand it suggests that “*it is never too early*” to initiate engagement, whilst on the other hand, if the stage is not well set up in terms of role and means of contribution, then the advice is “*do not involve them*” (*ibidem*, p.17). It is then much easier to justify non-involvement, on the grounds of uncertainty, lack of motivation, rather than dealing with uncertainty in processes and in roles. The very same guidance document enunciates that “[*t*]o ensure transparency and acceptance of the public participation has to start as soon as possible” (*ibidem*, p.19). Let us remember that the WFD states that Member States shall encourage active involvement and shall ensure consultation. As discussed above (§2.4.1) knowing the difference between participation and consultation in the context of the WFD, enables Competent Authority to comply with the WFD by simply organising written consultation, and supplying information activities that would classify as non-participation or tokenism as described by Arnstein (1969).

¹² I agree with English *et al.* (1993) and Ridder *et al.* (2005) who distinguish stakeholders from the public by pointing out that the latter are unorganised, as opposed to stakeholders who are organised (§2.3.1).

2.5 The way forward

2.5.1 Setting the problem

I have argued that Integrated Water Management is a complex societal problem which relies heavily for its realised benefits on public participation which is a wicked process. Interpretation and implementation of both are challenging. One might consider that depending on the particular interpretation of the IWM objectives which a competent authority has, it will not foster new forms of water management based on public participation because the minimum requirements are already met according to the current practices of water governance but maybe not according to the spirit of the Dublin Principle, the Rio de Janeiro Declaration and the Aarhus Convention. The main challenge for the implementation of a sustainable water policy is that both IWM priorities and meaning of PP are based on different social constructs and subject to diverging interpretations (Allan, 2002; Collins & Ison, 2006; Collins *et al.*, 2007, Hajer, 1995; Selby, 2003). This thesis investigates which type of public participation would be perceived as appropriate for which water related issues, according to which actors. Public participation is widely associated with the normative assumption that power over the decision making process is the ultimate goal of PP (as exposed in §2.3.1). It is as much naïve or condescending to assume that power holders refuse to share or to delegate part of the decision making process, as it is to assume that all citizens starve for empowerment. However there are few studies comparing understandings and preferred type of PP between competent authority, organised stakeholders and the wider public (Chilvers, 2007; Webler, 1999; Webler *et al.*, 2001).

Furthermore, it is also naïve to assume that the rationale for PP is the same for all environmental issues (English *et al.*, 1993; Forrester, 1999a, 1999b; Kessler, 2004; Petts, 2008; Webler, 1999; Wiedemann & Femers, 1993). Studies are rich on reporting top-down rationale but scarce on bottom-up expectations.

IWM is setting ambitious environmental and managerial objectives, it is building on existing planning activities and provides additional practices and as such social actors are in a continuous transition period. One might foresee the seeds of a much more radical participation strategy based on a broader understanding of complexity and wickedness, dominion and uncertainty, ambitions and dependencies.

2.5.2 Refined thesis objectives and research questions

The way forward for the construction of a coherent interpretation and implementation of PP in IWM would be partly based on the following four objectives.

1. As raised by scholars like Allan (2002), Collins *et al.* (2007), Hajer (1995), Loucks (2000), Selby (2003) and also by international institutions (ADB, 2001; GWP, 2004; UNESCO, 2006), water management needs to be studied in terms of understanding of challenges and in terms of stakeholder's perceptions of priorities. Consequently, this study addresses the identification of Water Management Challenges (WMCs) at stake according to different stakeholders (top-down and bottom-up perspective); it organises and prioritises these elicited WMCs, compares and contrasts them to highlight similarities and discrepancies of perception of the problem and elicited set of solutions. The resulting research question is: what are the water management challenges according to different stakeholder (top-down and bottom-up views)?
2. Chilvers (2007), Collins & Ison (2007), Glass (1979), Dorcey *et al.* (1994), Webler (1999), Webler *et al.* (2001) highlighted the important question of the objective to initiate public participation. This study focuses on the identification of motivations and reasons for taking part in water management, preferred mode of involvement and develop a panel of type of participation taking into consideration different level of empowerment of communication practices and of societal objectives: What is the meaning of public participation and how is PP understood according to a top-down and a bottom-up perspective?
3. Research on the role of public participation in environmental management remains focused on expert understanding of the problem and of the process but detached from motivations and views of lay-participants (Chilvers, 2007; Collins & Ison, 2006; Collins *et al.* 2007; Webler, 1999; Webler *et al.*, 2001). Assessing the wider public knowledge of water management challenges and attitude toward participation is anticipated to contribute to the clarification of object and objectives to and avoid misunderstanding and to build trust (Söderberg & Kärrman, 2003; Motion, 2005; Petts, 2008): What is the wider public understanding of WMC and expectation toward PP?
4. The last objective of this study draws on the work from Dahl (1989), Dietz (1995), Pröpper & Steenbeek (1998, 1999), van Ast & Boot (2003) on decision

making culture and governance style and therefore investigates the gap between current and desirable water governance to foster PP in IWM: What are the perceived existing practices of PP and perceived hurdle to a desirable implementation?

The second order research questions now focus on four aspects:

Identifying water management challenges

- What are the water management challenges at stake?
- What is considered to be at risk, what are considered to be the causes of poor water management, what could be improved?
- To what extent are water management issues perceived differently by different stakeholders?
- Who are the stakeholders that need to be involved?

Understanding public participation

- What are the current practices of PP in the study areas?
- What are the perceived benefits and inconvenient of PP?
- Are people willing to participate in water management/ debate? If yes why and how?
- What are the reasons for organising and taking part in participative exercises on water management?
- What is the public's preferred mode of involvement in debate on water issues?

Sociological perspectives

- What is the individual knowledge of water management challenges for the wider public at river basin level in the Levant?
- 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?

Role of the Competent Authority

- What is the current style of water governance and does it promote PP in IWRM? What should it be?
- Which communication strategies can be used to open the public sphere to water management, to raise public awareness and knowledge to tackle water scarcity?

Which type of participation for which type of water management challenges?

The task set is now to develop a research strategy to focus on answering the thesis overarching research question that is ‘which type of participation might be appropriate for which type of water management challenges’, in order to develop recommendations on how participation should be exercised for integrated water management policy?

Table 2.2 presents the research questions and the Chapters addressing them.

Which type of participation for which type of water management challenges?

Table 2.2: Research questions addressed in the thesis

Which type of participation might be appropriate for which type of water management challenges?		
First order research questions	Second order research questions	Chapter
What are the water management challenges according to different stakeholder (top-down and bottom-up views)?	What are the water management challenges at stake?	Ch V, VI
	What is considered to be at risk, what are considered to be the causes of poor water management, what could be improved?	Ch V
	To what extent are water management issues perceived differently by different stakeholders?	Ch VII
	Who are the stakeholders that need to be involved?	Ch VII
What is the meaning of PP and how is PP understood according to a top-down and a bottom-up perspective?	What are the current practices of PP in the study areas?	Ch V, VI, VII
	What are the perceived benefits and inconvenient of PP?	Ch V
	Are people willing to participation in water management/ debate? If yes why and how?	Ch VI
	What are the reasons for organising and taking part in participative exercises on water management?	Ch V, VI, VII
What is the wider public's understanding of WMC and expectation toward PP?	What is the individual knowledge of water management challenges for the wider public at river basin level in the Levant?	Ch VI
	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?	Ch VI
What are the perceived existing practices of PP and perceived hurdles to a desirable implementation?	What is the current style of water governance and does it promote PP in IWRM? What should it be?	Ch VII
	Which communication strategies can be used to open the public sphere to water management, to raise public awareness and knowledge to tackle water scarcity?	Ch VII

Which type of participation for which type of water management challenges?

Chapter III

3 A Grounded Theory Methodology to elicit understandings of Public Participation and Integrated Water Management

3.1 The nature of study and the form of social inquiry

Over the past two chapters I have been trying to illustrate the nature of the problem at stake: the elaboration of a water policy is a complex societal problem and the problem solving process which claims to facilitate the development of river basin management plan is a wicked process. I take the stance that a water management crisis is a socio-political problem (Hajer, 1995; Selby, 2003). Both IWM and PP are subject to different interpretations; there are hence different realities in terms of cause for water scarcity, ways to address it, objectives and modalities of participation.

The research questions (end of Chapter II) focus on perceptions and the nature of a societal problem, preferences and expectations toward a range of elicited solutions. As such I understand that there is no one social reality in any given situation: there are rather multiple views on the causes of poor water management, different priorities for water management challenges, different objectives in pursuing PP, for different social actors, for different issues and all social constructions are considered valid and none is privileged over any other. Social reality does not exist per se, rather it is ‘a’ sum of individual (and groups of individuals organised in unions, association, institutions of governmental or private interests etc...) representations of the external world in reciprocal interaction with their everyday life. Consequently objectivist ontologies based on realism that “*maintain the existence of a single, freestanding reality waiting to be discovered*” (Patterson & Williams, 1998, p.288) are not appropriate to study this type of societal problem (Blaikie, 2007; Flyvberg, 2001).

Idealist ontology claims that “*reality is what human beings make or construct[...]* *It is the meaning and interpretation created and maintained by social actors that constitute social reality for them*” (Blaikie, 2007, pp.16-17). This study is based on an idealist ontology.

This study is anchored in societal complexity, characterised with a high degree of interactions, interconnection, uncertainty about the nature of knowledge, with emerging properties. I naturally embrace postmodernism as a group of perspectives on social theory that (i.) reject absolute truth and grand narrative, (ii.) see social inquiry

is context dependent, and is (iii.) concerned with how images of reality embedded in the production of knowledge and power are produced through discourse (Blaikie, 2007; Flyvberg, 2001; Foulcault, 1984, 1991, 1994; Funtowics & Ravetz, 1993; Giddens, 1984; Hajer, 1995, 2005; Nowotny *et al.*, 2001; Selby, 2003). Consequently, knowledge and understanding of societal reality is incomplete by nature and one cannot pretend to understand social reality as unique and absolute, but one might attempt to interpret actors' interpretations that are anchored in a given but changing context (Robson, 2002; Flyvberg, 2006). This double interpretation i.e. the researcher interprets a social actor's interpretation of the world and of her/his everyday life, is referred as the double hermeneutic (Giddens, 1984; Mottier, 2005). Double hermeneutics is part of an interpretive turn to sociology that emphasises the growing rejection of objectivity in gathering, analysing, understanding data and producing knowledge (Denzin & Lincoln, 1994, 1998, 2005; Mottier, 2005). The role of the researcher is consequently to construct meanings of meanings- this is the constructivist approach to research, the epistemology.

An interpretivist and constructivist epistemology echo the inherent indissociability of subject-object presented as a key characteristic of complexity by Morin (2007), and the epistemic relationship between what is the object of research and who is conducting research, between science and society, between knowledge and power (Chalmers, 1999; De March & Ravetz, 1999; De Marchi, 2003; Flyvberg, 2001; Foulcault, 1991; Funtowics & Ravetz, 1993; Hajer, 1995; Novotny *et al.*, 2001; Selby, 2003). However, one ontological issue or inconsistency which is worth noting is that, on the one hand, postmodernism rejects grand narratives (including system theory) and shares a common interest with complexity theory in acknowledging the biases of subject-object relationships in producing knowledge. On the other hand complexity is better described on the basis of open system theory that is in itself a grand narrative. Furthermore, one might question whether social theory embedded in interpretivism is restricted to contextual narrative and generating only to substantive rather than formal theory?

3.2 Uncertainty and the production of new knowledge

Social inquiry anchored in postmodernism must take great consideration to elicit data and produce knowledge from different social actors and of different nature. Following Levi-Strauss (1963) and Denzin & Lincoln (1998), sociology can be compared to a

form of *bricolage* where one uses a range of tools according to her/his plans and the nature of materials used (or available). Mottier (2007, para.2) explains that “*the selection of qualitative research techniques depends on the research question that is being asked: it is problem-driven rather than method-driven*”. Nowotny *et al.* (2001) define Mode II knowledge production through an understanding of the complexity of modern society through transdisciplinarity, tacit knowledge and perception of risk, and emphasising the necessity to contextualise interpretation of findings (also emphasised by Flyvberg, 2001 and Partington, 2000). The combined use of qualitative and quantitative methods enables us to study social reality under different analytical perspectives, this is referred to as ‘triangulation’ by Jick (1979) and Olsen (2004) or ‘methodological pluralism’ by Minger (2001) and Morse & Chung (2003). Robson (2002) prefers “*the ‘flexible’ label because such designs make some use of methods which result in data in the form of numbers (qualitative as well as in the forms of words; hence labeling them as qualitative can be misleading*” (2002, p.4). On a similar stance to social inquiry Flyvberg (2006) reiterate that “*good social science is problem driven and not methodological driven in the sense that it employs those methods that for a given problematic, best help answer the research questions at hand*”, [...], and that one should leave aside “*the old and unproductive separation of qualitative and quantitative methods*” to make best use of both (2006, p.242, stance also supported by Bergman & Coxon 2005; Dunn, 1988; Patterson & Williams, 1998).

In the next section I justify that Grounded Theory is a coherent methodology which can be used to understand social actors’ construction of meanings and to explore contextualised societal complexity (Monnikhof, 2006; Partington, 2000; Robson, 2006). I present how GTM is understood and applied (§3.3.1) bearing in mind that significant divergence in understanding and practice (notably over the use of axial coding and the conditional matrix and presented in §3.3.2) have already divided the community of social scientists. Critiques and recommendations drawn from the flexible design build on GTM principles applied to societal complexity are refined in the discussion (§8.6).

3.3 An interpretation of the Grounded Theory Methodology

The Grounded Theory Methodology (GTM), is a general qualitative research methodology first presented by Glaser and Strauss in 1967 in their milestone book called "*The discovery of grounded theory; strategies for qualitative research*", which aimed to develop theories, substantive or formal, that are grounded in data systematically gathered, compared and analysed (Glaser & Strauss, 1967; Kendall, 1999; Myers, 1997; Strauss & Corbin, 1994). The Grounded Theory Methodology is before all a symbolic interpretationist and constructivist methodological approach (Annells 1996, 1997a, 1997b, Clarke, 2003; Briant, 2003; Charmaz, 2000, 2006), where the researcher develops his specific method in order to interpret the construction of meaning for the agency studied. The scope of the research is to understand the construction of meaning for the perceived appropriateness of public participation in IWM. Strauss and Corbin emphasises this difference when defining methodology as "*a way of thinking about and studying social reality*", and method as "*a set of procedures and techniques for gathering and analysing data*" (1998, p.3). It appears necessary for the author to distinguish the methodological paradigm (the research approach) where the coherence between the research questions, the type of data and the analytical framework is the backbone of the production of new knowledge, from a method which is a specific sequence of processes to collect and analyse data (as detailed in Chapter V, VI and VII).

GTM provides the structures often lacking in other qualitative approaches by keeping the positivist cannon of valid research like quality and validity, without sacrificing flexibility or rigor (Calloway, 1995; Dick, 2005; Glaser, 2004) in using any type of data: qualitative such as verbal answer elicited through open questions (scoping interviews, stakeholders interview and social survey) and quantitative data such as numerical answers and choices (elicited in the survey and in the decision-influencer questionnaire and interviews). As opposed to the positivist influenced hypothetico-deductive approach to theory generation, here theory develops and evolves inductively during the research process due to the interplay between data collection and analysis phases (Babchuk, 1996), through the emergence and the systematic comparison of 'concepts', 'categories' and 'propositions' through 'coding', 'theoretical sampling', 'memoing' and 'writing'.

Grounded Theory Methodology is both the emergence¹³ of a theory and of a methodology (Dick, 2005), because data collection, analysis and conceptualisation are not sequential, but can and generally do take place at the same time, hence both method and theory are concomitantly emergent (Glaser, 1978; Charmaz, 1994; Strauss & Corbin, 1998; Mehmetoglu & Altinay, 2006). The presentation of key elements, terminology and processes that need each other to be meaningful, and that are not simply related in a linear way, might be difficult to grasp at first reading, especially since the ‘fathers’ of GTM disagree, and the users have diverging interpretation of the literature.

The following sub-sections initially present the grounded theory methodology according to Glaser’s approach that is referred to as the Basic GTM¹⁴. Strauss and Corbin’s approach is then presented and referred as the ‘conditional GTM’. Their point of departure with the basic approach is their emphasis on the use of ‘axial coding’ and ‘conceptual matrix’, which is briefly presented together with some implications for conducting research. It is crucial to understand the following presentation and implementation of the GTM for conducting flexible social inquiry that there is no unanimous and universal understanding of grounded theory amongst social researchers (Robson, 2002). Divergences in interpretation and in implementation are discussed in section 3.3.2 and in section 8.6.

3.3.1 ‘Basic’ Grounded Theory Methodology

In its original and apparently more simple form, GTM is structurally built on two basic intellectual elements; ‘concepts’, and ‘propositions’, both of which are generated through ‘coding’, initially ‘open’ then ‘selective’, using ‘theoretical sampling’, ‘memoing’ and ‘sorting’. In terms of process a grounded theory approach is based on two phases: the open phase where coding and sampling are open to grasp the diversity of elements characterising the phenomena studied (concepts and propositions); then the selective or theoretical phase, where coding and sampling are

¹³ Although the term ‘emergence’ is unanimously used by academic referring to the GTM, I consider it is misused because theory and methodology are not ‘out there’ waiting for appearing, but there are the results of intellectual activities. Furthermore the term ‘emerge’ is also employed in complexity theory to refer to new behaviours or characteristics resulting from the self -adaptation of the system, and its meaning has different origin and implication than when referring to the GTM.

¹⁴ Glaser’s approach is acknowledged as the ‘classic’ (Annells, 1997a, 1997b; Glaser, 2001, 2003). However, since Glaser has rejected any form of evolution and modification (Bryant, 2003), his approach will be referred as the ‘basic GTM’ and in agreement with Clarke (2003) that brilliantly mature the methodology into the postmodern turn. Nevertheless, in order to illustrate the common understanding of GTM within the literature, references to other contributors which do agree with Glaser’s approach are regularly mentioned including Strauss and Corbin.

focusing on the core category (uniting concepts and propositions) and theory development.

3.3.1.1 *Concepts, propositions, and the core-category*

The definition and presentation of the terminology and specifically of concepts and categories are not crystal clear when reading Glaser and a fortiori when reading other interpretations of the GTM¹⁵. Concepts are the smallest unit of analysis and a theory is developed through the conceptualisation of the data, not the actual data *per se*. The purpose of grounded theory is to generate theories that are grounded in data through constant methodical comparison (Corbin & Strauss, 1990; Glaser & Strauss, 1967; Glaser, 1978; Kendall, 1999; Pandit, 1996). The process of intellectually transforming the data and characterising the observed phenomena, generates concepts or conceptualisation. The concepts initially emerge from the data through the use of open coding, which is developed to contrast and compare actions/events/incidents from the data: “*Grounded theory methodology is designed to guide researchers in producing theory that is conceptually dense [...] with many conceptual relationships*” (Strauss & Corbin, 1994, p.278). These conceptual relationships, called *propositions*¹⁶, emerge following the identification and comparison of *concepts* (and/or *categories*). During the open and initial phase (iterative analytical comparison of data, concepts and propositions) one core variable (or concept) called the core category appears to account for most of the variation around the concern or problem studied. During the theoretical and second phase the core category is the focus of the study where data collection and coding are selective aiming at developing and enriching the grounded theory.

3.3.1.2 *The open phase: coding data into concepts and proposition*

The transformation of data into concepts, propositions and eventually the development of a theory are articulated around the ‘core category’ and are realised through coding. The code is initially open until the identification of the core category and then theoretical to specifically characterise and develop the theory. As Glaser

¹⁵ One can appreciate in Glaser (1978; 1992; 2001; 2002; 2004) some confusion in the use of the terms *concept* and *category*, unless as understood by the author, they are used interchangeably as the intellectual product of the initial comparison of incidents to incidents.

¹⁶ Proposition were originally called *hypothesis* by Glaser and Strauss (1967). However as pointed out by Whetten “*propositions involve conceptual relationships whereas hypotheses require measurable relationships*” (1989, p.492). The implications for considering proposition as qualitative or quantitative relationships between elements of the phenomena studied are further detailed in the discussion about hypothetico-deductive and inductive approach to research.

explains “*the essential relationship between data and theory is a conceptual code. The code conceptualizes the underlying pattern of a set of empirical indicators within the data. Coding gets the analyst off the empirical level by fracturing the data, then conceptually grouping it into codes that then become the theory that explains what is happening in the data*” (2004, para.47). Charmaz emphasizes the importance of coding in the emergence of the theory: “*coding gives a researcher analytic scaffolding on which to build*” (2005, p.517). She proposes that the researcher approach the data analysis with the following questions: what is happening? What are the people doing? I would also suggest: what do they mean? What is their point?

Some of the initial questions used in this study are: do you consider water resources are at risk in your area, and why? Do you consider water resources could be better managed, and why? What are the reasons to take part in a participative exercise? The answers to those open questions are coded into categories defined by the diversity or similarity of answers. Those answers illustrate the participant’s understanding of the challenges concerning water resources management. The data (statement-answers) are organised into categories via the construction of an open code. These categories will become the focus of successive data set such as questionnaires, social survey and interviews. The actual open code can also be tested statistically according to criteria elicited from other sources such as the literature review. All these comparisons of understanding of causes for water scarcity, priorities of water management challenges for different level of responsibility, the comparison of stakeholders’ preferred type of public participation and their expectation towards the competent agency enrich the concepts, the categories, and the propositions as bricks for the development of a grounded theory: ‘which type of PP for which WMC?’ (illustrated in Figure 3.2).

3.3.1.3 *The core category and the selective or theoretical phase*

The breaking point between open coding and selective coding is the identification of the *core category*: “*As the researcher proceeds to compare incident to incident in the data, then incidents to categories, a core category begins to emerge. This core variable [...] becomes the focus of further selective data collection and coding efforts. It explains how the main concern is continually resolved*¹⁷. [...] [*s*]elective coding

¹⁷ Similarly, Corbin & Strauss explained earlier on that “*selective coding is the process by which all categories [or concepts] are unified around a core category*” (1990, p.14) and recall that selective coding is “*the process of integrating and refining the theory*” (Strauss & Corbin,1998, p.143).

means to cease open coding and to delimit coding to only those variables that relate to the core variable [...] to produce a parsimonious theory. Selective coding begins only after the analyst [...] has discovered the core variable” (Glaser, 2004, para.55)¹⁸. Glaser highlights the difference between open or substantive code and selective or theoretical code as follow: *“Substantive codes conceptualize the empirical substance of the area of research. Theoretical codes conceptualize how the substantive codes may relate to each other as hypotheses to be integrated into the theory”* (Ibidem). In other words, concepts to concepts comparison finalise the emergence of the *core category*, which becomes the focus of further selective data collection and coding effort, through theoretical sampling and selective coding.

From this point onwards the methodology aims to strengthen the theory, *“to produce a parsimonious theory”* (Ibidem). Once the core category has emerged subsequent data collection and coding are selective in order to delimit the core category and to saturate the categories. Here again one can question what does ‘emerge’ mean or refer to in relation to the identification of the core category? The term ‘emerge’ refers here both to a qualitative notion, i.e.: the core category is linked to all concepts through propositions; but ‘emerge’ also refers to a quantitative dimension based on the frequency of occurrence: *“the core variable reoccurs frequently in the data and comes to be seen as a stable pattern that is more and more related to other variables”* (Ibidem, para.54). Corbin and Strauss suggest that the core category is identified by asking question such as: *“what is the main analytic idea presented in this research? If my findings are to be conceptualised in a few sentences, what do I say? What does all the action/interaction seem to be about? How can I explain the variation that I see between and among the categories”* (1990, p.14). Glaser (1978, 2004) specifies the criteria that a core category must meet:

- It is central, relating to as many other categories and their properties as possible and accounting for a large portion of the variation in a pattern of behaviour.
- The core variable reoccurs frequently in the data and comes to be seen as a stable pattern that is more and more related to other variables.
- A core category takes longer to saturate than other categories/concepts.

¹⁸ The reader can appreciate the interchangeable use of core variable and core categories, and proposition to hypothesis.

- It is completely variable and has conceptual carry through in the emerging theory, enabling the analyst to get through the analyses of the processes that he/she is working on by its relevance and explanatory power¹⁹.

The core category of this study is the relationship between public participation and Integrated Water Management i.e. how PP is exercised for the development of integrated water policy (Foulcauldian approach). More specifically, I am interested in the potential of different modes of participation for different type of water management challenges, hence the key research question: which type of public participation is perceived as appropriate for which type of water management challenges?

Once the selective sampling, coding and analysis realised, the researcher enter the phase of presenting the development of his grounded theory based on the systematic record of conceptualisation i.e., memoing.

3.3.1.4 *Memoing and the systematic record of conceptualisation*

Memoing, a neologism for writing a memo, is the organisation of data, of the emerging concepts and theory²⁰. *Memoing* is initially simply writing down the researcher's ideas. It also helps sorting concepts and propositions as it supports the reflexive development of ideas. Memoing is an integral part of GTM, a reflexive methodology and theory by nature.

Lastly, one could simply present the basic GTM as articulated in two phases: i.) the induction phase aiming to identify the *core category*, following the identification of *concepts* and proposition through *open sampling and coding*; ii.) the deduction phase aiming to that unify the *propositions* and *concepts* around the *core category*, through selecting coding until theory saturation (Figure 3.1). However GTM has been modified through the methodological appropriation and implementation across many fields, a process initiated by the GTM co-discoverer Anselm Strauss.

¹⁹ Strauss & Corbin (1998, p.147) provide a list of the same criteria that can be applied to a category to determine whether it qualifies; only the wording changes, and they use the term “*central category*” but in essence there is a consensus about the characteristics of the core category.

²⁰ The use of memos is ubiquitous amongst those that report on their experience and application of the GTM.

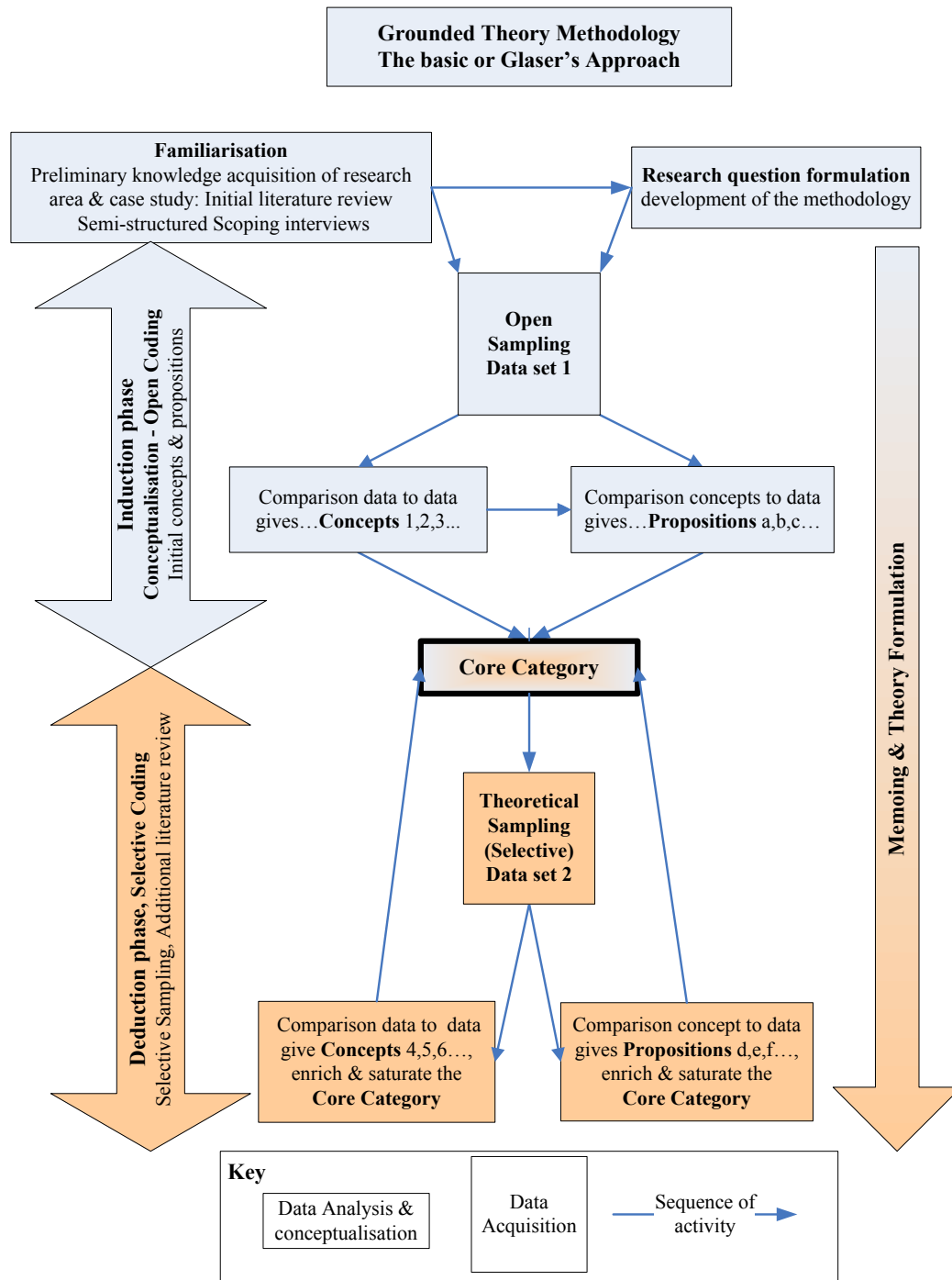


Figure 3.1: The Basic grounded theory methodology process

3.3.2 The controversy over axial coding and the conditional matrix: forcing the data or theory emergence.

GTM has already known some significant debates and modification, first between the two co-founders, and those that have decided to follow one or the other schools of thought. The nature of the controversy concerns the way data are elicited and analysed and might impact on the quality and nature of the newly developed theory.

3.3.2.1 The conditional GTM: axial coding and conditional matrix

Strauss & Corbin's approach includes an additional level of conceptualisation that relies on two intrinsically linked tools; a coding tool the axial coding or conceptual coding, and an analytical tool, the conceptual or conditional matrix (Strauss, 1987; Strauss & Corbin, 1994, 1998). Axial coding²¹ is defined by Strauss & Corbin (1994) as "*a set of procedures whereby data are put back together in new ways after open coding, by making connections between categories. This is done by using a coding paradigm involving condition, context, action/interactional strategies, and consequences*" (p.96). With the axial coding, categories are related to their subcategories, and their relationship tested against new data: "*through the coding paradigm of condition, context, strategies (action/interaction) and consequences, subcategories are related to a category*" (Corbin & Strauss, 1990, p.13). Here the approach to coding is specifically aimed at integrating structure with process (the agencies and their dynamic in the issue at stake). The conditional matrix provides and systematic analytical tool to analyse phenomena in the wider picture, within their environment.²² Strauss and Corbin argue the relevance of systematically analysing phenomena according to the axial coding paradigm, "*because structure or conditions set the stage, that is, create the circumstances in which problems, issues, happenings, or events pertaining to a phenomenon are situated or arise. Process, on the other hand, denotes the action/interaction over time of persons, organisations, and communities, in response to certain problems. Combining structure with process helps the analyst to get at some of the complexity that is so much part of life [...] by answering the questions of who, when, where, why, how and with what consequences,*

²¹ This specific coding process is "*termed 'axial' because coding occurs around the axis of a category, linking categories at the level of properties and dimension*" (Strauss & Corbin, 1998, p.123).

²² With this perspective, GTM aspires to re-centre sociological studies with the aspiration of the Chicago School of sociology where symbolic interactionist theory was developed, and that views society as a dynamic process of ongoing activities and reciprocal interactions (Annells, 1996, 1997a, 1997b; Briant, 2003; Charmaz, 2000, 2005, 2006; Clarke, 2003; Goulding, 2002; Kendall, 1999; Pandit, 1996).

analyst are able to relate structure with process” (Strauss & Corbin, 1998, p.127). The predetermined analytical directions (or themes) for what one could name the ‘secondary conceptualisation’, can actually be organised in two frameworks: i.) the environmental framework: conditions, contexts, nature of the phenomena (or process), ii.) the causal framework based on actions, interactions, strategies and consequences. Strauss (1987) proposes that researchers must ask theoretically relevant qualitative questions of the data such as:

- What are the strategies which result in particular behaviours?
- What are the different conditions involved?
- What kind of theoretically derived comparisons would be useful here?
- What is the power structure?

The analysis of the data through the conditional matrix will enriched the core category but also provides an open door for over-complicating the problem and/or limiting research to a dense description of a dynamic social process.

From this point onwards the two approaches are similar again in term of saturation, theory formulation and memoing.

3.3.2.2 *The controversy over the relevance of conditional matrix*

Glaser (1992, 2001, 2002, 2004) rejects unconditionally the use of categories emerging through axial coding and above all the use of a conditional matrix, as defined and conceptualised by Strauss & Corbin. According to Glaser’s approach the use of axial coding and the conditional matrix is an artificial analytical framework, it does not emerge from the data set; this process can too easily result in researchers missing the relevance of the data by forcing it into a preconceived framework (Babchuk, 1996; Charmaz, 2006; Glaser, 1992, 2001, 2002, 2004; Goulding, 2002; Kendall, 1999). Glaser (1978, 1992) explains that the concept of emergence is an underlying guiding principle of grounded theory research and it is a methodological requirement for generating ‘good’ grounded theory. In contrast, Corbin & Strauss (1990) emphasis that generating codes and theoretical relationships between codes and categories from a predetermined organising framework helps and structures the construction of complex and meaningful theory more reliably. Glaser calls the latter use of coding “*conceptual description*” (Glaser, 1992, p.63), and claims that his former colleagues “*strayed too far from the underlying principles of grounded theory to warrant calling it grounded theory*” (Kendal, 1999, p.748).

Through axial coding, the methodology takes a new turn, since it is ('artificially' according to Glaser) anchored in social environment of the object of study, according to the tradition of the school of Chicago (Annells 1996, 1997a, 1997b; Briant, 2003; Charmaz, 2000, 2006; Clarke, 2003; Goulding, 2002). Indeed, they emphasize the importance to study the actors in their environment both immediate (interactions with other actors) and distant (interactions with the society). Glaser (1978, 1992, 2001, 2002, 2004) argues that the context will emerge naturally if it is elicited by the comparison of data with concepts, and that Strauss forces the concept in an environmental framework. Using words (and truth claims) like 'forcing', 'artificial', and his vociferous style against the authors mentioning the use of the conditional matrix, that he re-baptised 'conditional description', Glaser (2004, para.4) intends to assert a normative and hegemonic dimension to his approach, the "*classic*" one to coding-analysing the data and eventually to the way a theory is generated. Indeed, but is that good or bad research strategy? Is that relevant or incoherent for a context dependent study involving several actors²³, involving different construction of meanings, to take into consideration environment, structure, process, action/interaction of the categories characterising a complex societal problem and a wicked process? Nevertheless, the conditional matrix provides an analytical framework capable of capturing changes in time. The environment that affects our research object may change, and this change can be studied and broadens the generation of new ideas (Goulding, 2002; Strauss & Corbin, 1994). Using the literature with the hope to find some justification of the use of the conditional matrix in fields of application as diverse as, chronic pain (Baszanger, 1992), reproductive science (Clarke, 1990), molecular biology and cancer research (Fujimura; 1988), recruiting process (Konecki; 1997), definitional dialogues in abusive relationships (Lambert; 1997), tourism (Mehmetoglu & Altinay, 2005) or management (Goulding, 2002) is very disappointing because very little information is given on the application and justification of using the conditional GTM or not.

One of the questions which a researcher might be able to answer is to what extent the phenomenon studied is affected by and affects its environment? Why would it be incoherent to include an analysis of the context in research focused on complex societal problem such as IWM? At this stage the novice researcher is left with some

²³ with varying level of organisation, interests and behaviours such as farmers and water user association, domestic water users, decision maker at local regional and national level etc...

uncertainties concerning which approach to follow. However both Glaser and Strauss emphasises that the GTM is the development of a methodological approach (Glaser & Strauss, 1967). The specific steps of the method and analysis development are the results of an iterative process between data collection and data analysis where trials and experimentation improve the understanding of the methodology and of the topic. The actual field work and the interpretation of the data, reveal some insights on the GTM internal coherence and limitation that provide some knowledge challenging the controversy presented above. Recommendations based on the present practice of the implementation of GTM to complex societal problem are presented in Chapter VIII (§8.6.4).

3.4 Challenges and weaknesses, a general critique of the GTM

3.4.1 The conceptual weakness of the theoretical sampling and theoretical saturation

Theoretical sampling could be considered as the ‘lynchpin’ between, on the one hand, the inductive approach to identify the core category, the propositions, and all the concepts, and on the other hand, the deductive approach that delimits a parsimonious theory. Goulding emphasises the role of theoretical sampling between the inductive and deductive approach: “[t]he process of theoretical sampling is, in effect, based on a happy marriage of induction and deduction. [...] Deduction is used in the service of further induction and derivations are the codes generated from comparing data” (2002, p. 68). Theoretical sampling and selective coding stops when the core category is saturated i.e.: data collection does not add anymore information, characteristics, relationships between the core category the concepts and the phenomena observed: saturation. Saturation is reached, in theory, only when there are no new patterns, or possible concepts, emerging from the data: “[t]he general procedure of theoretical sampling is to elicit codes from the raw data from the start of the data collection through constant comparative analysis as the data pour in. Then one uses the codes to direct further data collection, from which the codes are further developed theoretically[...] until each category is saturated. Theoretical sampling ceases when it is saturated, elaborated and integrated into the emerging theory.” (Glaser, 1992, p.102). However Glaser has a more sophisticated justification than “I kept finding the same patterns” and according to him “saturation is not seeing the same pattern over and over again. It is the conceptualisation of comparisons of these incidents which

yield different properties of the pattern, until no new properties of the pattern emerge. This yields the conceptual density that when integrated in hypotheses make up the body of the generated grounded theory with theoretical completeness” (2001, p.191). Beside the theoretical definition of saturation and attempts for a valid justification for ending theoretical sampling and selective coding, the literature is scarce in practical examples and illustration of saturation. Readers with a positivist training will rightly challenge the concept of saturation. One ought to be able to justify when saturation stops, with what level of confidence for claiming that no new patterns or possible concepts are emerging from the data. Let’s imagine a very long series of ‘n’ interviews, where the researcher has reached a point where de facto, no new concepts, categories or proposition are discovered. This data set is by nature non exhaustive, and on which basis (with what level of uncertainty) can someone scientifically claim that the ‘n+1th’ data set will not contribute to significantly enrich the theory? The concept of saturation is hence very weak. One can claim that in a given environment all agencies have been interviewed and hence data collection has to stop, or that there is no more resource available to elicit more new data. But this acceptable justification to come to an end with data collection and it cannot be used to argue that saturation has been reached. Furthermore the idea of saturation in a study focused on societal complexity characterised by emerging properties as the result of auto-organisation in reaction the changing environment, might be considered as a paradox. By nature complex systems display emerging behaviours and as a consequence one cannot pretend nor prove theoretical saturation. Dey (1999) challenges the notion of saturation on two fronts: the meaning of saturation and its consequence. Firstly, he suggest that the term saturation is misleading for a process that “*stops short of coding all the data*” (p.257) and that relies on the researcher’s conjecture that the properties of the category are saturated. Instead of claims of achieving saturation, Dey prefers the term “*theoretical sufficiency*” (*ibidem*, p.257) that better defines how researchers conduct GTM. Second, Dey questions the impact that data collection and coding, through the research, has on categories’ saturation. This is a direct echo to the idea of theoretical sensitivity developed by Glaser and Strauss (1967).

3.4.2 Theoretical sensitivity or when the researcher is the weakest or strongest link

The background, experience, and character of each researcher will influence interpretation, this is inherent to the interpretive and constructivist approach to social

inquiry undertaken with GTM. Several authors emphasise their experience (or lack of it) when presenting their work (Annells, 1997a, 1999b; Charmaz, 2001; Dick, 2005; Kendall, 1999; Mehmetoglu & Altinay, 2006), and they recognise the importance of experience and practice in developing sharp inductive theories. This aspect of the role of the researcher in a constructivist epistemological framework, requires first to recognise that this bias, although inherent to human kind, affects theory development, and second the researcher ought to be self critical of any findings. This aspect is partly mentioned by Glaser & Strauss when describing theoretical sensitivity. They write “*the sociologist should [...] be sufficiently theoretically sensitive so that he can conceptualise and formulate a theory as it emerges from the data. [...] First, it involves his personal and temperamental bent. Second, it involves the sociologist’s ability to have theoretical insight into his area of research, combined with an ability to make something of his insights*” (1967, p.46). These comments on theoretical sensitivity are reflections on the quality of each researcher as an individual. But what can be done about it?

A more pragmatic approach to saturation and theory development is to acknowledge the study within its limits and to consider the results as bounded to the research material and its environment while keeping open the route to generate more new knowledge. The same pragmatism is also a coherent stance in constructionist and interpretative frameworks, when presenting the results because they are directly affected by the researcher’s experiences and influences (or lack of). Moreover pragmatism and realism appears to be necessary qualities to put into perspectives how data collection, analysis and interpretation structure the researcher’s sensitivity to theory development grounded in data. This pragmatic consideration for a theory based on data collected and phenomena observed call for a more fundamental epistemological critique of theory development.

3.4.3 Abductive approach to social inquiry research

Although Glaser’s leitmotiv is “all is data”, theories are constructed on data analysis to explain and predict phenomena, data are idiosyncratic, and thus Haig insists that “*properly formulated grounded theories should be taken as grounded in phenomena, not data*” (1996, p.3). The implications of a theory and methodological approach based on data collection and interpretation are challenging the creation of new knowledge and of what social science is and aiming at (Chalmers, 1999; Flyvberg,

2001; Nowotny *et al.*, 2006). Dick (2005) emphasises that since the development of *concepts, categories* and *propositions* is based on an iterative process, GTM, and eventually the emerging theory, is by definition not generated a priori and then tested (hypothetico-deductive), but they are inductively derived from the study of the data and the phenomenon the researcher is aiming to characterise. This opposition of inductively generated theory, versus hypothetico-deductive theory is at the heart of the epistemological differences between the constructivist and positivist research paradigms. However, Kelle (2005) and Blaikie (2007) cleverly highlight that inductive and hypothetico-deductive research strategies do not incorporate meaning and interpretations, motives and intentions of the agency studied that explain the social reality from an inside perspective as abductive research strategy is about- a epistemological details that many miss.

Finally, a grounded approach produces conceptual and not measured relationships and that term *proposition* is then more relevant than *hypothesis* (Dick, 2005). One could argue that a *proposition* can actually be measured through the complementary use of quantitative analysis. One of the major strength of the GTM over other methodological approach is that an open code and the associated categories elicited from an initial data set can be tested on a medium scale survey (Chapter VI). GTM enables valid and rigours quantification of qualitative knowledge through flexible design (Robson, 2002). The use of qualitative and quantitative analysis is also referred as triangulation or multi-methodology analysis (Kaplan & Duchon, 1988; Mehanna, 2006; Mingers, 2001, Pandit, 1996). The concepts and categories elicited and defined during the familiarisation phase (scoping interviews and initial stakeholder questionnaire reported in Chapter V) benefit from the additional information gathered during the medium-scale survey (reported in Chapter VI). The combined use of qualitative and quantitative tools to measure categories developed from the analysis of open questions through sociological dimensions such as gender, age, the level of education, perception of urgency to improve water management, provides robust insights in grounded theory development (because identified during the inductive phase). The core category i.e. type of Public Participation according to Water Management Challenges is the focused on the final data set (reported in Chapter VII).

Figure 3.2 presents how the GTM is applied in this study where the understanding of both water management challenges (WMCs) and public participation led to the identification of the core category.

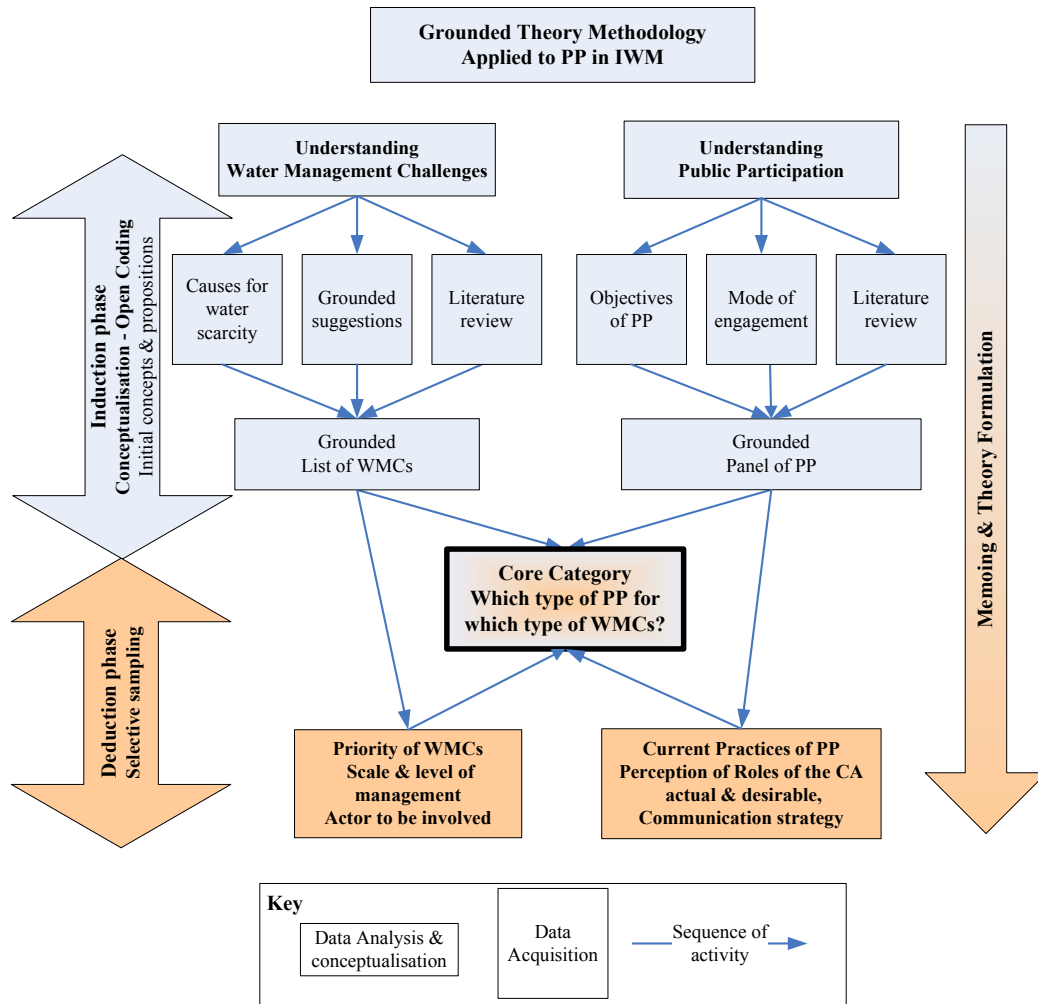


Figure 3.2: GTM applied to public participation in IWM

3.5 Analysing Qualitative Data

The last methodological aspect that needs to be specified concerns the stance adopted to analyse qualitative data and interpret them into relevant information according to the ontology and the epistemology undertaken.

Concepts such as water scarcity, water management crisis are not simply imposed by a top-down way but are continuously contested in a struggle about their meaning, interpretation and causes. The study of discourse allows one to see how water scarcity problem is perceived (Graffy, 2006), how public participation is performed (Lee & Roth, 2006) and how a diversity of actors actively try to influence the definition of the problem (Feindt & Oels, 2005; Hajer & Versteeg, 2005; Maxim & van der Sluijs, 2007); this is why I follow Hajer & Versteeg's definition of discourse that is anchored in the Foucauldian sense: "*discourse is defined here as an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices*" (2005, p.175). Hajer (1995) and Feindt & Oels (2005) point out that a wide range of practices classify them self as discourse analysis some limited to textual analysis and linguistic construction of meaning, but a Foucauldian perspective on discourse is more interested in knowledge than discourse in text. The central question Foucault asks is "*how is power exercised?*" (Foucault, 1994, p.336). Knowledge and power nurture and contest each other. This duality is at the heart of both water policy development and the exercise of participation and to reframe the overarching research question: how public participation is exercised in integrated water management? Saying that water scarcity is a social construct does not mean that there is no water pollution or water related disease, that water is supplied in quality and quantity to all, but that "*there is no one authoritative interpretation of these events but multiple contested interpretations*" (Feindt & Oels, 2005, p. 162).

I am not pretending here to use discourse analysis as Hajer (1995, 2005), Selby (2003) or Feindt & Oels (2005) to gain an in-depth construction of power relationships between different social actors over time, or to understand the evolution of language and the emergence of labels through time because this research does not seek to articulate the history of usage of discourse; it is a snapshot on the perceived appropriateness of type of public participation for elicited water management challenges. However, I interpret answers in their entirety in order to grasp meaning of

social actors (individuals) other than through a content analysis than give little consideration to the researcher's interpretation i.e. in depth qualitative analysis inspired by Foucauldian discourse analysis. Discourse Analysis favours the researcher's interpretive stance (unlike content analysis) and enables a reflective comprehension of social phenomena, with the objective to compare and contrast perceptions of the problem (Hajer, 1995; Selby, 2005). The unit of analysis is the statement that can either be a numerical or a verbal answer. Verbal answers can be one word or include several statements. When it comes to interpreting those long and rich statements, the stance given to the meaning of interpretation is crucial (as developed in §6.2. with regards to 'Very Rich Answers'). On the other hand the absence of answer or answers such as 'do nothing' indicate either a lack of interest or a lack of knowledge in the topic addressed. This type of interpretation of answers provides some insights about respondents' awareness of the problem raised and of their wider understanding of the diversity of issues at stake (§6.3).

One analytical issue I can anticipate is that discourse analysis is used by the author cited above on existing practices of discourse and exercise of power. I am also investigating the potential of different type of participation according to stakeholders' preferences and the perceived role the competent authority should have in order to foster participation practices that might not yet exist. Here, DA is not based on an historical perspective to retrace apparition, evolution and potential hegemony of argumentation, but based on opinions and perceptions of the appropriateness of forms of participation in the potential exercise of IWM. In depth qualitative analysis is both used to build rigorous open code, to link concepts to context and to develop first substantive and then formal theory grounded in a double hermeneutic.

3.6 Initial conclusions on the methodological approach

Discussions on, and the maturation of GTM will doubtless continue for some time. From this diversity, disagreements, argumentations, new knowledge, new forms of GTM will emerge. What is really revolutionary about GTM, is that it has given a robust entry point for social sciences to explore fields and areas where sociological approach was not considered *a priori* as interesting or relevant until the post-modern turn. This recent trend in research might close the gap between scientific communities when realising that environmental risk management are sociological problems and

requires a trans-disciplinary approach. IWM is first of all a sociological and political issue.

Figure 3.3 presents the overall themes approach during this study and the sequential links between them. The colour code associated with the fieldwork is used throughout the thesis in all synthesis flow diagramme: scoping interviews in blue, initial stakeholder questionnaires in green, the survey in yellow and the decision-influencers interviews and questionnaires in orange. Initial themes have been identified through the literature review and during the familiarisation phase (the scoping interviews and the initial stakeholder questionnaire presented in Chapter V). From then follows a grounded investigation of understandings of water management challenges and of PP realised through the exploratory medium-scale survey of the wider public (Chapter VI). The last methodological step is to return to stakeholders and decision-influencers to submit them a grounded list of water management challenges and a grounded panel of types of public participation. The objective is to elicit which type of public participation is perceived as appropriate for a grounded set of water management challenges and which communication strategy is perceived as appropriate to open-up the public sphere to an inclusive water management policy (Chapter VII).

Which type of participation for which type of water management challenges?

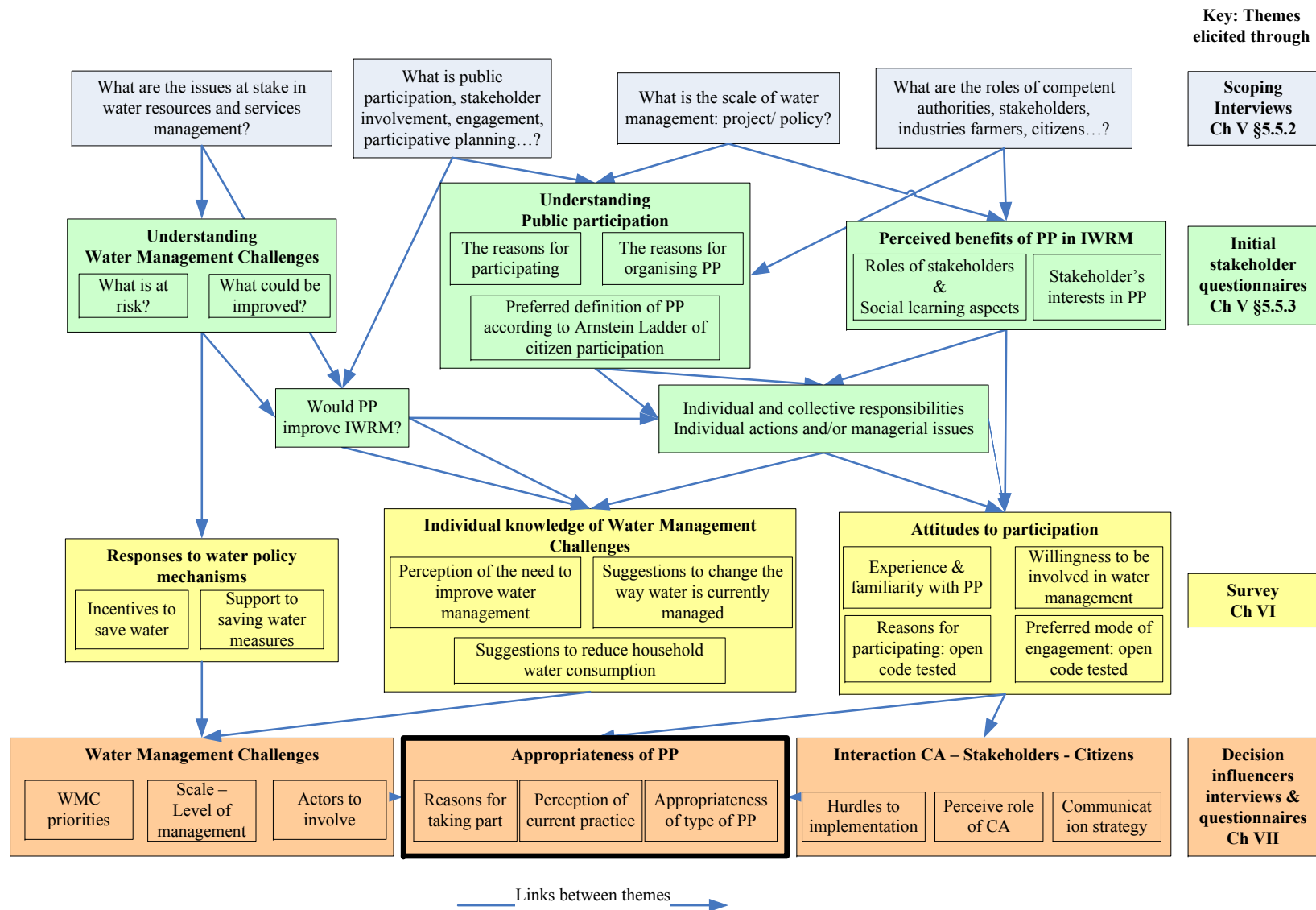


Figure 3.3: Flow and links between themes and fieldwork activities

Chapter IV

4 Water Management in the Levant: Study areas Background

The Levant²⁴ (Eastern Mediterranean) is one of the world's regions where water scarcity is already a well acknowledged problem. However, the situation continues to deteriorate and the local water infrastructure in many states will soon not be able to meet the demand for domestic, agricultural and industrial growth. In this chapter I provide some succinct background information on the study areas. This chapter has no claim to be a political, economical or sociological description of neither the countries nor of the study areas. The literature is rich in historical books and technical- economical reports (mainly from The World Bank and other aid agencies). However, information is rather national than by river basin, it also varies from sources. Specific information on water management policy is not always available and comprehensive studies on responsibilities over water resources and services are lacking.²⁵ For a general reading on water management in the Levant I would advise Allan (2002).

Four neighbouring countries provide a context for this study; Jordan, Lebanon, Syria and Turkey. The study is focused in each country on a single catchment only, respectively the Amman Zarqa Basin, the Chekka Bay, Tartous Mohafaza and the Gökova Bay as indicated in Figure 4.1.

- Jordan is one of the most stable country in the Middle East, with significant cooperation from foreign aid agencies;
- Lebanon is still under political, cultural and physical, reconstruction 19 years after the civil war;
- Syria is a military state and yet changing as globalisation is affecting every country through technological and cultural modernisation;
- Turkey is moving towards EU standard and is a functioning democracy.

²⁴ The expression Levant is preferred to Middle East because our study includes the Republic of Turkey that is not traditionally considered as being part of the Middle East. However, historically, the Levant refers to an imprecise geographical area of Eastern Mediterranean coastal area from Egypt to Turkey, I prefer use Levant than Middle East. (<http://www.levantine.plus.com/index.htm>; <http://www.thefreedictionary.com/levant>; <http://encyclopedia2.thefreedictionary.com/levant>; <http://encyclopedia.farlex.com/Levant>; <http://en.wikipedia.org/wiki/Levant>, Accessed 25 /02 /2008)

²⁵ The information presented in this chapter is primarily based on MEDITATE Deliverable 10-15 (2005) and on MEDITATE Deliverable 33 (2007) EC funded project (INCO-MPC-2001, PL 509112).

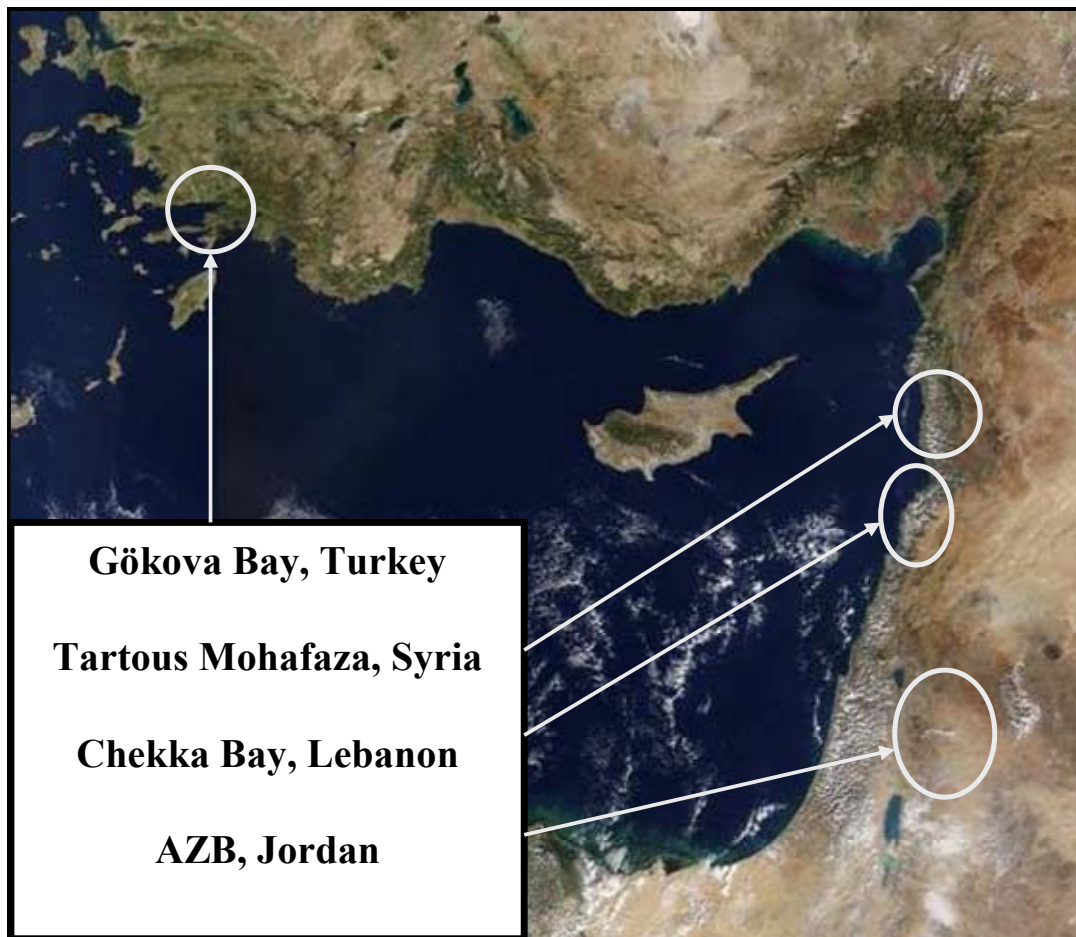


Figure 4.1: Map of the four study areas in the Levant²⁶

²⁶ Adapted from http://visibleearth.nasa.gov/view_rec.php?id=4201 and <http://veimages.gsfc.nasa.gov/4428/Turkey.A2002264.0845.500m.jpg>

4.1 Amman Zarqa Basin, Hashemite Kingdom of Jordan

4.1.1 Introduction

The Amman Zarqa Basin (AZB) extends from Jebel Arab in Syria in the northeast, the Rift Side Wadis basin in the west, Yarmouk basin in the northwest, Azraq basin in the east and south, and to the Dead Sea basin in the southwest (Figure 4.2). AZB covers a total area of 4,586 square kilometres (km²), with about 4,074 km² in Jordan and 512 km² in Syria. Amman-Zarqa Basin account for almost 58 per cent of the population of the Kingdom i.e. 3,199,770 inhabitants in 2003. AZB contains three main cities Amman, Zarqa and Mafraq, major industrial sites and irrigated areas. Approximately 88% of the population live in urban area (DOS, 2004).

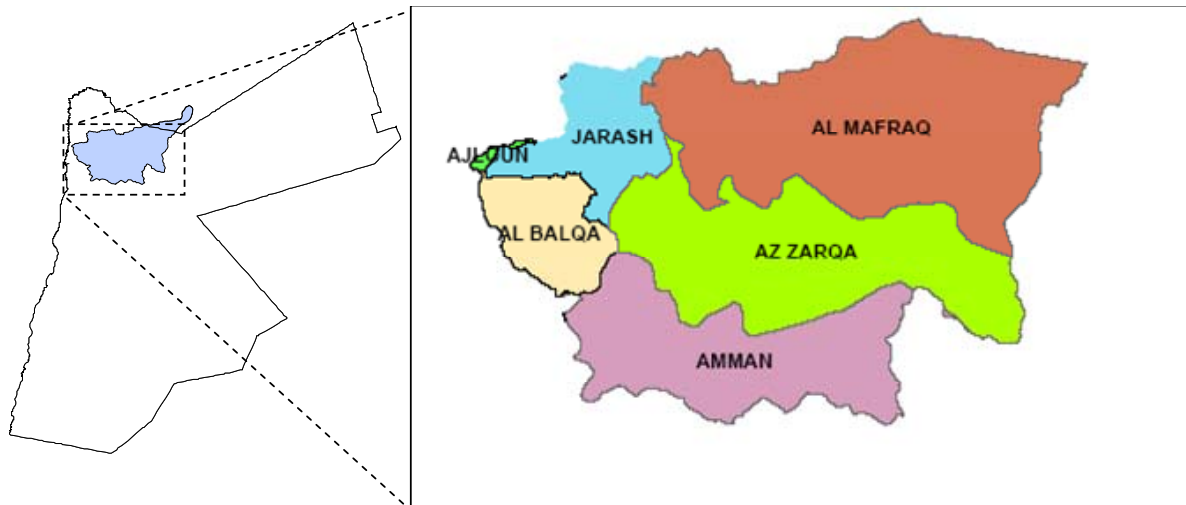


Figure 4.2: Map of Amman Zarqa Basin, Jordan²⁷

4.1.2 Water resources and demand in AZB

On a per capita basis, Jordan is one of the water scarcest countries in the world with a Total Actual Renewable Water Resources (TARWR)²⁸ of 160 m³/yr per capita (FAO-AQUASTAT, 2005). Jordan receives a large share of its water resources from international watercourses, namely Yarmouk River, Jordan River and the trans-

²⁷ Personal communication from Prof Amer Salman, Department of Agricultural Economics and Agribusiness, Faculty of Agriculture, University of Jordan.

²⁸ Total Actual Renewable Water Resources is an index that reflect the water resources theoretically available for development from all sources within a country. TARWR below 1,700m³/yr/cap is accepted as an indication of *water stress* potentially affecting economic and human development, TARWR below 1,000m³/yr/cap, a country is said to experience *water scarcity* and below 500m³/yr/cap *absolute scarcity* (Falkenmark *et al.*, 1989; UNESCO, 2006; World Bank, 2007). TARWR is difficult to estimate, because both resources and population are in some country difficult to estimate and subject to debate (Selby, 2003).

boundary aquifers. The rightful shares of these resources are managed through bilateral agreements with Israel and Syria.

Water abstraction largely exceeds the annual recharge by rainfall water. Water tables level drop and salinisation increases mainly due to agricultural practices (JICA, 2001). Annual water demand reached about 1,200 million cubic meters (MCM) in 2002. This is far above the sustainable rate of surface and groundwater supply estimated at about 750 MCM per year. The combined sustainable yield from the rechargeable aquifers is around 275 MCM per year, against an abstraction rate of approximately 510 MCM per year. The aquifers are being overpumped at rates varying from 146 to 235% of the so-called safe yield (Chabaane *et al.*, 2004; Haddadin, 2006).

In addition, demographic growth and the improvement in the living standards of the entire population led to a strong increase in the demand for drinking water. In order to meet the growing needs of the urban population, it is now necessary to resort to energy-consuming transfers over longer distances and to elevate water several hundred meters (200-600 meters deep wells). Gerlach reports that water supply is not continuous for all and about 30 % of Amman population receive water for only 24 hours while “*the average amount billed to a poor household was 17.4jd/quarter (\$24.5)*” (Gerlach, 2007, p.123). Moreover, agriculture, which enjoyed very favourable conditions during the 1970s and the 1980s and which was heavily subsidised by the government (because it allowed rapid and economically viable local development and the settlement of nomadic populations) uses today a large share of national water resources. Agriculture only produces 3 to 4 % of the Gross Domestic Product (GDP), employs 5 % of the labour force but nevertheless makes up 65 % of the national water use.

Faced with such problems and the evidence of growing overall scarcity, the Jordanian government, supported by international partners strongly involved in the water-sector's investments, has tried to critically reorient its water policy.

4.1.3 Water Management in Jordan

Three institutions take responsibility for water administration in Jordan: Ministry of Water and Irrigation (MWI), Water Authority of Jordan (WAJ), Jordan Valley Authority (JVA). MWI is the official body responsible for the overall water and wastewater system and the related projects, planning and management, the

formulation of national water strategies and policies, research and development, information systems and procuring financial resources. MWI prepares the National Water Master Plan and water sector programs, formulates water sector policies and participates in the licensing of water abstractions.

WAJ was established as an autonomous corporate body in 1983, with financial and administrative independence linked with Minister of Water and Irrigation. WAJ is responsible for the public water supply and wastewater services as well as for the overall water resources planning and monitoring, construction, operations and maintenance. WAJ's Project Management Unit (PMU) regulates water and wastewater utilities under private management.

JVA has been established for the social and economic development of the Jordan Rift Valley including the development, utilisation, protection and conservation of water resources. The King Abdallah Canal represents the backbone of the JVA water distribution system in the north of the Dead Sea. WAJ and JVA are by law responsible for water supply and wastewater services in Jordan.

The Government of Jordan considers private sector participation and decentralisation as major elements of the reform process fostering the efficiency in the public service sector. Since 1999 the water supply in Greater Amman is under private management delegated to a international joint-venture of Lyonnaise des Eaux, Montgomery Watson and Arabtech Jardeneh (LEMA). Major future water and wastewater projects are foreseen for further private sector participation (MWI-GTZ, 2005). Legal responsibilities with regard to water resources monitoring and planning exist for MWI, WAJ and JVA. The Jordanian Institute of Standards and Metrology is charged with the duty of issuing standard specifications for the water sector in cooperation with representatives of MWI, WAJ, JVA and representatives of the Ministry of Health and the Ministry of Environment.

Official publication of the government priorities and objectives in the Jordan's Water Strategy Policies of 1995 and 1997, 2004 gives priority respectively to potable water, then to industrial use and finally to irrigation water²⁹. The optimal water option and the related necessary degree of cooperation between competent authorities and stakeholders shall be determined by weighing various options under economical, political and environmental considerations.

²⁹ The Jordanian water strategy is available on: <http://www.mwi.gov.jo/Misc/Misc.aspx>

The priority criterion for project implementation and for additional water allocation shall be based on economic, social and environmental considerations. First priority will be given to the basic human needs (100 litres per capita per day to domestic water supplies) followed by tourism and industrial purposes. For irrigation purposes, and in the light of the tight water situation, wastewater is considered a resource and cannot be treated as waste. Wastewater shall not be treated as waste. It shall be collected and treated in accordance with WHO and FAO guidelines that allow its reuse in unrestricted agriculture and other non-domestic purposes, including groundwater recharge (MWI-GTZ, 2005).

4.1.4 Existing practices of Water User Participation in Jordan

No information has been found on involvement of the public about water management other than farmers. However, Judicial, Legislative and administrative reforms engaged by King Abdullah, aims to modernise Jordan governance and “*broadening the participation of stakeholders to the drafting of new legislation*”³⁰.

Faced with the difficulties in enforcing water abstraction limits water policy in Jordan and recognising that the reduction of agricultural water use in the highlands is a politically difficult and challenging task pilot initiatives to explore management options (and the development of action plan to implement the options ultimately selected) based on participation of the water users, MWI, and other relevant stakeholders have been undertaken since 2000 (Chebaane, 2004). Pilot participative initiative includes rapid appraisal targeted primarily at water users, followed by consultations with MWI and other public and private stakeholders, and then workshop with participation of all stakeholders to discuss the explored options and the action plan for their implementation. The Rapid Appraisal had two principal objectives: (i) initiating a participatory water management process by involving well owners in the development and implementation of water management options, and (ii) collecting technical and socioeconomic information related to water use and users. Similar pilot initiatives are being undertaken with international aid like GTZ-MWI (2002, 2004), the European Union (MEDAWATER, EMPOWERS). Moreover UNDP Jordan through the Global Environmental Facility-Small Grants Program aims to improve the

³⁰ King Abdullah website: http://www.kingabdullah.jo/main.php?main_page=0&lang_hmka1=1

Which type of participation for which type of water management challenges?

local environment by raising public awareness, building partnerships and promoting dialogue³¹.

It is anticipated that continued over-pumping will likely further deplete the groundwater resources and may induce a threat not only to domestic water supply in AZB, but also to the socioeconomic development and stability in the area.

³¹ More information is available on <http://www.gef-sgp.org/jo/mechansim.html>, <http://www.medawater-rmsu.org/>, and <http://www.empowers.info/>.

4.2 Chekka Bay, Republic of Lebanon

4.2.1 Introduction

After 15 years of civil war (1974-1989) ended with the Taëf agreements, Lebanon is under reconstruction and still victim of both internal violence and tacit or explicit foreign aggression. Political stability is an aspiration that has not come true yet as witnessed during the length of this study.

The case area covers 5 administrative cazas of the Mohafaza of North Lebanon: Batroun, Bcharré, Koura, Zgharta, Tripoli-Donnieh-Minieh (Figure 4.3). These cazas correspond to the south part of the North Lebanon Water Authority (NLWA) and to a homogeneous river basin of 1200 km², centred on Chekka bay. Lebanese coast consists of a narrow plain followed inland by a series of foothills, plateau, then rising through steep slopes to the coastal mountain chain. The area includes three rivers and their watershed, namely from North to South: Abou Ali River, El Asfour River and El Jawz River. Abou Ali River flowing through Tripoli is the only one that flows all year long. The climate is hot sub-humid at the coast becoming milder inland. Annual average precipitations are in the range of 800-950 mm in the West part and can reach 1,300 to 1,500 mm in the mountain. The area is characterized by rainy winter followed by a long dry season from May to October. The coastal line is shared between urban areas, rural areas, tourism areas and industrial areas. Population is estimated at 924 385 for 2005, the mean population density is 761 inhabitants per square kilometre and 54 % of population is urban (MEDITATE D10-15, 2005; MEDITATE D33, 2007).



Figure 4.3: Map of Chekka Bay, Lebanon³²

4.2.2 Water resources and demand in North Lebanon

Recent study on water management in Lebanon (MEDITATE D33, 2007) reports the challenges to gather reliable data, and estimation of annual exploitable water resources in the study area could be around 200 MCM (27% of the renewable water resource). The current average annual needs estimated to 226 MCM for Chekka Bay. With a TARWR estimated at 1,190 m³/yr per capita in 2005, Lebanon is considered as water stressed.

According to the North Lebanon Water Authority (NLWA), the vast majority of water for public distribution comes from groundwater. Only 3.5% of potable water is coming from surface water of Abou Ali River. Forty four percent of the population is connected to the public water network, 30 % of the total observed connections are illegal and 14% of Lebanese households receive water continuous water supply. (ICEA-CORAIL, 2004b). Water is charged at the standard rate of 150\$ per year for a service of 1m³/day/household. Agricultural sector is contributing by 6.3% of national

³² Personal communication from Dr Michel Bakalowicz, GREEN, Ecole supérieure d'ingénieurs de Beyrouth.

GDP in 2004 and 15% of workforce (MoA, 2004). It is generally considered that agriculture contributes by more than 70% to the total Lebanon water demand (ICEA-CORAIL., 2004a; MoE, 2001).

Few wastewater treatment plants are currently functional in Lebanon. Three wastewater treatment plants have been built recently two in Batroun Caza (in Chekka and Batroun) and one in Tripoli. However, they are not working since not properly fed through sewers (either the networks are still not existent or due to insufficient incoming flow). Wastewater runs to the environment polluting groundwater and the sea. Industries in North Lebanon are food products and beverages, leather & textiles, wood products, cement factory and limestone quarry. Industrial water demand account for approximately 6%.

The above presentation of facts would tend to lead to think that North Lebanon is water scarce, while it is also considered as the wettest part of the Middle East's "chateau d'eau". Yamout and Jamali report that "*[i]n contrast to neighbouring countries, Lebanon has adequate total water resources*" (2007, p. 615).

4.2.3 Water management in Lebanon

The Ministry of Energy and Water (MEW) is responsible for strategic planning of water resource management, including the preparation of the water master plan, conservation of surface and groundwater resources, as well as the design and implementation of large projects and dams. Law 221, passed in April 2000 organised the management of water under four Water Authorities (WAs), 22 regional water board, and 209 local water committees. As the world bank reports, "*[t]he WAs are expected are expected to take over the management of the irrigation, potable water and sewerage schemes, but technical administrative, and financial constraints are preventing this*" (World Bank, 2004b, p.x). Effectively most planning is done at national level by the MEW. Local Water Committee and farmers groups are most involved with the daily operation and management for small irrigation schemes.

Several governmental organisations are partly responsible for water management: Ministry of Interior and Municipalities, Ministry of Agriculture, Ministry of Public Health, Council for Development and Reconstruction, Ministry of Environment, Ministry of Public Works and Transport. Their responsibility overlaps with those of the MEW (World Bank, 2004b). Water production and supply in Tripoli and suburbs are delegated to a private company (ONDEO Liban S.A.L.).

The MEW strategy for the water resources management is built on two axes: increase the raw supply and to reduce water losses from potable and irrigation water networks. Leakage rate of the drinking water networks is estimated at 40 to 50% and leakage rate of the irrigation networks at 50 to 70%.

The three priorities of the MEW are:

- To ensure permanent (winter and summer) quality drinking water to the entire population of this area. For this purpose the priority for the next 15 years is to construct one dam on El Bared River to supply water to Tripoli and one on El Jaouz River to supply water to Batroun. At present, these two dams are at the preliminary study stage;
- To ensure drinking water for the seaside resorts which are increasingly growing in Batroun and Tripoli;
- To provide irrigation water, particularly in the mountainous regions, by the construction of hill lakes with water capacities between 100,000 and 200,000 m³ of water (MEDITATE D10-15, 2005).

4.2.4 Existing practices of water users participation in Lebanon

Abdel-Massy (2005) reports a programme on public participation in the Akkar Watershed (North part of North Lebanon). The aim of the pilot project was threefold: (i) to give information to the local population concerning the degradation of the environment, (ii) to engage the public in discussions of the cause and remediation of these issues and to seek their opinions and (iii) to jointly prepare and ratify part of the watershed management plan. No information has been found on formal involvement of the public about water management other than with farmers that operate and management small irrigation network (Work Bank, 2004b). Participation is engaged at pilot scale under the initiatives and expertise of foreign aid agency like CHF (Community Habitat Finance) a USAID funded NGO, CORAIL funded by the Agence Française de Development.

4.3 Tartous Mohafaza, Syrian Arab Republic

4.3.1 Introduction

Tartous Mohafaza (Figure. 4.4) occupies the southern part of the coastal area, southward it is bounded by the Lebanese border and in the north by the administrative border of Lattakia Governorate region. The area considered is covering 1,896 km². The Climate of the coastal basin is characterized by an important climatic variability compared to other basins. It is dominated by heavy rainfall in winters and dry and hot summers. The average annual precipitation varies between 800-1400 mm/yr. The governorate population is estimated at 730,000 inhabitants in 2005, with a density of 385 inh/km².

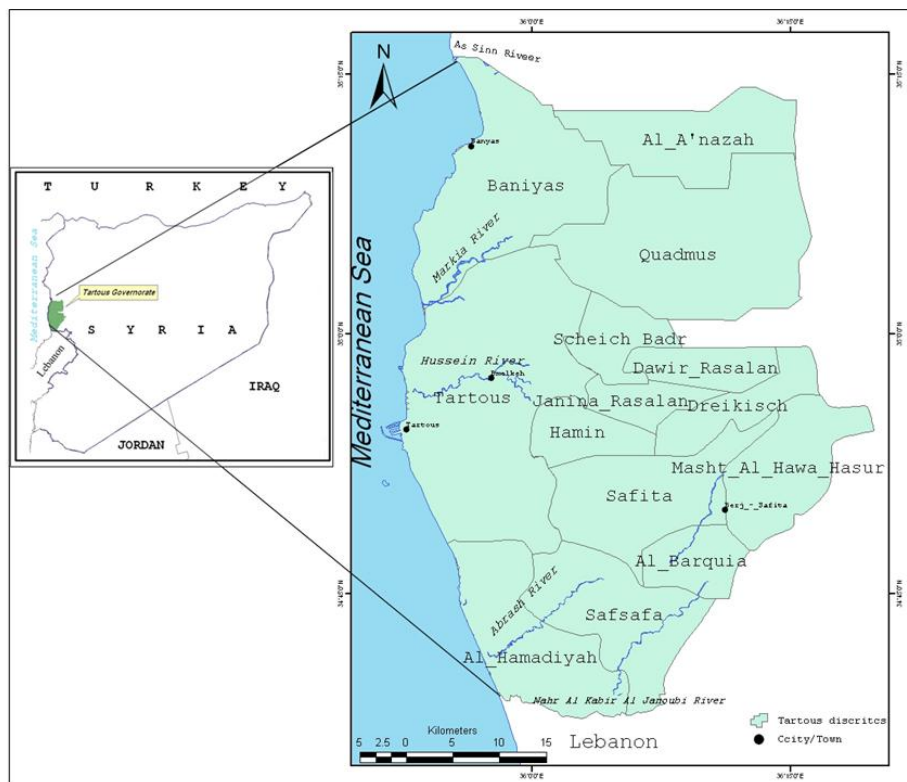


Figure 4.4: Map of Tartous Mohafaza, Syria³³

4.3.2 Water resources and demand in Tartous Mohafaza

The total renewable water resources are estimated about 3,000 MCM per year in the coastal area (Salman & Mualla, 2002) but the Ministry of Irrigation estimate is about 1,518 MCM and the water balance account for only 784 MCM. More globally, there

³³ Personal communication, MEDITATE Project coordinator for Syria, Atomic Energy Commission of Syria.

is a large uncertainty concerning the accuracy of the various values because of the limited availability of reliable data (GTZ-MoI, 2004; MEDITATE D33, 2007). The surface water resources account for less than 28% of total available water resources. With a TARWR estimated at 1,622 m³/yr per capita in 2005, Syria is just below the threshold of 1,700 and is considered as water stressed.

About 90% of all water resources in Syria are used for irrigation. The domestic water consumption represents only about 8% whereas the remaining 2% are used for industrial purposes. Agriculture represents 35% of the GDP and 22% of the workforce (Meditate). The main industrial activities are limited to a petroleum refinery and a thermal power plant in Baniyas and a cement factory in Tartous city. The transport sub-sector is not negligible in the governorate as the seaport of Tartous is the second most important port in Syria after the Latakia port. Other important industrial activities are those linked with agricultural production such as olive oil works (a hundred of factories in Tartous) and fishery production (in Baniyas). Less industrialised activities include craft and commercial activities.

4.3.3 Water Management in Syria

Four ministries share the responsibility over water management in Syria. The Ministry of Irrigation (MoI) is the main responsible body for water resources management at national level. Its main functions include the study of water resources (in terms of both quantity and quality) and the development of water projects for the purpose of irrigation. At the basin level, the MoI is supplemented by seven General Commissions of Water Resources Management (GCWRM) established by law N°90 in 2005. For Tartous Mohafaza the main local water actor is the Coastal Water Resources Management (COWRM), its role is the planning of water resources management as well as the protection of water resources from depletion or pollution (e.g. delineation of groundwater protection zones, water delivery of water use permits). Each regional water resources management agency (GCWRM) is administratively and financially independent but supervised by the MoI. Research and training are ensured by the Water Resources Information Centre (WRIC).

The Ministry of Housing and Utilities (MHU) carries full responsibility for setting the master plans for the municipal water and sewage facilities. MHU is represented in Tartous by Tartous Water Supply and Sanitation Authorities (TASWA) that is responsible for exploiting and distributing the domestic water allocated by the MoI

and for sewerage networks and water treatment plants. Drinking water and sewerage treatment fees are also collected by these establishments. Water tariff is the same all over the country and incremental: 0-20 m³ 3 Syrian pound/ m³, 20-30 m³ 4.5 Syrian pound/m³. Water Tariff for industries and businesses is 22 Syrian pound/m³. There is no WWTW's in Tartous Mohafaza, and wastewater is piped to the sea. Last but not least, the Ministry of Agriculture and Agrarian Reform (MAAR) is involved in the annual allocation of areas to be irrigated or planted in light of available surface water and groundwater resources. The MAAR also cooperates with the MoI in the development of wastewater reuse for irrigation purpose. The newly established (July 2002) Ministry of Environment (MoE) is in charge of monitoring water quality and for the protection of the water, in cooperation with the MoI. It must be stated that responsibility overlaps and this has been identified as a root cause for ineffective water management (GTZ-MoI, 2004; MEDITATE D10-15, 2005).

There is little available information concerning water management and allocation strategy other than the typical priority to domestic users. The MoI water strategy seems to be to develop a master plan and to transfer ground water from the coast area to Damascus (GTZ-MoI, 2004; MEDITATE D10-15b, 2005).

4.3.4 Existing practices of water users participation in Syria

Water users participation is common but limited to Farmer's Union that participate in digging wells, small canal and reservoir for irrigation and livestock (GTZ-MoI, 2004) The Agh Khan development network and Medawater runs some participative agricultural development projects at pilot scale³⁴.

³⁴ More information is available on www.akdn.org and <http://www.medawater-rmsu.org/>.

4.4 Gökova Basin, Republic of Turkey

4.4.1 Introduction

Gökova Basin is located in the south-western part of Turkey, the climate is of Mediterranean kind with average annual precipitation of 1,185 mm, mean annual temperature of 14.8°C with hot and dry summers and mild and wet winters. Gökova Basin (1,180 km²) is situated in the Muğla Governorate (12,716 km²) and is across on three administrative districts: Ula, Muğla (capital of the governorate) and Milas (Figure 4.5). Half of the basin is situated in the Muğla district. The population of the governorate is 715,328 inhabitants (2000 population census) corresponding to population density of 56 inhabitant/km². Population of the 3 districts concerned by the Gökova Basin is 280,183 inhabitants.

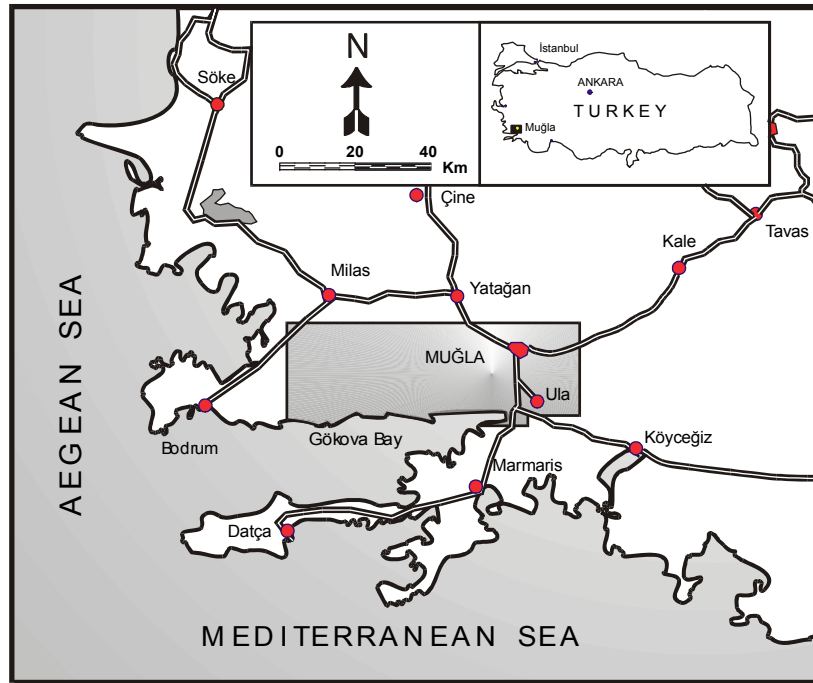


Figure 4.5: Map of Gökova Basin, Turkey³⁵

³⁵ Personal communication from Prof Mehmet Ekmekçi International Research Center For Karst Water Resources, Hacettepe University, Turkey.

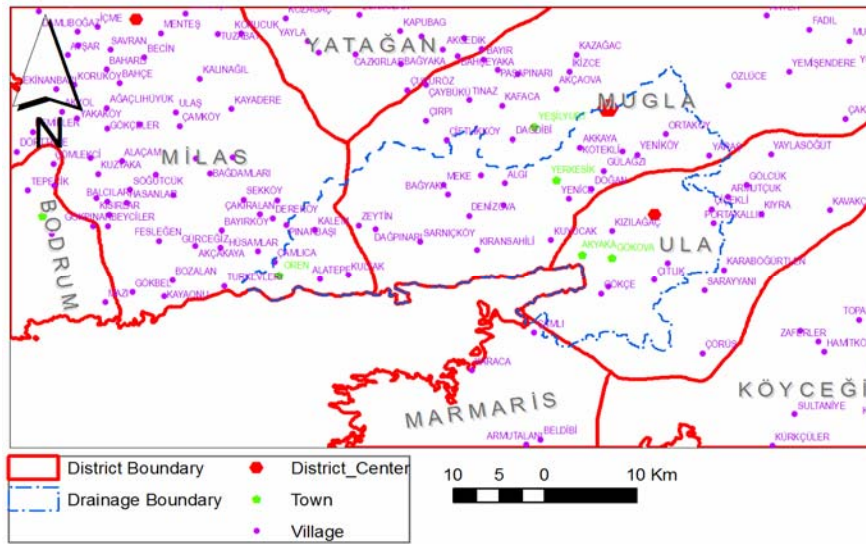


Figure 4.6. Drainage Boundary and Administrative Units of the Area, Turkey³⁶

4.4.2 Water resource and demand in Muğla governorate

The total usable water estimated (MEDITATE D33, 2007) for the Muğla governorate perimeter amounts to 3,530 MCM. Water demand is estimated at 41MCM per year, agriculture water demand accounts for 75%, domestic consumption for 15% and 10% for industry. With a TARWR estimated at 3,439 m³/yr per capita in 2005, Turkey is considered as a water rich country. The area does not seem to suffer from quantitative water problem. Main cultivations are wheat, barley, row cotton, maize, peas, citrus and fruits. There is no major industry other than tourism.

4.4.3 Water management in Turkey

The four main organisations responsible for water management are General Directorate of State Hydraulic Works (DSI), General Directorate of Rural Services (GDRS), General Directorate of Bank of Provinces (İller Bank), and General Directorate of Electric Power Resources Survey and Development Administration (EİE). DSI, under the Ministry of Energy and Natural Resources, is the main responsible for the development and management of water resources (surface and groundwater) covering master-plan, pre-feasibility, feasibility, design, construction and management for irrigation, hydraulic energy generation, domestic water supply

³⁶ Personal communication from Prof Mehmet Ekmekçi International Research Center For Karst Water Resources, Hacettepe University, Turkey.

(for cities over 100 000 inhabitants), flood control. GDRS is administered under the Prime Ministry and responsible for construction of small reservoirs and small-scale irrigation schemes and for supplying drinking water to rural communities. GDRS collaborates with DSI for irrigation projects. The Bank of Provinces responsibilities include developing urban plans, supplying municipal water, constructing sewerage systems and treatment plants, and providing loans to municipalities for the financing of such projects. Finally, the EIE is responsible for surveys on electric power, it carries out hydrological studies to evaluate the national hydro-electric potential and collaborate with DSI.

Municipalities are responsible for payment collection, in Gökova drinking water is charged at 0.50-0.75YTL/m³ (0.3-0.45 €/m³ on 31/05/2005).

4.4.4 Existing practices of water users participation in Turkey

In order to optimise operation and maintenance of irrigation schemes the government of Turkey started in 1993 a transfer of competence to Water User Organisation that include: water user associations, municipalities, village authorities and framers cooperatives. The objectives of Participation Irrigation Management are:

- The participation of users in the operation and maintenance of irrigation facilities;
- To gather farmers' opinion on the development of irrigation scheme under the responsibility of DSI;
- To decrease operating and maintenance cost.

The implementation of the EU WFD in Turkey is supported by the Government of the Netherlands and a RBMP is currently being implemented as a pilot, in the Büyük Menderes River basin (Hermans, 2005). The EU WFD is not yet implemented in our study area. UNDP in collaboration with the institutional actors presented above and financed by the EC has launched in 2006 a Participatory Process towards development of Turkey's sustainable development and accompanying grants assistance to stakeholders aiming at: development of a Policy Paper on Sustainable Development, capacity building at national and local scale, within administration and with private actors, promoting awareness on sustainability (DSI, 2003).

4.5 Summary

The four cases studies area have in common to experience water resources pollution, to have centralised administration and apparently little or no formal participation except for farmer unions. Table 4.1 presents and summarised the selected characteristic of the study areas.

Table 4.1: Selected characteristics of the study areas

Study Area	Amman-Zarqa Basin (AZB), Jordan	Chekka bay, Lebanon	Tartous Mohafaza, Syria	Gökova Bay, Turkey
General information				
Surface Area (km ²)	4,074	1,200	1,896	1,180
Administrative territory in the study area	Governorates of Amman, Zarqa and Mafrq	Mouhafaza of North Lebanon including 5 casas	Tartous Mohafaza	Governorate of Muğla
Main cities in the area	Amman, Zarqua and Mafrq	Tripoli, Chekka, Batroum	Tartous Baniyas	Muğla, Gökova, Akyala
Mains river	Jordan river King Abdallah Canal	Al- Asfour, Abu- Ali and El-Jaouz	Marqiyeh, Baniyas, Al Senn	Gökova
Watersheds	Aman-Zarqa basin (part in Syria)	Al- Aasfour, Abu- Ali and El-Jaouz basins	Bassieh	Gökova
Rainfall (mm/yr)	200-600	800-1500	800-1400	1185
Population				
Current Pop, 10 ⁶ Inhabitants, (2005)	3.2 (2003)	0.924 (2005)	0.730 (2004)	0.715 (2004)
Population growth	2.3%	1.76%	3.2%	2.0%
Density capita / km ²	785	761	396	56
Main activities				
Agriculture	greenhouses and tree crops	Greenhouses and Olive tree	Greenhouses and Olive trees	Greenhouses and open field
Industry	Cement industry, Oil Refinery, power plant	Cement industry	Cement industry, Oil Refinery, Power plant, Fishery	Small businesses
Others	Tourism	Tourism	Tourism	Tourism
Water resources and demand (Mohafaza)				
Water resource MCM	750	200	3,000	3,530
Water demand MCM	1,200	226	1,518	41
Leakage rate	30-50%	40-50%	40-50%	20-40%
Total Actual Renewable Water Resources Country (FAO-AQUASTAT, 2005)				
TARWR m ³ /yr/cap	160	1,190	1,622	3,349
Water Uses				
Agriculture	66%	70%	90%	75%
Industry	6%	18%	2%	10%
Domestic	28%	12%	8%	15%

Which type of participation for which type of water management challenges?

Study Area	Amman-Zarqa Basin (AZB), Jordan	Chekka bay, Lebanon	Tartous Mohafaza, Syria	Gökova Bay, Turkey
Water Policy				
Mains water actors	MWI, WAJ, JVA, MoA	MEW, NLWA, CDR	MoI, TASWA, WRIC	DSI, GDRS, Municipalities
Water plan	Water Master Plan 2004	10 year master plan 2003	NA	National water policy
Water priorities	Domestic, tourism, industry, agriculture	Domestic, tourism, industry, agriculture	Domestic, tourism, industry, agriculture	Domestic, tourism, industry, agriculture
Water Price				
2005	2JD/m ³ (2.83\$/m ³ , 3.3€/m ³) ³⁷	150\$/year (0.4\$/m ³ , 0.35€/m ³)	3Sy£/m ³ (0.06\$/m ³ , 0.05€/m ³)	0.50-0.75YTL/m ³ (0.35-0.53 \$/m ³ , 0.3-0.45 €/m ³)
Water Issues				
Water quantity	Over abstraction of AZB aquifers	Water resources allocation	Water resources allocation	Apparently none
Water quality	Salinity, water pollution	Salinity, water pollution	Salinity, water pollution	Agricultural runoff
Society Openness Indicators (2005)				
Worldwide Press Freedom index (2005)	96	108	145	98
Transparency International (2005) Corruption index	35	83	70	65
Governance Indicators (2006) World Bank Institute				
Voice & Accountability	28.8	31.3	5.3	45.2
Political Stability	27.9	6.3	19.7	25.5
Governance effectiveness	62.1	37	14.7	64
Regulatory Quality	62.9	51.7	9.3	57.6
Rule of Law	62.4	40	36.2	55.7
Control of Corruption	67.5	35.9	29.6	58.7

³⁷ Gerlach (2007)

Which type of participation for which type of water management challenges?

Chapter V

5 Familiarisation Phase: some grounded insights on the appropriateness of PP in IWM

5.1 Data elicitation: scoping interviews, stakeholders questionnaires and their interpretation

Information on existing practices and the perceived added value of PP in integrated water management was initially elicited through seven semi-structured interviews with water experts (hereafter called ‘scoping interviews’), three in Jordan, one in Lebanon, two in Syria and two in Turkey. The interviewees were academics, senior decision-makers in Competent Authorities (CAs) and one representative of a foreign development agency. The analysis of the themes elicited via the scoping interviews (executed during March 2005, see Appendix A) led to the development of an interpretive framework (§5.2), and of a questionnaire submitted to local and regional stakeholders who were gathered for two-day workshops held between May and June 2005 in each of the study areas (§5.3). The workshop participants, eleven in Jordan, twenty-seven in Syria, and seventeen in Turkey, included members of central and local authorities, water authorities, environmental agencies, the agricultural and tourism sectors and environmental NGO’s. Due to several factors out of control of the author, the workshop in the Lebanese study area provided only five questionnaires. This sample is both too small and does not include members from the identified bodies (unlike in the three other samples) to have any representative value in presenting stakeholders’ understanding of challenges towards water management and public participation except for a partial qualitative analysis. Consequently the information elicited in the Lebanese study area is not systematically presented below. Women represented a fifth of each national group.

The information elicited via open questions during the workshops was coded into categories which illustrate the participant’s understanding of the challenges concerning water management. In order to enhance consistency in interpretation of the elicited information, data were categorised according to the open code derived from the scoping interviews by the author and then categorised by two other researchers. Disagreement regarding categorisation was recorded as ‘interpretive challenge’. The Interpretive Challenge Ratio (ICR) reported in subsequent sections describes the frequency of disagreement over response coding. For example, an ICR

of 0/51 means that no statements were the subject of disagreement out of 51 statements, while an ICR of 5/51 means that five statements out of 51 were coded differently by at least one researcher interpreting the statement. Statements subject to two possible interpretations were allocated to the category selected by two of the three researchers. No statements were coded differently by all three researchers.

Nevertheless, it is pertinent to comment on the reliability and authenticity of the elicited information in terms of the extent to which the participants openly and freely expressed their opinions. To what extent can the responses be used as a reliable data source? There is no definite answer to these methodological doubts, but confidence in the reliability of the data is based on the questionnaire design, the participants' dedication in completing the survey, and last but not least, the fact that the fieldwork is rich in anecdotes illustrating the stakeholders' and researchers' mutual respect. The questionnaire design and content were quality controlled by English speakers, then translated in Jordanian Arabic, Syrian Arabic and Turkish by local researchers and submitted to further quality control. The answers were translated back to English by local researchers briefed on the method used, and translations were double checked. The organisation of the normative values of PP i.e. of its appropriateness in IWRM³⁸, is acknowledged to be the result of a double subjective interpretation in that the understanding of the interviewees and the interpretation of the observer are involved. Recognition of such constraints is crucial in studying both socio-political issues and complex problems (Flyvberg, 2001; Giddens, 1984; Morin, 2005).

5.2 Developing an interpretive framework

The information elicited via the scoping interviews is rich but drastically inhomogeneous and dichotomised. The opinions, impressions, and experiences of public participation reported by the water experts were both positive and negative. Participation in water management can be both a 'nuisance' and a 'necessity' for improved wellbeing. The fundamental question concerning whether it is appropriate to have some sort of public participation in IWRM, and whether PP is relevant in decision making elicited a common response. The relevance or appropriateness was seen to depend on a plethora of factors, all interlinked, making any analysis of

³⁸ As mentioned in Chapter II, I use IWM for the theoretical discussion of the thesis. The acronym IWRM is nevertheless used when reporting results since it is the current accepted convention when referring to integrate water policy in general to the targeted audience, either in the semi-structured interview, stakeholder questionnaires.

similarities unintelligible. It is difficult to organise such information around a simple and single narrative. However the scoping interviews revealed five dichotomous factors which condition the relevance of PP in IWRM. The reported analysis does not contain one individual's understanding and neither does it represent a consensus but is a compound representation structured by the authors. These five dichotomous factors help to structure the relevant ontology and the epistemology for further knowledge production: (i) the size and scale of the water related issue, (ii) responsibility over water resources and services management, (iii) the source of project funding, (iv) the extant culture of decision making processes and (v) the objectives and rationale for public participation. The initial interpretive framework (Figure 5.1) is constructed as a contrast between (i) the elicited strengths and positive aspects of PP in water related issues, and (ii) the identified weaknesses and negative aspects. The substantive nature of the five dichotomies observed via the scoping interviews and as used to define the analytical framework are reported below. The reporting style used to detail these five dichotomies assimilates the vocabulary, the expressions (presented in 'inverted commas') and the logical links used by the interviewees, not those imposed by the author.

Which type of participation for which type of water management challenges?

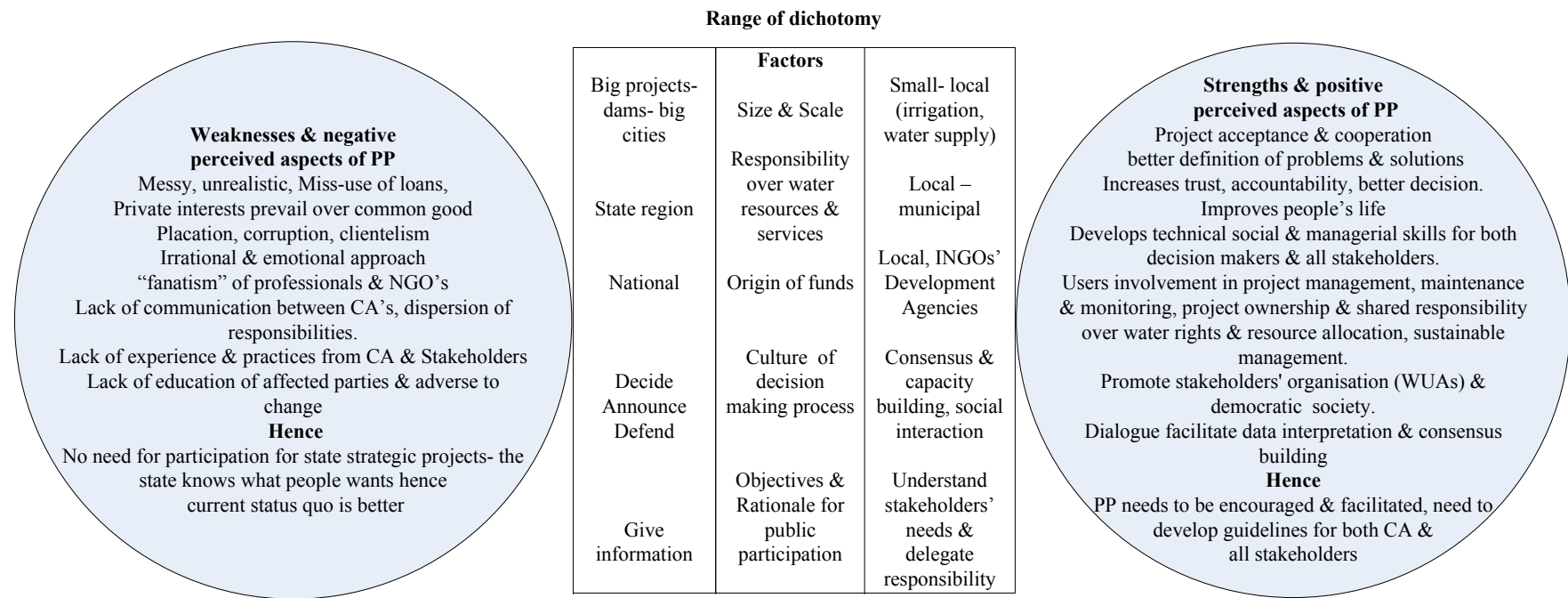


Figure 5.1: Interpretive framework for understanding the appropriateness of PP in IWRM

5.2.1 Size and scale of the water related issue at stake

The nature of water related issues and the size of the project is the first factor to condition the relevance of PP in IWRM. For big projects such as dam construction that are used for regional or national irrigation, energy production or as strategic reserve, public participation was considered to be a ‘messy’ process where it is ‘unrealistic’ to involve interested parties at the same scale as of the project. Competent Agencies (CAs) are not considered to have the capacity, interested parties might not be easily engaged, and this raises issues of the representativeness and legitimacy of those who are involved.

On the other hand, for local and small projects such as earth dam reservoirs, water distribution at village scale etc..., public participation is considered as a valuable tool to promote better decision making because it facilitates definition of the problem, and the identification of the solution jointly between CA and local stakeholders. Public participation is seen here as promoting sustainable water management through development of the technical, social and managerial skills of stakeholders that partly own the project. Locally, affected parties can easily organise themselves into water user associations or community based organisations and represent their common interest. PP is perceived to both require and enhance democratic local organisation.

5.2.2 Responsibility over water resources and services management

For state-strategic projects, where trade-offs between beneficiaries and the negatively affected parties are at the scale of the nation-state, the state and its representatives are considered the only legitimate authority to arbitrate decisions for the common good. Therefore, as mentioned by the interviewees, affected parties are not considered as stakeholders that need to be involved and consequently have no reason to raise their voices. In the case of small projects, participation is a way to delegate some responsibilities from the CAs to the local stakeholders as long as they are democratically and legally organised through water user associations for example. Otherwise this transfer of power becomes ‘clientelism’, ‘placation’, a source of ‘corruption’ and of ‘conflict’. Additionally, experts emphasised individuals as key actors responsible at household level (but collectively at municipal and national level) for the poor usage of resources and services (demand management). Indeed, a lack of interest in water management and more generally a lack of consideration for the common good exacerbates both water quantity issues and water quality issues since

poor waste management habits and policy contribute to diffused contamination of surface and ground water.

5.2.3 Source of project funding

The third point observed through the scoping interviews is the origin of funds used for project financing and resourcing the participative activities. The cost of public participation is considered as a burden even though PP is acknowledged to often shorten both the decision making process and the project implementation period, and decrease maintenance costs. However, investors are typically taking a risk and changes to current investment practices are considered as adding to this risk. The approach to risk management naturally conditions the planning and decision making process. When the state finances a water related project (whether for a state-strategic or a local public-good asset), decisions are made according to a cost-benefit or similar metric and directed by political will, but never directly takes into account the needs of affected parties. It is assumed that ‘the state knows what people want’ as the interviewees expressed it. The different layers of planning commissions and civil servants avoid the transaction cost associated with the development of new decision making processes based on a participative approach and the training of competent authorities.

However, when the source of funding is external to the state (or part of it), donors commend stakeholders’ engagement in the decision making process (ADB, 2003; EBDR, 1995; EIB, 2007; IISD, 2004; UNDP, 1997, 2000; World Bank, 1993, 1996a, 1996b, 2003, 2004a). The cultural barrier to decision making that is adverse to public participation is perceived to be potentially lifted when the project financier is willing to promote an integrative and participative approach.

5.2.4 The culture of decision making processes

All three study countries have a strong top-down approach to planning. Decision making is centralised (‘autocratic’ as referred to by one interviewee) and engineering based. The subjectivity inherent in data interpretation and in the construction of a problem is still an alien concept (although some exceptions do exist). Inefficiency in planning is seen largely to be a function of poor communication between ministries and lack of integration of non-governmental stakeholders. Relevant CAs are perceived of as not having the capacity to handle large scale and long term participative exercises. Additionally, a lack of appreciation of lay citizens, farmers

and end-users (because they are stigmatised as poor, uneducated, with no technical knowledge, and no holistic view), lead most experts and civil servants to adopt a ‘I know everything hence I think instead of you’ attitude as explicitly mentioned by several interviewees. Changes in decision-making culture through training and education to raise the public’s environmental awareness and civil servants’ awareness of integrated governance is being undertaken to some extent by international development agencies and NGOs’ whose role is mainly to provide financial, technical and managerial support. They attempt to ensure regular horizontal liaison between ministries and authorities, and also vertical liaison with end users (farmers, villagers, small business, etc.) through participative rural appraisal and Environmental Impact Assessment. The recent set-up and involvement of water user associations is seen as a real move forwards in order to structure the end-users contribution because this type of organisation facilitates dissemination of information and channel-up grass-root opinions and concerns. When end-users are organised in associations or unions and become potential political partners, they decrease the ‘messiness’ of society, promote transparency of local decision making and responsibility over asset management and operation.

5.2.5 Objectives of and rationale for public participation

The fifth factor to condition the relevance of PP in IWRM can be viewed as both a factor in its own right and in one respect, as a synthesis of the four previously described factors. From the evidence collected via the scoping interviews one can identify two opposite rationales (Figure 5.1) justifying the relevance to utilise (or not) PP in IWRM reflecting a top-down or a bottom-up approach. On the one hand, there are no perceived benefits in initiating public participation since ‘the state knows what people wants’, funds are limited and PP might incur additional costs. From a top down approach, PP is considered ‘messy’, ‘unrealistic’ and a potential driver of social divides between scheme beneficiaries and losers. PP can become a ‘nuisance’ as highlighted above and as reported elsewhere (Innes & Booher, 2004; White, 1996). Hence current decision making strategies of Decide Announce Defend (DAD) are protected and the rationale for no PP in water management challenges is considered to be better than change. On the other hand, as also pointed out by the interviewees, decisions impact all stakeholders and in the absence of a single omniscient and omnipotent stakeholder both dissent and inequitable interventions are likely. From a

bottom-up approach, PP promotes project acceptance and cooperation from the stakeholders because they reciprocate trust and accountability which potentially leads to better problem identification and problem solving. Stakeholders' participation can take several forms ranging from involvement in environmental and social impact assessment up to the transfer of some responsibilities for management and maintenance of local assets. PP can foster a greater sense of responsibility and citizenship promoting democratic societies as argued by Laird (1993).

From these five factors which define an interpretive framework for understanding the meaning of PP in IWRM (Figure 5.1) and which also condition the relevance of PP in IWRM observed during the scoping interviews, the second stage questionnaire distributed amongst workshop participants focused on three themes:

- Water management challenges and the causes for unsatisfactory management for both water resources and services (§5.3);
- Reasons for organising and taking part in PP and preferred form of PP (§5.4);
- Perceived benefits of PP and lessons learnt from participatory exercises and social learning (§5.5).

5.3 Assessing stakeholders' understanding of PP in IWRM

I now move on to present the information elicited during workshops held in each study area. The links between the interpretive framework built from the scoping interviews (Figure 5.1) and the results of the questionnaires are synthesised in Figure 5.9, at the end of this section.

5.3.1 Grounded understandings of water management challenges

As presented in Table 5.1, in all study areas, the vast majority of participants considered that water resources (WR) are at risk in their area. Additionally two thirds of them consider that these resources are not being properly managed.

Table 5.1: Participants' opinion on whether the water resources are at risk and whether they are properly managed (number of responses)

Study Area	WR at risk?		WR properly managed?	
	yes	no	yes	no
AZB, Jordan	11	0	3	7
Chekka Bay, Lebanon	5	0	2	3
Tartous Mohafaza, Syria	25	2	8	18
Gökova Bay, Turkey	11	3	7	9

When specifically asked why they consider the water resource to be at risk, two sub categories of response were evident (Figure 5.2):

- Risks about water quality are divided into general water resources pollution and issues linked to wastewater.
- Risks about water quantity are divided into over-pumping groundwater for irrigation purposes, and general concerns about sharing the resource.

In the Amman Zarqa basin the main source of risk concerns quantitative issues. Jordan is indeed amongst the poorest countries in the world in terms of water availability per person per year (160m³/cap/year) (FAO-AQUASTAT, 2005). This is not to say that water quality is not of concern - it is - but the most pressing issue is the one of quantity. In Tartous Mohafaza participants are equally concerned with water quality and water quantity issues. If properly managed the Mohafaza would be water rich, but water shortages are routine, and quality continues to deteriorate. The participants in Gökova Bay are more concerned with quality issues, especially focusing on the impact of pollution sources (landfill, wastewater) polluting both ground and surface water.

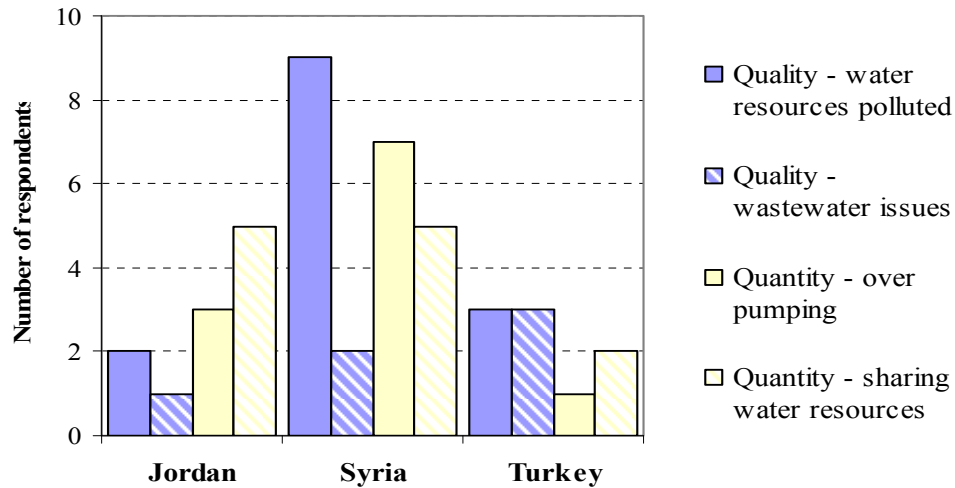


Figure 5.2: Main source of risks perceived for poor water management

When asked about the reasons why they thought water was poorly managed respondents in the Amman Zarqa Basin described four interlinked reasons. First, from a technical and operational perspective the network is poorly managed. On top of the high leakage rate, the water supply network is also subject to vandalism. Second, the resource is subject to pollution and aquifers tend to deplete due to over-pumping. Third, the management is perceived as not being able to adequately respond to increases in demand following demographic growth and lack of clear planning and policy. Finally, poor management is linked to a lack of consideration toward the public good. Individual interests are seen to prevail over the public interest. This applies at the individual domestic level with over consumption, general waste of water or unaccounted for water, and at an institutional level with questions about the capability of competent authorities to ensure water resources and services management meet the needs of all stakeholders.

From only three qualitative answers from the Lebanese study area the similar description can be drawn. Water resources are not considered as properly managed in North Lebanon because of three interlinked reasons. First from a technical and operational perspective the network is poorly managed. Second, there is a lack of information and studies concerning the state of the needs and of the state of the assets. Finally, the stakeholders mentioned that legal frameworks and political games are also causes of mismanagement.

In the Mohafaza of Tartous, water resources are not considered to be properly managed for a slightly different set of reasons. First, the waste of water due to the

poor condition and maintenance of the distribution network is a cause of major losses. This technical issue is accentuated by the individual usage of water (behavioural dimension) that is considered to be wasteful. Second, respondents emphasized the fact that current public services cannot cope with the growing population's expectations of water services. Third, the lack of close cooperation between competent authorities to develop a clear water policy is viewed as a cause of poor water management. Finally, the issue of illegal wells illustrates that individual behaviour, is once again considered as a cause of poor water management. The current lack of resources to implement the regulations and laws is not able to stop illegal water abstractions.

In the Gökova Bay, respondents identified a third set of reasons why water resources are not being properly managed. As in Syria, respondents identified, the waste of water due to the poor condition and maintenance of the distribution network and wastage due to inefficient usage of water by individuals. Thirdly is mentioned the lack of planning and clear water policy and finally, the legal and administrative institutions are not considered as fit for purpose.

To close this initial grounded investigation of water management challenges, the stakeholders were asked if they thought that participative planning was able improve water resource management in their area. Only one participant out of the three workshops gave no answer (in Turkey), all other participants responded positively that participative planning can indeed improve water resource management in their area. Such results provide favourable ground to further investigate the understandings of public participation in IWRM.

5.3.2 Grounded understandings of public participation in IWRM

In order to elicit the understood meanings of, and rationale for, public participation in IWRM from a range of stakeholders, I asked questions on three sub-themes during a series of workshops: (i) the reasons for participating in PP, (ii) the reasons for organising a participative exercise, and (iii) the preferred type of PP using Arnstein's ladder of citizen participation (Arnstein, 1969), as a model.

5.3.2.1 Why participate in the decision making process?

Responses to the query about reasons for participating in a PP activity were coded through six categories (Figure 5.3 - IRC = 3/45):

- To receive information about future plans the public authority will implement;
- To give my opinion to the public authority, about future plans;

- To exchange my views with other citizens, and people working in agriculture, tourism and industry and to propose a common solution to the public authority;
- To avoid or to resolve conflict over the use of water;
- To define a common solution with all citizens and sectors that will be implemented democratically;
- To have influence over the decision.

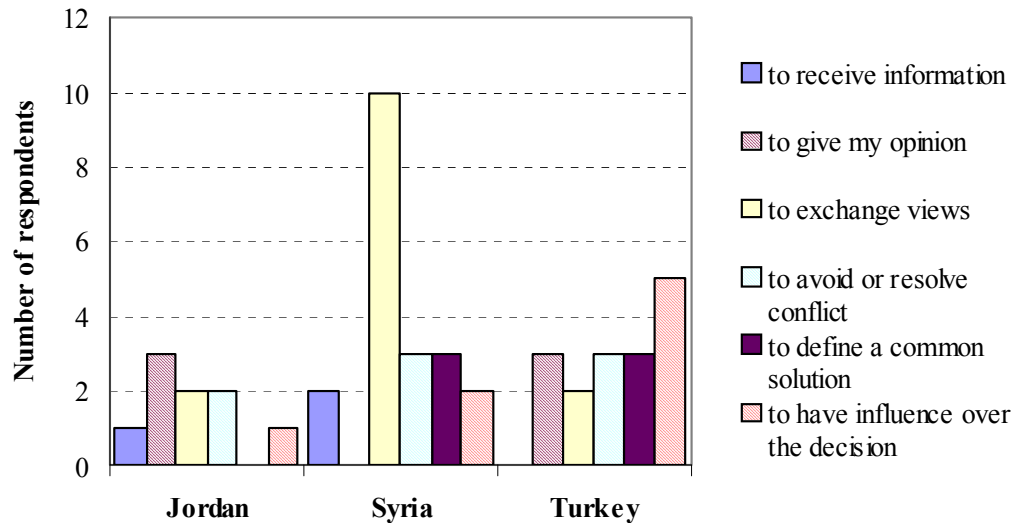


Figure 5.3: Participant's opinions on the reasons for taking part in a participative workshop

When asking the participants their most important reasons for participating the results are different from case to case (Figure 5.3). In Jordan, the main reasons given were *to give my opinion*, *to exchanges views* and *to avoid or resolve conflict*. The least mentioned motivations are *to receive information* and *to have influence over the decision*. No respondents saw *define a common solution* as a reason for taking part. Participation appears to be understood here as a platform to express opinions. In the Syrian study area the desire *to exchange views* is clearly dominant whilst *to give my opinion* is not mentioned. This result may reflect the way participants favour discussion and exchange over technical monologues. Participation appears to be understood here as a platform for dialogue. In the Turkish study area there is an emphasis on the ability *to have influence over the decision* whilst *to receive some information* is not mentioned by any of the participants. Participation here appears to be understood as a platform to empower (exercise) opinion forming.

5.3.2.2 Why organise a participative workshop?

When queried about the reasons for organising a participative workshop four categories of responses were provided (Figure 5.4, ICR = 5/50):

- To gather opinions;
- To communication exchange opinions;
- To plan & build a forecasting tool;
- To generate consensus.

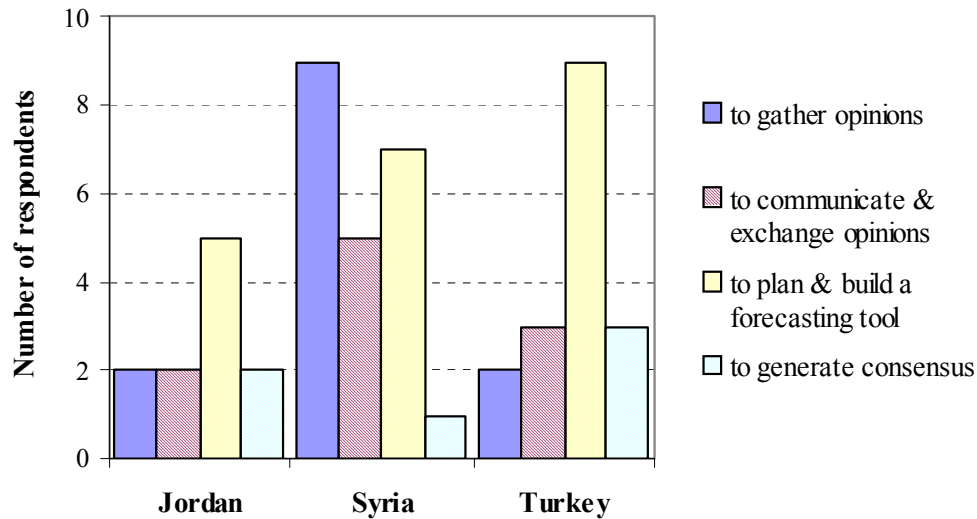


Figure 5.4: Participants' opinion on the reasons for organising a participative workshop

Interestingly, the participants in the Jordanian and the Turkish workshops provide a similar pattern of answers with the main reasons for organising public participation being *to plan and build a forecasting tool*. In the Syrian study area the main reason for organising a participative workshop was *to gather opinions*.

5.3.2.3 Preferred type of public participation

The participants of the workshops were also asked to rank eight descriptions of different levels of public participation according to their preference. The eight descriptions of participation were taken from Arnstein's seminal work (1969) and are presented in Table 5.2. The presentation of the average scores (Figure 5.5) is counter intuitive because the most preferred definition has the lowest score, while the least preferred definition attracts the highest score. Respondent preferences were average for each study area.

Table 5.2: Definition of the eight rungs of citizen participation adapted from Arnstein

Level of participation		Description of the form of public participation
Non Participation	1- <i>Therapy</i>	A Public relation exercise organised by authority to gain people support
	2- <i>Manipulation</i>	A meeting where people express and share their problem, but there is no intention from the organiser of solving them
Tokenism	3- <i>Informing</i>	Giving to the citizen information about a project that has been done or that will be done.
	4- <i>Consultation</i>	Gathering information and opinion of the citizen on a project or a problem that concern them: make a survey about their reactions/opinion.
	5- <i>Placation</i>	Citizen are allowed to advise and to propose solution to local authority, but no power to implement it
Citizen Power	6- <i>Partnership</i>	Citizens and power holder agree to share planning and decision-making responsibilities through structures like joint policy board, planning committees...
	7- <i>Delegated power</i>	Negotiation between citizen and public officials can also result in citizen having a dominant decision-making authority over a specific plan or programme
	8- <i>Citizen control</i>	Citizens have a degree of power and control which guarantees that participants or residents can govern a program or an institution (school, natural park, transport), and they are in full charge of policy and managerial aspect.

Arnstein’s ladder of citizen participation is built on increasing level of citizen power over a decision making process, and it illustrates the balance of responsibilities between the competent agency and stakeholders. A graphical representation of the elicited preferences forms an inverted U shape curve (Figure 5.6). Overall, the preferred forms of PP are *consultation*, *informing* and *partnership*. Both extremes of the ladder of participation are rejected (low rank). *Therapy*, *manipulation*, *placation* and *citizen power* are rejected as desirable forms of PP. *Consultation* is consistently the preferred type followed by *partnership* or *informing*. The only exception to the overall trend, *Placation*, ranks low (6th, 7th, 7th). However, I would note that the description used for *placation* finishes with the mention ‘but no power to implement it’ and this direct mention of the lack of power when presenting solutions to a CA is known to have caused the lack of attraction for this description of PP as pointed out by post-questionnaire discussions.

For the Jordanian respondents, their preference levels for *partnership* and *delegated power* are ranked 2nd and 3rd. This indicates that the stakeholders favour a high degree of citizen empowerment, while informative participation (ranked 5th) is rejected. For the Syrian respondents, the preferred forms of PP encompass *consultation*, *informing* and *partnership* which illustrate the wide range of expectations they have. For the Turkish respondents, the preferred forms of PP

include *consultation*, *information* and *delegated power*. This has to be compared with the information elicited above highlighting that to have power over decision making is the major reason for taking part for those involved in the Gökova Bay study area.

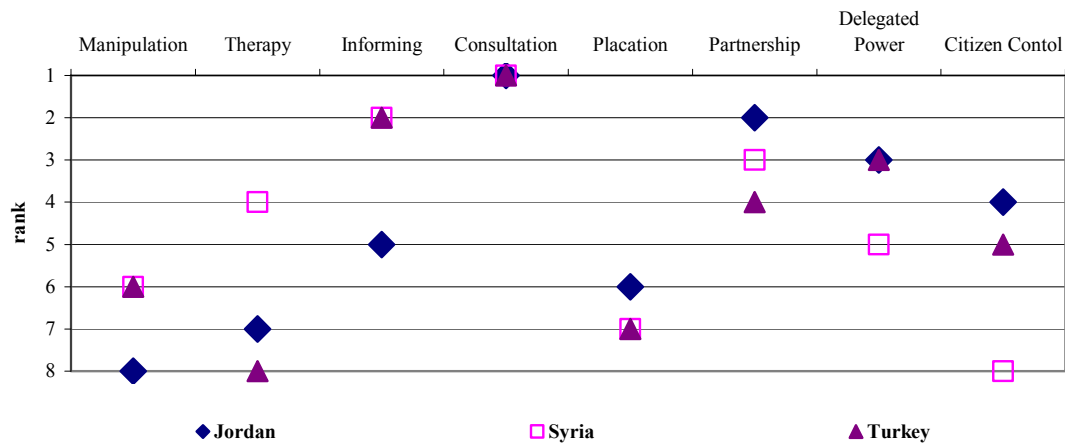


Figure 5.5: Elicited preferences for forms of public participation according to Arnstein's ladder of citizen empowerment

Having reported how stakeholders understand PP and on their preferred form, I now focus on the social learning aspect of participation.

5.3.2.4 Comments on experiences of the participative workshop

This final set of results focuses on the stakeholders' perceived benefits in a participative workshop, and is articulated around three themes:

- Aspect of the workshop participants liked the most (ICR = 0/51, Figure 5.6);
- Participants learning points (ICR = 4/ 51, Figure 5.7);
- What participants found interesting in the workshop (IRC = 2/38, Figure 5.8).

Jordanian and Turkish workshops valued above all *working together* and the interactive discussions they had whereas the participants in the Syrian study area appreciated the *integrated assessment* aspect of exploring IWRM issues and the participative planning exercise as a whole (Figure 5.6).

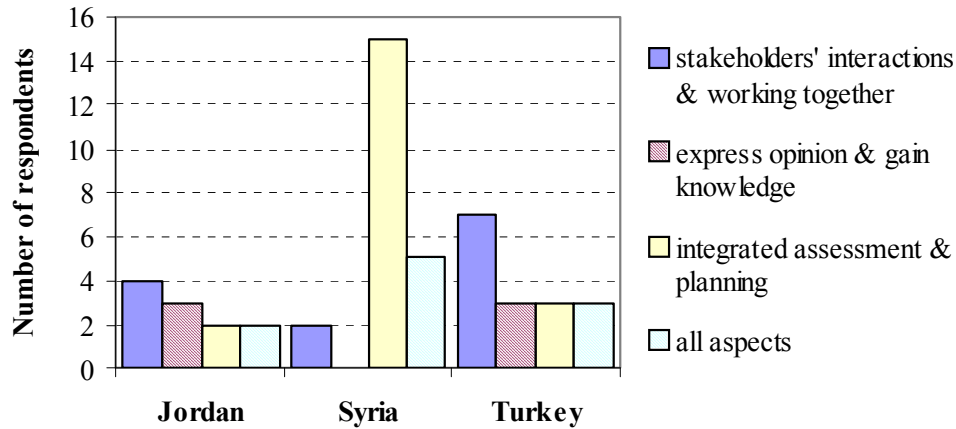


Figure 5.6: Aspect of the workshop stakeholders liked most

When asking the stakeholders what they learnt from the workshops (Figure 5.7), the answers vary significantly from case to case. In the Jordan study area, most delegates identified the *planning and scenarios building* aspect suggesting an output driven perspective. In the Syrian study area stakeholders emphasised both the aspect of *working together* and of *planning*. This stress on the production of output is linked to the workshop provided a collective learning environment. Finally, the Turkish stakeholders learnt about *working together* and about *other stakeholders' concerns*.

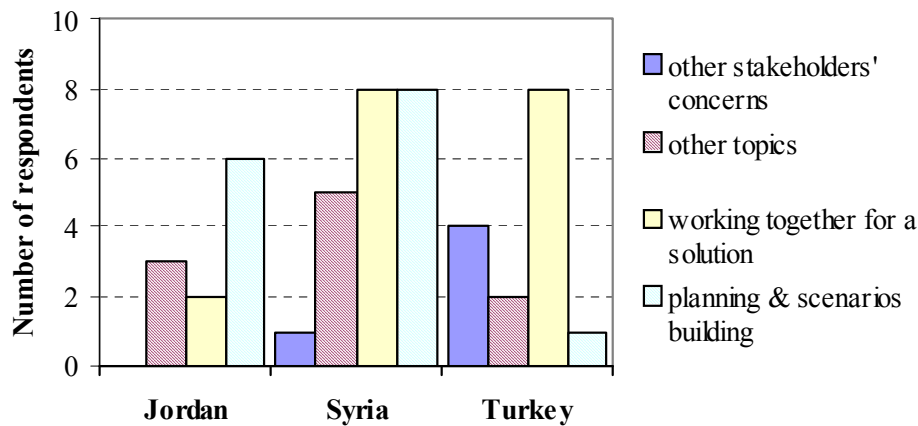


Figure 5.7: Stakeholders' learning points

The final theme focuses on stakeholders' interest in the workshop and is distinguished from the theme relating to which aspects attendees liked most (although they are complementary) because it aimed at eliciting an overall impression (good or bad) of the value of the workshop, and not a specific aspect. Throughout the three study areas,

the innovative and interactive nature of the PP approach aroused great interest (Figure 5.8). The interest for local issues is only mentioned in the Amman Zarqa Basin study and in the Gökova Bay workshop and not in the Syrian one, probably because the workshop in Syria was held in Damascus, not in Tartous for logistical reasons, and interest in the local aspect was less salient, unlike for the other workshops.

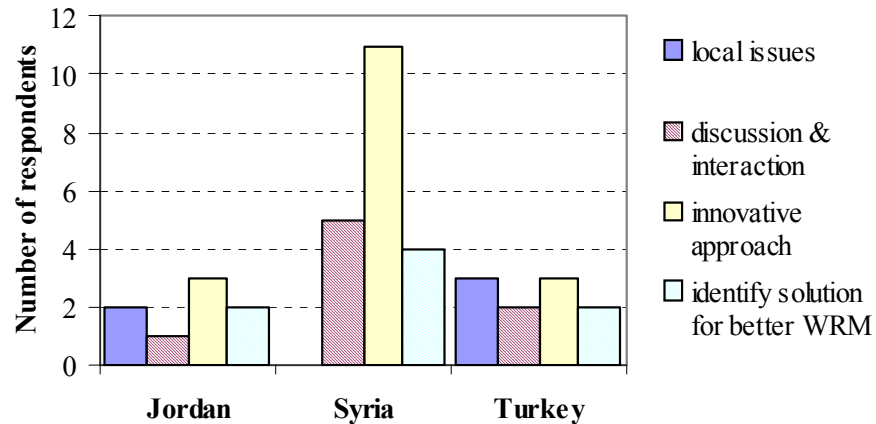


Figure 5.8: Stakeholders' interest in a participative workshop

These trends suggest that stakeholders are output driven but apply different social constructs to reach the same objective: to plan for better water resources management. The Jordanian stakeholders focused on product based or technical knowledge, seeing participation as a platform to express their opinion on technical knowledge. The information elicited via the Syrian workshop highlights the need for team work beside the need for technical knowledge, where participation is seen as a platform for dialogue. The Turkish workshop highlights that working together requires learning from each other and about others. Here, social knowledge is presented as more important than technical, and participation is seen as a platform to empower opinion forming through social learning. The core information elicited through the stakeholder workshop is summarised in Table 5.3 where the meaning of PP in each of the study areas is illustrated via the themes elicited through the questionnaires.

Table 5.3: Synthesis of the core information elicited through the workshop's questionnaire

Which type of participation for which type of water management challenges?

Themes elicited	Study area river basins		
	AZB, Jordan	Tartous Mohafaza, Syria	Gökova Bay, Turkey
Preferred forms of public participation	Consultation, partnership, delegated power	Consultation, informing, partnership	Consultation, information, Delegated power
Reasons for taking part	To give my opinion	To exchange views	To have influence over the decision
Reasons for organising	To plan & build a forecasting tool	To gather opinions	To plan & build a forecasting tool
Aspect of the workshop which participants like most	Stakeholders interaction & working together	Integrated assessment & planning	Stakeholders' interactions & working together
Stakeholders' learning outcomes	Planning & scenarios building	Working together for a solution & planning & scenarios building	Working together for a solution & other stakeholders concerns
Stakeholder's interest	Innovative approach, local issues	Innovative approach	Innovative approach, local issues
PP in IWRM is perceived as a:	Platform to express their opinion on technical knowledge	Platform for dialogue	Platform to empower opinion forming through social learning

Figure 5.9 (below) illustrates the thematic links between (i) the interpretive framework elicited during the scoping interviews, (ii) the themes used to structure the stakeholder questionnaire, and (iii) and the categories emerging from responses to the questionnaire. From the five factors (Figure 5.1) which condition the relevance of PP in IWRM observed during the scoping interviews, the second stage questionnaire distributed amongst workshop participants focused on three themes: water management challenges, the meaning of PP, and the perceived benefits and learning outcomes of a participative workshop.

Which type of participation for which type of water management challenges?

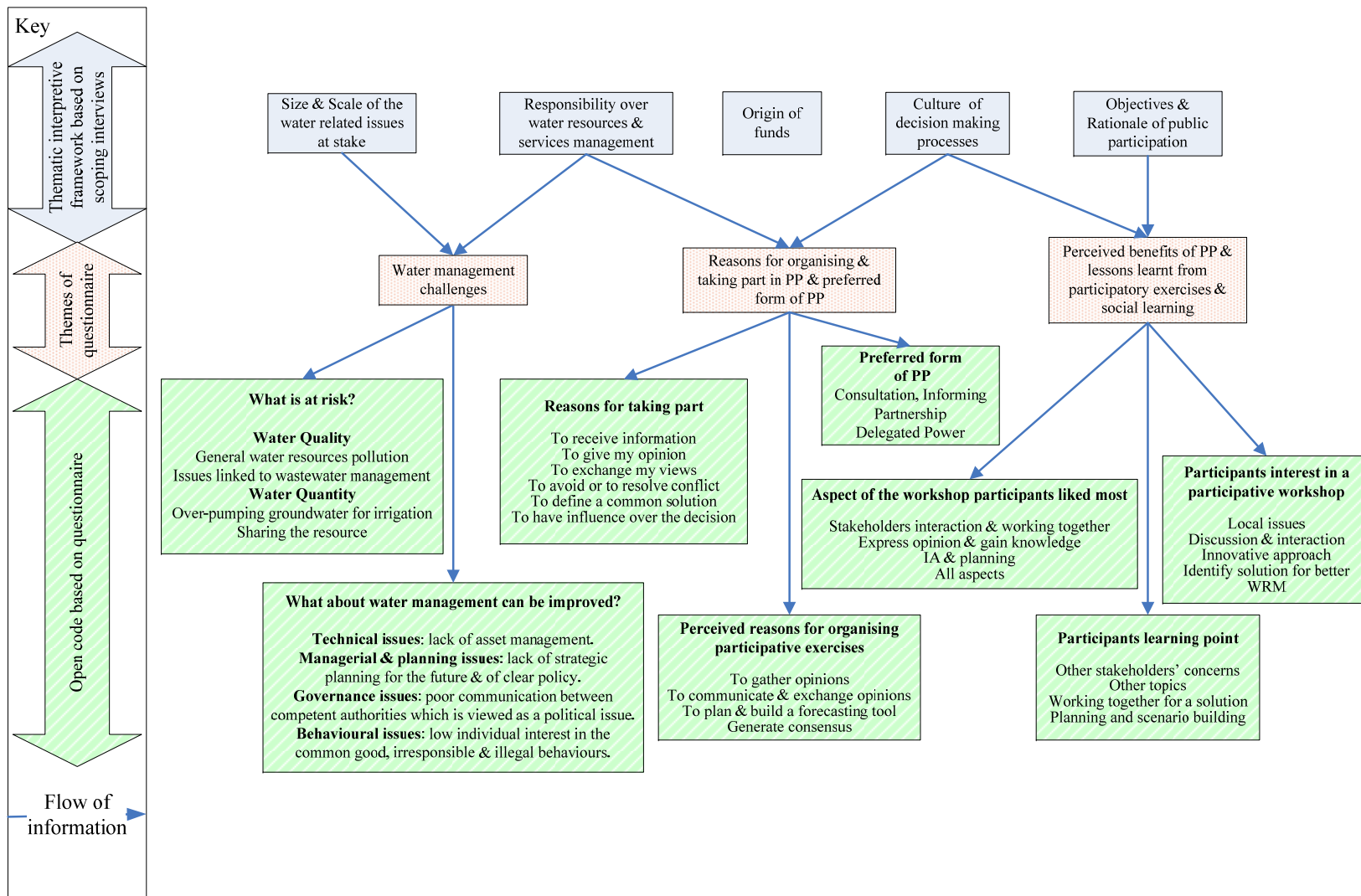


Figure 5.9: Thematic links between interpretive framework elicited during the scoping interviews and the stakeholders questionnaires for understanding the appropriateness of PP in IWRM

5.4 Initial discussion: Complex it is and complex it remains!

This exploratory grounded study has highlighted the difficulties encountered in identifying and characterising the relevance and appropriateness of forms of public participation used in IWM due to the diversity of roles which PP can play and the diversity of issues which it can be applied to. The results from the scoping interviews and from the questionnaires illustrate both the plurality of definitions of what is at stake (irrigation, domestic water usage, infrastructure planning, quality etc...), and the range of dimensions which characterise the challenges (technical, managerial, financial, environmental, and social). There is hence no 'grand narrative' or single narrative for such a complex societal problem as pointed out by De Marchi & Ravetz (1999), and Funtowicz & Ravetz (1993). Responsibilities are fragmented over geographical, institutional and vested interest but the construction of shared understanding of what is at stake requires dialogue and participation (Conklin, 2005). At one extreme, respondents indicate that large projects of national (or regional) interests are seen to not require public participation or consultation, information is provided once a decision has been made; in these cases, public participation is considered as messy and unrealistic and might engender more problems than it solves by smoothing the decision making process. All interviewed experts mentioned that for state-strategic water related issues, the current status quo is preferable to public engagement in decision-making. At the other end of the spectrum, for small projects, typically for local irrigation schemes and water supply projects, consultation is considered as necessary, typically during an environmental impact assessment phase. Here, PP is perceived as a tool to promote better decisions, promote project acceptance, achieve sustainable and inclusive scheme management, and develop technical, social and managerial skills amongst both the affected parties and the competent agencies.

Coarse and simple dichotomies between small/big projects, consensus building versus autocratic decisions is not sufficient to understand the role of public participation in IWRM and *a fortiori* to assess which type of participation would be suitable for what type of water management challenges. The interpretive framework presented in Section 5.2 (above) confirms that the meaning of PP is context dependent and illustrates that in the age of uncertainties in policy issues and plurality of

objectives, the definition of the problem is a problem (De Marchi & Ravetz, 1999; Funtowicz & Ravetz, 1993; Rittle & Webber, 1973).

My approach is to explore the variety of causes for unsatisfactory water management, through direct elicitation. The identification of the five characteristics factor which frames an understanding of PP in IWM led to an analysis of three types of issues via the stakeholders' questionnaire as illustrated in Figure 5.9:

- Water management challenges and the causes for unsatisfactory management for both water resources and services;
- Reasons for organising and taking part in PP and preferred type of PP;
- Perceived benefits of PP and lessons learnt from participatory exercises and social learning.

5.4.1 Water management challenges

One can appreciate that the human and natural environment impact on the concerns of stakeholders and inform a hierarchy of problems / challenges. Where both water quantity and quality are poor, the main concern becomes one of quantity (e.g. AZB, Jordan), whilst where water is available in sufficient quantity because of its natural presence and because man-made infrastructures deliver the services, the main concern becomes water quality (e.g. Gökova Bay, Turkey). Stakeholders from all three study area areas provide a generally consistent explanation for poor water management:

- Technical issues: lack of asset management;
- Managerial & planning issues: lack of strategic planning for the future and of clear policy, including pollution as the consequence of poor management;
- Governance issues: poor communication between competent authorities which is viewed as a political issue;
- Behavioural issues: low individual interest in the common good, irresponsible and illegal behaviours.

The information elicited from both the experts and stakeholders corroborates evidence about three levels of scarcity as presented in a recent MENA report (The World Bank, 2007, p.24): “*scarcity of accountability*” (governance issues), “*scarcity of organisational capacity*” (managerial and planning issues) and “*scarcity of physical resources*” (technical issues). Additional to these levels of scarcity, the information collected in this study highlights the roles and responsibilities of individuals in poor water management (e.g. lack of interest in the common good, irresponsible and illegal

water usage). Paraphrasing the MENA development report, one could name this additional dimension to poor water management as *behavioural scarcity*. Significantly, the above mentioned World Bank report does not include individuals as actors, despite an ephemeral mention of the need to educate people. Individuals per se are not considered as either a cause of the problem or as a source of solutions (it might seem just as politically incorrect to blame individuals for their behaviour as it is to blame them for the quality of their politicians). Having clarified the causes of unsatisfactory management I now question, as Bruna De Marchi (2003) does, participation for what?

5.4.2 Some grounded insight towards the meaning of PP in IWM

Overall those stakeholders involved in the workshops rejected both extreme ends of Arnstein's ladder of citizen empowerment (1969). The preferred forms of public participation were *consultation*, *informing* and *partnership*. It has first to be noticed that there is no significant difference in terms of preferred type of public participation across the three study areas (even in Lebanon) despite significant variance in existing governance regimes. However, in order to obtain a richer picture of the meaning of participation for local stakeholders', their preferred forms of PP have to be understood in the light of the elicited motivations for, expectations of, and interests in, participation.

In the Amman-Zarqa basin study area, the preferred types of public participation were *consultation*, *partnership* and *delegated power*. This denotes that public participation is perceived of as a means by which actors can actively contribute to the decision making process. Although the stakeholders mentioned that they enjoyed *working together* and the *interactive discussions*, they were primarily output product focused (*planning and scenario building*) and that was also reported as the main reason for organising a participative workshop. However, learning of *other stakeholders' concerns* was not mentioned as part of the realised outcomes. When this conception of PP is related to the environmental context where both quantity and quality of water are threatened and where there is some urgency to accommodate the needs of different users, participation is perceived of as a *platform to express opinions on technical solutions* with little consideration for the role of stakeholders' interactions on planning (lack of social learning emphasis).

The case of Gökova Bay presents several similarities with the Jordan study area. The preferred forms of public participation are *consultation*, *delegated power* and *informing*. However this denotes a wider expectation towards the function of PP, from receiving information to active involvement in the decision making process. The most frequently mentioned reason to participate was observed to be *to have influence over the decision* and this confirms the high expectation towards an active stakeholders' role. The Gökova Bay stakeholders were also output-driven, since the main reason for organising a participative workshop was for planning purposes. Despite these similarities, the participants in Gökova Bay strongly emphasise the human and interactive dimensions of participation; they liked *stakeholders' interaction*, *working together* and they learnt about *other stakeholders' concerns*. In this study area, there is not an immediate threat in terms of water quality and quantity. An immediate technical solution is not required, although stakeholder's still have high expectations in terms of water management improvement. In this context, public participation is seen as a *platform to empower opinion forming through social interactions* where the identification of a solution requires working together and understanding other stakeholders' arguments.

The understanding of public participation by the respondents from Syria denotes a less active role for stakeholders in participative activities than in the two previously reported cases. Although their preferred forms of participation involve *consultation*, *informing* and *partnership*, the main reason for participating is *to express one's opinion*, and this echoes the main stated reason for organising participatory events: *to gather opinion*. *Consensus building* is noticeably absent from this sample. Participation here is a *platform for dialogue and the benefit of PP is to learn to work together rather than to reach a consensus and to empower it*.

5.4.3 Premise of a theory on water scarcity, public participation and governance

Hall *et al.* (2007) emphasise that participative initiatives and democracy should be judged by the extent to which they strengthen the public sphere. One might challenge that if the institutions which constitute a governance regime are unwilling to open the public sphere to discursive and participative democracy, then participative initiatives might not flourish. As reported by Giammusso (1999) the public sphere in MENA countries remains over-supervised with governments seeking to monitor and authorise

each and every business and civil society decision. Moreover, cumbersome bureaucracy acts as a filter and bottle neck to channel and direct foreign aid initially intended to promote civil society initiatives. The relations between governance, public participation and human development especially in the context of water and sanitation management has generated good illustrative reports (UNPD, 1993, 2000, 2002, 2006; World Bank, 1993, 1996a, 1996b, 1998, 2004a) but is not yet producing meaningful outcomes to improve human wellbeing.

Notwithstanding the difficulty of defining and measuring governance, the World Bank Institute (2007) produces a range of indicators that allows comparison of countries according to six dimensions of governance: “voice and accountability”, “political stability and absence of violence/terrorism”, “government effectiveness”, “regulatory quality”, “rule of law” and “control of corruption”. Openness of a society can also be illustrated by corruption and press freedom index (Transparency International, 2005; Worldwide Press Freedom Index, 2005). When evaluated with these metrics, Jordan and Turkey present similar characteristics while Lebanon and Syria ranks much lower for all indicators (§4.5). The initial information in this study corroborates the relative openness of the Jordanian and Turkish governance environment while in Syria there seems to be a discrepancy between stakeholders’ readiness to participate and the governance style that still inhibits relevant opportunities. Indeed, our experience has been that representatives of CA’s and stakeholders are keen to meet and willing to experience innovative participatory integrative methodologies despite their unfamiliarity with this new approach. Not much can be said yet about participation in Lebanon.

Furthermore, the findings reported above highlight that the motivation for exchanging information and opinions are of prime importance for a meaningful participation of stakeholders and that power is more about being consulted or having a say in decisions than about making decisions. The purpose of participation is viewed not as a way of eliminating conflict but rather as a mean to clarify what conflict is really about (as suggested by De Marchi [2003]). The meanings of public participation for stakeholders has revealed the importance of dialogue and social interactions as means to produce or to contribute to producing better decisions through better communication.

These initial findings support Carole Pateman’s (1970) views that participation gets better by participating and embellish previous work on the educative role

participative activities have in democratising society (Fiorino, 1990; Kähkönen, 1999; Pahl-Wostl 2002). As highlighted already in Western liberal democratic countries (Dryzek, 2000; Laird, 1993; Pahl-Wostl *et al.*, 2007; Webler, 1999), social learning is crucial for meaningful participation and contributes in itself to democratising the public sphere. As water is both a state strategic commodity and a public good, democratising ambitions challenge the functioning of governing institutions and their capacities to adapt to far ranging conflicting influences and needs.

Moreover, the results provide unequivocal support for the appropriateness of PP in IWM from the stakeholder's perspective because, as illustrated here, to address water resources management is to address the interconnections between open complex systems that are socially and economically anchored with technical and environmental challenges managed by local, national and international institutions. However current decision making strategies of DAD are preferred to extended public participation especially for large scale and resource intensive water projects. Significant challenges still remain in creating and maintaining the spaces where citizens present and debate their opinion on public good management (De Marchi, 2003)

Lastly, these evidences support the views that integration is achieved by public participation rather than via bureaucratic hierarchies of CAs and that lack of communication internally and externally is a major cause of water management inefficiency (as also reported by Pahl-Wostl *et al.*, 2007; Mostert *et al.*, 2007). In order to redress this lack of integration between technical, environmental and social aspects, the information elicited corroborates suggestions made by Tabara & Pahl-Wostl (2007) that a change in decision-making culture is necessary through training and education to raise the public's environmental awareness and civil servants' awareness of integrated governance.

5.5 Openings

From this familiarisation phase three areas require further investigation: (i) water management challenges, (ii) the understanding of PP in relation to IWRM, and (iii) assessing the wider public views on these matters.

5.5.1 On water management challenges

Water crises can be illustrated as to be down to one or many of the following causes for unsatisfactory management:

1. Scarcity of the physical resources and associated technical issues ;

2. Scarcity of organisational capacity associated to managerial and planning issues;
3. Scarcity of accountability & governance issues associated to poor communication between institutional body in charge of water management;
4. Behavioural scarcity and low individual interest in the common good, irresponsible and illegal behaviour.

Water resources and services are not considered properly managed due to: (i) poor technical performances and assets management, (ii) individual attitude towards water usage leading to ‘wasting lots of water’, and (iii) ‘lack of fitness’ of the current legal and administrative framework to a- define clear water policy inclusive of all needs and b-means to implement and enforce it. This grounded approach raised the concerns of behavioural scarcity of both users and the competent agencies and the investigated the understanding of IWRM for stakeholders suggests two new areas for further investigation.

From a behavioural perspective, what would the public do to help reducing their water household consumption? This query can be anticipated to inform decision maker on the diversity of domestic usage, and also grounded routes to more sustainable water demand based on users’ suggestions.

From a decision-making perspective one ought to question the capacity of the current competent authority to ensure a water resources and services management policy that meets the public’s needs. Hence in order to gain a bottom-up understanding of the population’s concerns I raise the question of how would lay-citizens influence the way water is managed in their area? Furthermore one should test the public support to water policy mechanisms (suggested during the workshops).

5.5.2 On the relevance of public participation

One might have learnt through this familiarisation phase that simply asking stakeholders which form of PP they prefer is not sufficient to gain a rich picture of their understandings. The investigation of the reasons for taking part in PP and awareness of the benefits, learning and interest taken from a participative experience enrich the construction of meaning (definition and implication). This grounded open code might now be tested at larger scale to assess the public’s motivation to take part in water debates.

One have also seen how Arnstein’s ladder of citizen empowerment might be adapted so that a new panel of type of participation can be meaningfully extended

(beyond the original application domain of neighbourhood and community based projects) to address state strategic and environmental resources management. Such a revised panel of public participation for IWM needs to be refocused on the flow of communication as well as on the expected output of participation. The familiarisation phase confirmed the theoretical critique initiated in Chapter II, that PP needs to be further investigated to take into consideration the modalities for communication whether it involves information provision, gathering information or reciprocal exchange of opinions for both problem identification and solution formulation. A new panel of types of participation would need to be tested on the diversity of water related challenge taking into consideration their complex nature in order to tune the objective of participation with the nature of what is at stake (Chapter VII). Although there was no significant differences in the preferred form of PP between the three study areas, the analysis of reasons for taking part and the learning outcomes from a participative workshop, highlights three attitudes toward PP in IWRM; as a *platform for dialogue* in Syria, as a *platform to exchange technical viewpoints* in Jordan, and as a *platform to empower stakeholders' opinion forming through social learning* in Turkey (with an increasing role for social learning and democratic values).

5.5.3 On the readiness of the public to participate

From the scoping interviews and the questionnaires I understand that some perceived hurdles to implement Public Participation were the stigmatisation of the public as:

- Not well organised to be involved in water management debate (other than through water users / farmers associations): the inherent messiness of society;
- Not aware of environmental problems and with no holistic views of water management, partly because they are uneducated, partly because of lack of interest in environmental issues except maybe for young or future generation as suggested by the experts interviewed;

Furthermore, little is known about the wider public willingness to participate, why for, and how? Consequently, the next fieldwork activity will focus on assessing public knowledge of water management challenges, their responses towards water policy mechanism, their attitude towards PP. The public being inhomogeneous, I also need to assess the extent to which socio-demographic and awareness descriptors might structure respondents' attitude and knowledge towards water management challenges and willingness to be involved in water debates. Figure 5.10 presents the thematic

links between the conceptual results of the familiarisation phase and the quantification phase.

The final word for the familiarisation phase is left to a stakeholder from one of the workshops: “it was very interesting to see that people from different professions, different institutions and different stakeholders (farmers, tourism sector, local administration, NGOs) were all working together (...) and that a consensus can be established even between the most opposite views/ideas and that it is possible to gather information” (Akyaka, Turkey, 5th May 2005).

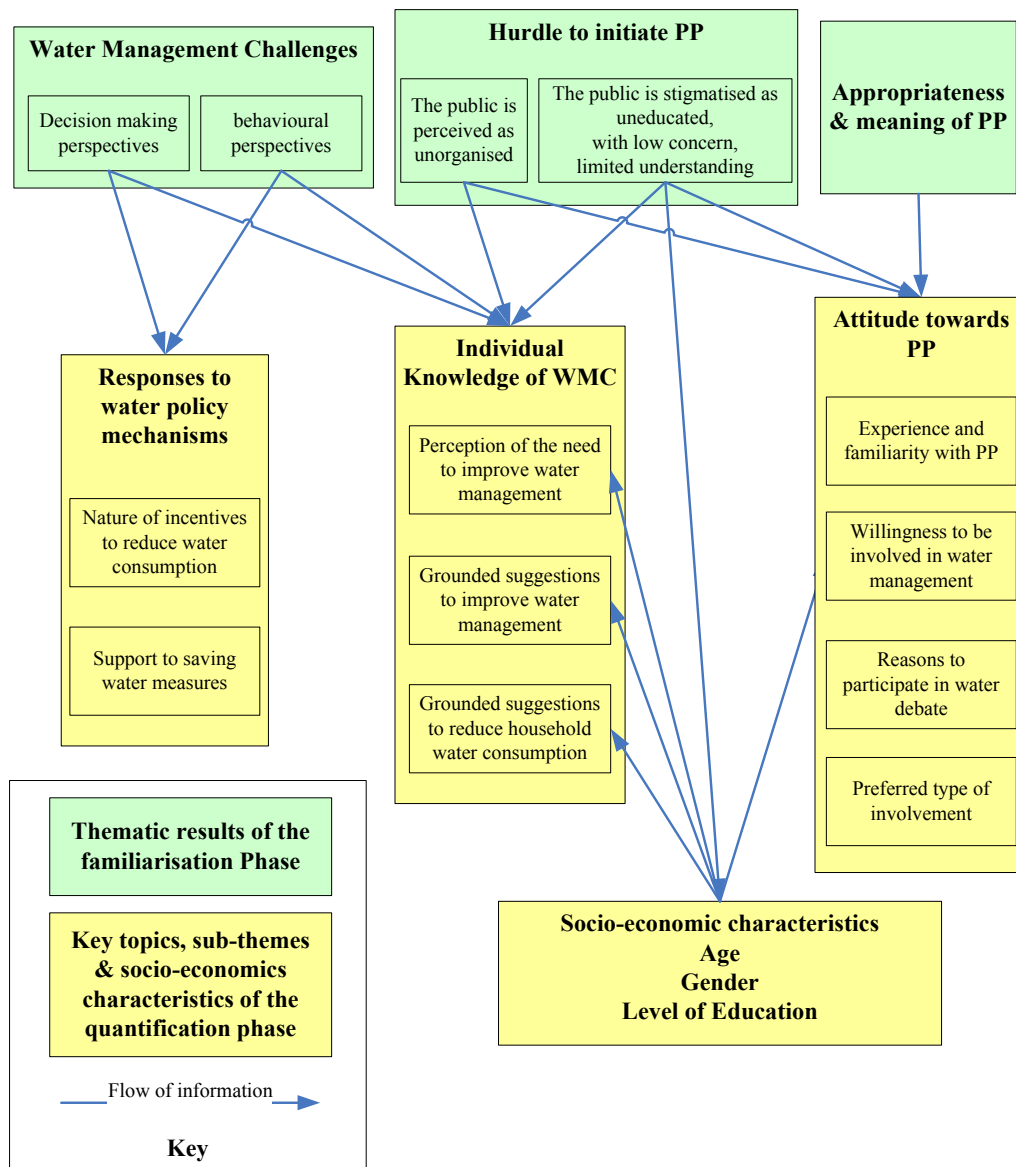


Figure 5.10: Thematic transition between the familiarisation phase and the quantification phase.

Chapter VI

6 Quantitative Approach: Grounded elicitation of bottom-up interests in water management & public participation

6.1 Introduction

Understanding perceptions of the need to improve water management efficiency, motivations to participate in addressing water related issues, eliciting suggestions to improve water management and to reduce household water consumption, have been identified in Chapter V as key considerations in the implementation of PP as part of integrated water management policy. The study presented in this Chapter is a questionnaire-based survey of water consumer's attitudes and intended behaviours towards both participation and the range of policy instruments identified through the previous stakeholders' workshop.

The objectives of the survey based study reported below are four-fold: first, to assess public awareness of the need to improve water management efficiency and to assess their willingness to be involved in water management issues (referred to in the text as 'perception of the urgency of the problem'); second, to elicit a diversity of suggestions to improve water management and to reduce household water consumption; third, to test categorical preferences towards participation modalities: forms of involvement selected from the literature review (§2.3.1.3 reported in §6.3.3.3) and motivational aspects elicited from the initial stakeholder questionnaire (§5.3.1.1 and reported in §6.3.3.4); fourth to test levels of public approval on proposals for proposed water policy mechanisms (§6.3.4).

Furthermore, this survey allows a comparative analysis between the four study areas (at river basin scale), and a comparison of public's views on water management and participation with other stakeholders' views (Chapter V, Chapter VII and in the general discussion Chapter VIII).

This chapter is organised into four parts. Firstly, I describe the form and execution of the questionnaire based social survey and I justify its design and use. The second part details the steps taken to ensure quality control of the quantitative study and its appropriate interpretation. The results for each question, immediately followed by an initial discussion and comparison between the four cases, are presented in the third part. The fourth part presents a brief and simple statistical analysis through cross tabulations with socio-demographic descriptors (gender, age and level of education)

and a descriptor of public awareness of the need to improve water management, in order to help organising and structuring the exploratory value of the survey and to compare results. Finally, a discussion of the results and comparison across the four study area river basins constitutes the fifth part of Chapter VI.

6.1.1 Presentation and justification for a questionnaire based social survey

A household survey of domestic water users was selected as an appropriate method to elicit opinions and suggestions from large scale population samples for three reasons. First, given the geographical scale of the study area (Chapter IV), time constraints and limited practical knowledge of the available respondent pool, a household survey was the most effective approach to elicit relevant information. Other options such as telephone or postal surveys were rejected because of the lack of access to the target population and the potential low response rate (Foddy, 1993; Fowler, 2002; Gearey, 2005). Second, the length of the questionnaire and the format of some questions (ranking options take time and concentration) were also considered as reasons to implement a face to face survey. Lastly, it was anticipated that alternative methods (telephone or mailing surveys) would not be appropriate in the Levant for three reasons: (i) little available information on population familiarity with such approaches, increasing the level of uncertainty on rate and quality of answers; (ii) anticipated administrative and legal hurdles to access telephone numbers and/or private addresses; (iii) little information available on comparable telephone coverage and mailing efficiency in the four study areas.

Consequently, given the above limitations a face-to-face questionnaire was selected as the most suitable method to implement a household survey in the Levant.

6.1.2 Description of the questionnaire

The questionnaire consisted of 46 items: socio-demographic descriptors (gender, age, level of education, 5 items), knowledge of 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 (eleven items) and socio-demographic data (six items). The presentation of the results focuses on only eleven questions as the most pertinent to inform this thesis's goals. The survey was conducted in collaboration with other research institutions (presented in Table 6.2) who also included some specific items relevant for their research

activities without affecting the coherence of the questionnaire and its main purpose. The full questionnaire is presented in Appendix C.

6.1.3 Key topics area addressed by the social survey

As identified through the analysis of the scoping interviews and the stakeholder questionnaire (Chapter V), to better understand how individual construct the meaning of participation in water management challenges, the study explores: (i) individual knowledge of water management challenges; (ii) attitudes to participation and (iii) responses to water policy mechanisms. Due to the reflexive nature of this thesis (dialogue between data and analysis), more specific detailed of justification of response-format, analytical framework and approach to interpretation precede the presentation of related results. The actual questions designed to inform sub-themes for each key topic, the response-formats and the type of response analysis are presented in Table 6.1 below.

6.1.4 Notes on representativeness of samples and on the exploratory value of a medium scale survey

In line with the postmodern approach adopted in this thesis (Briant, 2003; Bergman & Coxon 2005, Charmaz, 2000; Clarke, 2003; De Marchi, 2003; Denzin & Lincoln, 1994, 2000 2005; Flyvberg 2001, 2006; Hajer, 1995; Giddens, 1994, 2006), one must be aware that knowledge and understanding of the real world is by nature incomplete, uncertain, subject to cultural, political, behavioural factors, influenced by the media, subject to a-priori theoretical framing (despite the GTM researcher aspiration to leave a-priori theoretical framing aside); this is referred to as “*epistemic uncertainty: the uncertainty due to the imperfection or our Knowledge*” (Walker *et al.*, 2003, p.13). Reality can only be known imperfectly, facts are value and theory laden and there is no such thing as objective facts in social sciences (Flyvberg, 2001; Gill, 2008; Robson 2002). Descriptive statistics are frequently used to assert validity and credibility of social survey and as make-up to justify their scientific nature and even statistician raise their concerns of the validity and credibility of presenting statistics as general and universal facts (Gill 2008).

Claiming that a medium-scale survey, despite descriptive statistical tools at hand, is representative of the population even with a confidence interval and a confidence limit has limited meaning and credibility and little coherence with a postmodern approach. Measuring whether respondent’s preference or belief change in time, or to

what extent they change and what is the overall impact on an exploratory survey is another research of its own. But does that matter when one is willing to gain some exploratory and comparative understanding of people attitude, belief, preferences?

Furthermore, data collection influences the representativeness of a sample and results of a survey. Indeed, answers might be affected by who open the doors (the head of the family, unemployed household member, the oldest person present in the household at the time of survey), who answer the survey (the head of the family, literate person...), who refuse the answer (and for what reasons?) or there might be several persons answering (say members of a family). The responses might also be influenced by "*some unknown mixture of politeness, boredom and a desire to be seen in a good light than their true feeling, beliefs and behaviours*" (Robson, 2002, p.231). Respondant's attitude and their answers can also be influenced by media, the weather condition and all sorts of factor that are tedious to know and to control; this is referred to as "*variability uncertainty*": uncertainty due to the inherent variability of Human and social system (Walker et al., 2003, p.13).

Surveying is a public relation exercise implemented by human beings addressing human beings, especially in the case of face to face questionnaire. Researchers conducting the survey, although they have received the same brief to implement the survey and to present the purpose of the questionnaire, the implementing institute and themselves, will have some incommensurable impact on respondents and the trustworthiness of their answers (Robson, 2002). When willing to control socio-demographic descriptors such as gender, age, level of education, professional categories (etc...), how to account for respondents that do not meet pre-established criteria or that correspond to quotas that have already been met? This account is especially difficult when several researchers are implementing the survey simultaneously and that there is no real time control of quotas. Would there be real time control of quota, the practical and tactical issues involved in designing and implementing a survey would prevent from disregarding some respondents or surveys that fall on categories where quota have already been met. This third type of uncertainty in social inquiry could be referred as 'prejudicial uncertainty': unknown level of uncertainty due to the way data are collected.

Surveys cannot be replicated to the identical in the four study areas, and it is an illusion to claim that a medium scale survey is representative of the population or that a social survey will produce general, context-independent theory (Flyvberg, 2006). An

homogenous survey sample (for example only men of a given age) or four survey realised without identical quality control protocol would be an obstacle to credibility, and validity of the exploratory nature of the survey, of comparison between study areas and of attempt to explain understanding, perception and beliefs of the population surveyed.

Hence, Individual answers (and a-fortiori of the entire population) are likely to change and survey results are subject to epistemic uncertainty, variability uncertainty and prejudicial uncertainty. However in order to gain in validity, comparability and credibility, quality control has been ensured from questionnaire design, to implementation to transcription, coding and interpretation as presented in section 6.2. Details of the breakdown of the sample in terms of gender, age, level of education are nevertheless reported in section 6.4 to present the extent of the non-homogeneity of the four sample and the multiple characteristics of individual surveyed.

The purposes of the four surveys are exploratory, explanatory through raw tendency and comparative analysis. Consequently the value of the four surveys reported below is to provide some insights about understanding of water management challenges, perception of the urgency to improve water management, willingness and preference to participative modalities and objectives. Although, there is no claim of statistical value of the population based on the medium-scale surveys, basic statistics (percentage of categorical, ranking of preferences, correlation factor) help organising and structuring the exploratory value of the survey and to compare results. Furthermore, these insights are explored at the light of some socio-demographic and awareness descriptor in order to refined whether as identified in Chapter VI, through the scoping interviews, the local stakeholder workshops, and as consistently highlighted in key-stones international declarations and reports, the role of gender, age (generation), level of education and public awareness are considered as crucial when addressing water management challenges (§6.4.1).

In order to ease readability I will refer to Jordanian, Lebanese, Syrian and Turkish respondents when reporting and discussing the results, but I do not intent to claim facts about the entire population, just for the sample of people surveyed. Caveats are not systemically included in the text to avoid making the thesis wordy. I refer to the population when I recall facts about the population and the country as presented in Chapter IV: for example ‘populations in Jordan and Lebanon experience regular water shortage’.

Which type of participation for which type of water management challenges?

Table 6.1: Questions informing key research topics as reported in the thesis and as found in the social survey questionnaire.

Key topics	Sub-theme	Questions as reported in the thesis	Response format	Analysis	In questionnaire
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	Q1
	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	Q9
	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	Q29
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?	Close (Yes, No, Don't know)	Percentage of categories	Q7
	Who asked	Q5 - Can you tell me who asked you...	Nominal	Descriptive	Q8
	When	Q6 ...and when this happened?	Nominal	Descriptive	Q8
	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	Q10
	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 like to participate?	Rank pre-defined categories of answers (theoretical coding)	Average of rank	Q11A
	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	Q11B
Responses to water policy mechanisms	Incentives to make more effort to save water	Q10 - Would you make more effort to save water if your actions	Closed (Yes/No) on pre-selected options	Descriptive percentage	Q30
	Support to saving water measures	Q11 - If you were able to influence the choice of measures to manage water more efficiently in your region, would you support the following actions ?	Closed (Yes/No) on pre-selected options	Descriptive percentage	Q31

6.2 Survey Quality Assurance

Social researchers have become more and more reliant upon verbal data over recent decades (Denzin & Lincoln, 1994, 2000 2005; Giddens, 2006; Robson, 2002). Asking questions is widely accepted as a cost-efficient way of gathering information about current behaviour and experiences, private actions and motives, and beliefs, values and attitudes. Nevertheless, collected verbal data can be of dubious validity and reliability (Foddy, 1993; Fowler, 2002). Some reasons for such inadequacies are:

- Respondents' failure to understand questions as intended;
- A lack of effort, or interest, on the part of respondents;
- Respondents' unwillingness to admit to certain attitudes or behaviours;
- Meaning lost in translation.

Three issues are of major importance when responses are to be translated, interpreted and compared. First, it is essential that all respondents have a common understanding of the intended meaning of a question is. Second, questions should be relevant to respondent's knowledge and concerns. And third, the researcher must be unambiguous about the perspective that respondents should adopt when framing their answers. The following four steps should occur in a successful question-answer sequence (Foddy, 1993; Fowler, 2002):

- The researcher must be clear about the nature of the information required and encode a request for this information (questionnaire design and implementation);
- The respondent must decode this request in the way the researcher intends it to be decoded (questionnaire design and implementation);
- The respondent must encode an answer that contains the information the researcher has requested (questionnaire design and implementation);
- The researcher must decode the answer as the respondent intended it to be decoded (responses analysis).

It is important for credibility, validity and comparison purposes that survey protocols are established, not only for the benefit of individual study areas, but also to ensure accurate and reliable replication of the approach elsewhere. Quality assurance was ensured throughout the following three survey phases: questionnaire design, survey implementation and responses analysis. Figure 6.1 below details the measure taken to ensure quality assurance.

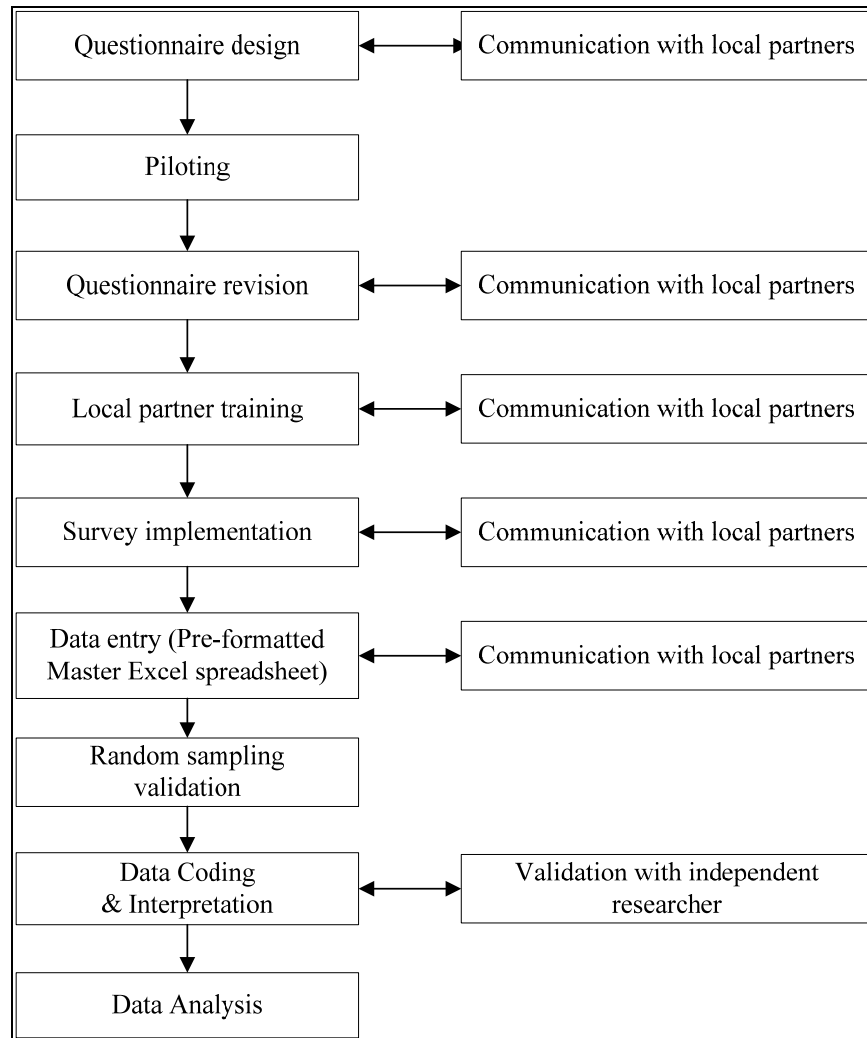


Figure 6.1: Flow chart of social survey's quality assurance process.

6.2.1 Quality control for questionnaire design

In order to ensure that questions included in a survey are commensurate with the topic as well as to the reason for wanting to collect the information, a researcher should continually seek to answer the following questions: ‘why do I need to know this?’ and ‘how will I interpret the answers respondents give?’ The questionnaire design should also take into consideration the fact that respondents should be given enough time to formulate appropriate answers (especially with open and ranking questions). This impacts on the length of the questionnaires, the time and effort required to implement the survey, the quality and reliability of answers, and the value of elicited knowledge. Questions must be understood by the respondent in the way intended by the researcher. This aspect was ensured through pilot testing with both English and translated questionnaires, taking into account comments and suggestions from

translators, and validating the translation. Questionnaires were independently translated into Jordanian Arabic, Lebanese Arabic, Syrian Arabic and Turkish by local researchers and submitted to further quality control. Reciprocally, answers provided by respondents should be understood by the researcher in the way intended by the respondent. Survey implementation guidelines contributed to quality control.

6.2.2 Quality control during survey implementation

The social survey was implemented in association with local appropriately experienced partners (Table 6.2). The justification for the sample size was agreed with the implementing partners. In order to maintain consistency of sample size amongst the four catchment areas and to implement the survey in the intended period of 2 months (with the limited available resources), it was decided that the study would be based on an interviewer administered questionnaire survey of 400 respondents in each of the four river basins of interest. However, the Jordanian partners had long experience with medium-large scale surveys and eventually suggested conducting an additional 200 questionnaires. Since there was no systematic reason to discard 200 additional questionnaires, the entire Jordanian sample was analysed. Guidelines for survey implementation were provided to complement face-to-face training of local partners and comments were requested to ensure that staff understood questionnaire implementation process. Regular communication was maintained via e-mail and telephone with local survey-coordinators to monitor progress. An additional level of reporting and monitoring was provided by the local partners who also presented the details of implementation during biannual fieldwork visits.

Table 6.2: 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

6.2.3 Quality control for responses analysis and interpretation

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 providing each local partner with an identical pre-formatted master Excel spreadsheet (subject to comments from local partners to avoid misunderstanding). Local partners then returned the completed master spreadsheet and all the paper questionnaires. Quality control for data input was ensured through two activities:

- Random checks on a sample of questionnaires executed to assess the level of correct entries (data input) from the original paper questionnaires into the master spreadsheet (Table 6.3);
- Direct clarification of specific translated answers to avoid misinterpretation (either by email or direct conversation with local partners).

Table 6.3: Summary of quality control activities of data input

Study area	Number of questionnaires used for quality control	Number of errors
Amman Zarqa Basin, Jordan	67 out of 600, (11%)	None
Chekka bay, North Lebanon	401 questionnaires, (100%)	None (all checked)
Mohafazat of Tartous, Syria	109 questionnaires, (27%)	11 mistakes on 11 questionnaires
Gökova Basin, Turkey	100 questionnaires, (25%)	2 mistakes on 2 questionnaires

As far as the survey implemented in North Lebanon is concerned, suspicions based on a brief revue of questionnaire were aroused and a strategic decision was made to re-enter all data. For all study areas, identified errors in the master Excel spreadsheets were replaced by original responses. Once data were considered as suitable for interpretation ('clean'), they were analysed using SPSS 15.0 (Copyright © SPSS Inc., 1989-2006). Robustness in constructing codes and classifications improves with practice (Strauss & Corbin, 1998) and researcher' theoretical sensitivity depends on his/her ability to grasp diversity and similarity of answers (Charmaz, 2006; Glaser, 1978, 2001; Kaplan & Duchon, 1988; Kendall, 1999). Therefore, 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. This time-consuming

personal quality control activity led to a better understanding of rich text responses (e.g. suggestions to influence the way water is managed, and to decrease water household consumption) and to a consistent identification of respondents' meanings. The final step 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 author (Figure 6.1).

6.2.4 Note on the usage of the collected data and statement on data protection

The development of the questionnaire and its implementation were carried out in accordance with the 1998 Data Protection Act and following ethical research guidelines provided by the British Sociological Association (BSA, 2002). Confidentiality was maintained as far as possible, so that the interests of the individual respondents were protected. No respondent will be individually identified in the resulting thesis or associated reports and publications. The researcher however, cannot be held responsible for any participants that freely choose to reveal their participation in the survey.

6.3 Results

The strategy for reporting the results is two fold. First, results are presented by themes, this provides a comparison between countries for each key topic. Second (§6.4) pertinent and suitable data for cross tabulation analysis are presented per countries in order to build a coherent picture of the perception of public participation in water management. In next sections, results of the survey are presented according to the three key topics presented above (§6.1.2): (i) individual knowledge of water management challenges (§6.3.1 and §6.3.2), (ii) attitudes to participation (§6.3.3) and (iii) responses to water policy mechanisms (§6.3.4). Categorical answers are identified in the subsequent text using ‘single inverted commas’.

6.3.1 Individual knowledge of water management challenges

The analysis of the scoping interviews and the local stakeholder questionnaires revealed the need to assess awareness of perceived urgency to make more effort to manage water efficiently. I have also identified a need to explore the causes of poor management and that individuals are also responsible to have a non-negligible impact of water consumption.

6.3.1.1 Perception of need to improve water management

As identified in the familiarisation phase through the scoping interviews and the stakeholder questionnaires, a perceived hurdle to initiate public participation was the view that public has little awareness of the need to improve water management and that a strong interest in the need to manage water more efficiently would facilitate the initiation of public participation. The social survey is partly used as the deductive phase of the implementation of the grounded theory methodology, to assess public awareness of the need to improve water management.

Likert-response format question are relevant and pertinent to assess people’s value judgement on sociological phenomenon (Carifo & Perla, 2007; Clason & Dormody, 1994; Göb *et al.*, 2007). The perception of whether there is a need to make more effort to management water more efficiently i.e. to improve water management is essentially a value judgement and was assessed through a five-point Likert response format to ordinate respondents’ attitudes with two available choices to qualify urgency, one neutral answer and two available choices to indicate that no urgency is perceived.

Results (Figure 6.2) from the Jordanian and Turkish cases present similar patterns in the perception of the need to make more effort to manage water more efficiently with an almost symmetrical and even weighting of categories: 50% and 47% of the population sampled respectively in Jordan and Turkey do consider that improvement for better water management is overall ‘urgent’ or ‘very urgent’; 37% in both cases consider it as either ‘not urgent’ or ‘not at all urgent’; and this, despite strong differences in characteristics of physical water scarcity in the two catchments. Results from the Lebanese and 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% for the respective samples.

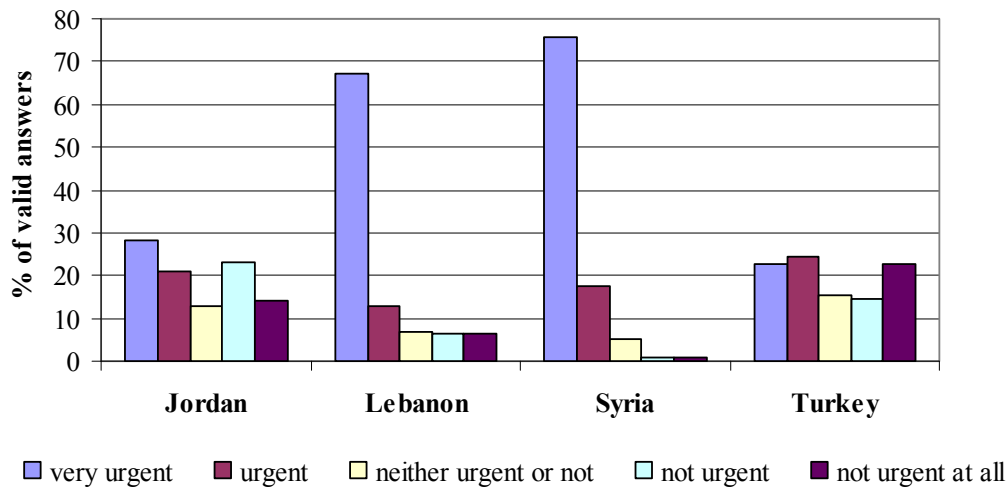


Figure 6.2: Perception of the need to manage water more efficiently in study area locations

6.3.2 Grounded suggestions to improve water management and to reduce water consumption

Suggestions to improve current water management and to reduce household water consumption were elicited through open questions (Q2 and Q3). Prior to present the actual results I provide some explanation on responses interpretation.

6.3.2.1 Forewords on a constructivist interpretation of open responses

The beauty of open questions (Q2 and Q3) is that the information provided by respondents can lead to unanticipated outcomes and exceeds the initial intended quality of information. One need to reflect on data format and therefore quality of information how to interpret responses from open questions where the unit of analysis can either be individual instances or the statement as a whole (made of several instances). According to a symbolic interactionist and constructivist approach (presented in Chapter III) a response is meaningful in its entirety (Bergman & Coxon, 2005; Blaikie, 2007; Flyvberg, 2001; Foddy 1993, Foulcault, 1984; Giddens, 1984, 2006; Hajer, 1995, 2005; Mottier, 2005). I have identified two types of responses (either the absence or the abundance of responses) that can be used as a basis to an additional level of interpretation, especially because research design aims to elicit opinions and suggestions to construct the perception of water management challenges at stake.

Firstly, answers coded as ‘no suggestion’ indicates that the respondent has either given ‘no suggestion’ to improve water management efficiency (perhaps due to lack of interest or of knowledge), or that s/he was somehow satisfied with the current management (‘do nothing’ type of response). When eliciting suggestions to improve a social/political situation (water management) or to reduce water consumption, ‘no response’ is categorised, in this study, as ‘do nothing’, i.e. as a general category contrasting with any other given substantive suggestions³⁹. This interpretation provides information on the proportion of people that have little knowledge or little interest in influencing the current situation (‘no suggestion’ or ‘do nothing’). This is the case for Question 2 and Question 3, hence why ‘no suggestion’ is included as a category of its own (§6.3.2.2.2 and §6.3.2.2.3) and why the percentage of substantive ‘suggestions’ are compared to ‘no suggestion’ in the cross tabulations analysis (§6.4).

³⁹ The term ‘substantive suggestions’ is used here to characterise any type of response with either a mention of an issue that is perceived to be a cause for poor water management or a proposed solution, i.e. any answer but ‘do nothing’ or ‘no suggestion’ or no answer given.

Secondly, some respondents have given responses made of several instances for Question 2 (§6.3.2.2.2). This was the case with a significant number respondents from Jordan, Lebanon and Syria, while the Turkish respondents provide answers made of only one instance (with two exceptions). Although the different instances of answers were given in sequence, the respondents were not asked to prioritise their answers, and there is no methodological ground to prioritise instances according to the order given by the respondents (or as recorded by questionnaire implementers).

As mentioned above one ought to take into consideration the entire response to construct respondents' meanings of suggestions to influence water management. I analysed the categorical answers with two interpretations. The first interpretation of the data was not only to take into consideration the first instance of each answer because it would dismiss the value of other suggestions, but the initial interpretation incorporated all instances in order to have a quantitative analysis of the statement as a whole. This level of analysis provides additional information because it takes into consideration all suggestions, not only first and second part of the response (§6.3.2.2). Moreover, answers can be rich not only in terms of quantity of suggestions (several suggestions falling into the same category like 'increase water quantity' or 'improve water quality'), but can also be rich in terms of quality of suggestions (suggestions falling into different categories, Table 6.4). This richness of answers provides an additional level of information that gives an indication of the proportion of people that are aware of the diversity of challenges or tools or methods available to improve water management. More specific explanations are provided below (§6.3.2.2) on how interpretation of open answers have been used to construct meanings of respondents' awareness of water management challenges.

6.3.2.2 Suggestions to improve water management

As introduced above (§6.3.2.1) the presentation of data elicited in Question 2 is organised around two types of interpretive analysis: (i) quantitative analysis through the classification of all instances of different categories of suggestions, (ii) qualitative analysis taking into account the proportion of those answers labelled and classified as 'Very Rich Answers' (VRAs). All answers were classified for all study areas. The classification (Table 6.4), constructed post-hoc, organises identical or similar type of answers according to a substantive (water quality or quantity, infrastructures,

Which type of participation for which type of water management challenges?

maintenance regime etc...) or intentional aspects such as motivation to change or dissatisfaction with the current situation.

The classificatory system for the four study areas is presented in Table 6.4 below.

Table 6.4: 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 wastewater treatment works, supply and/or collection network maintenance (leakage)...
Agriculture	Water for irrigation, new water saving technology and/or wastewater reuse...
Coercive measures	Increase water cost, fines for illegal use, law enforcement, water usage restriction, water meters, polluter pays principle...
Sustainable use & education	Water saving measures at home, awareness campaign, no misuse of drinking water...
Management and politics	Change current management & water policy, making manager accountable for their actions, taking into consideration expert & public opinions, open debates & participative commission...
Water prices	Decrease price, free water...
No suggestions	No answer, no problem

6.3.2.2.1 Analysis of all answers

The interpretation of the answers first concentrates on the frequency of all instances (1127 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 countries and presented as percentage as sample size are of different size but large enough (Figure 6.3).

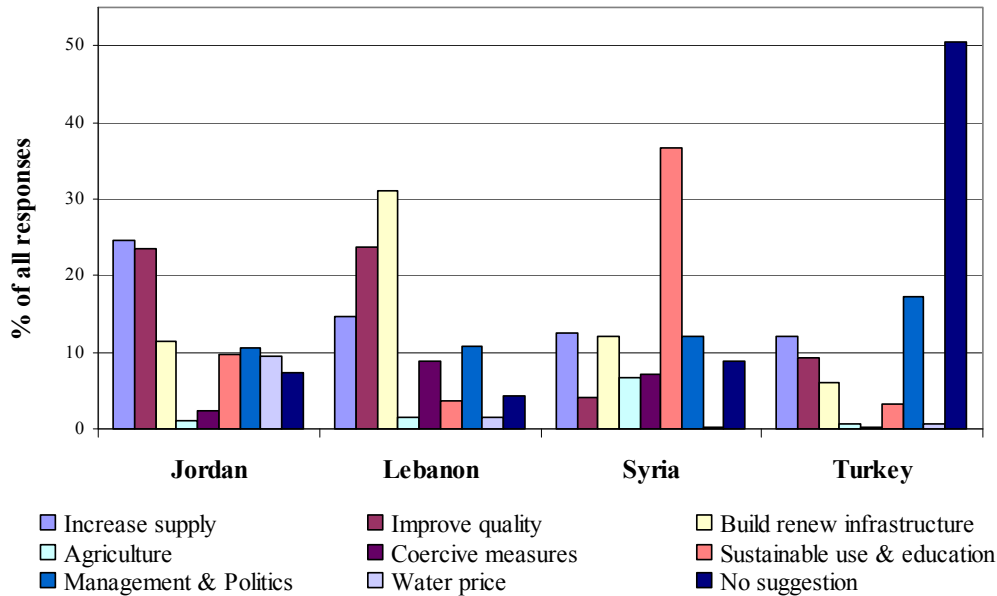


Figure 6.3: Respondents' suggestions to influence water management in their living areas, all answers in percentage per study area (percentage)

Amman Zarqa Basin, Jordan: The main suggestions to influence the way water is managed focus on technical issues: 'increase supply' (25%), 'improve quality' (23%) and 'build or renew infrastructure' (11%). The second type of suggestions concerns governance issues ('management & politics' 11 %, water price 10%) and behaviours towards water usage ('sustainable use & education' 10%).

In Chekka Bay, Lebanon, the main suggestion to influence the way water is managed in North Lebanon, focuses on the necessity to 'build or to renew drinking water and waste water treatment and networks' (31%). This suggestion is directly link to technical issues: 'improve water quality' (24%) and 'increase supply' (15%). The second most elicited type of suggestions concern the current 'management & politics' (11%, this category includes public/experts involvement in debates and to establish participative commission). This lack of satisfaction in water policy and decision making process, is complemented by 'coercive measures' (10%), including increase

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

The grounded suggestions to improve water management in Jordan and Lebanon presents similarities in the way to address: firstly, scarcity of physical resources (increase supply, improve quality), and secondly (and associated to) scarcity of organisational capacity (build and renew infrastructure, management and politics). The differences in suggestions concern issues associated to 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 Jordanian pay their water bills. Jordanian respondents favour sustainable use and education over coercive measures, while the Lebanese favour the opposite.

The main suggestion to influence the way water is managed in Tartous Mohafaza is ‘sustainable use & education’ (37%). This category highlights the 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 & renew infrastructure’ (12%) and ‘management & 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 karstic geological system). From a topographic and geological perspective, the Syrian and the Lebanese study area 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. This difference in suggestions to address poor water management, despite similar physical characteristics will be discussed in §6.5.

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

6.3.2.2.2 Analysis of responses including 'Very Rich Answers'

As introduced in Section 6.3.2.2, a significant numbers of responses (in Jordan, Lebanon and Syria) included up to five suggestions to influence the way water is managed. Now, I do not interpret those long responses as a series of independent and additional instances, but as answers as such. When deploying discourse analysis to interpret respondent answers and to construct meaning of social phenomenon, the unit of analysis is the statement as a whole. The answers made of more than three suggestions out of which at least two fall into different categories (according to the classification presented in Table 6.4), are counted in this interpretation as 'Very Rich Answer' (VRA). VRAs indicate the diversity of aspects respondents consider water management could be changed. This discursive interpretation provides a qualitative measure of the awareness of the local population of the far reaching aspects of water management. This interpretive stance applied to large scale social survey enables a quantification of quality of answers (Figure 6.4). Examples of VRAs are:

- Using drops 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 water management process; reduce the wasted amount of water; identify the ideal use of it; treating wastewater to reuse it in agriculture and industry sectors;
- Fines for people not complying with rules; monitor and repair network leakage; purifying drinking water;
- Stop illegal use of water; water saving measures; harvesting rain water;
- Harvesting rainwater in every house/farms; use modern irrigation techniques; water saving measures in houses;
- Improve water quality, increase water supply, monitor and repair water supply network.

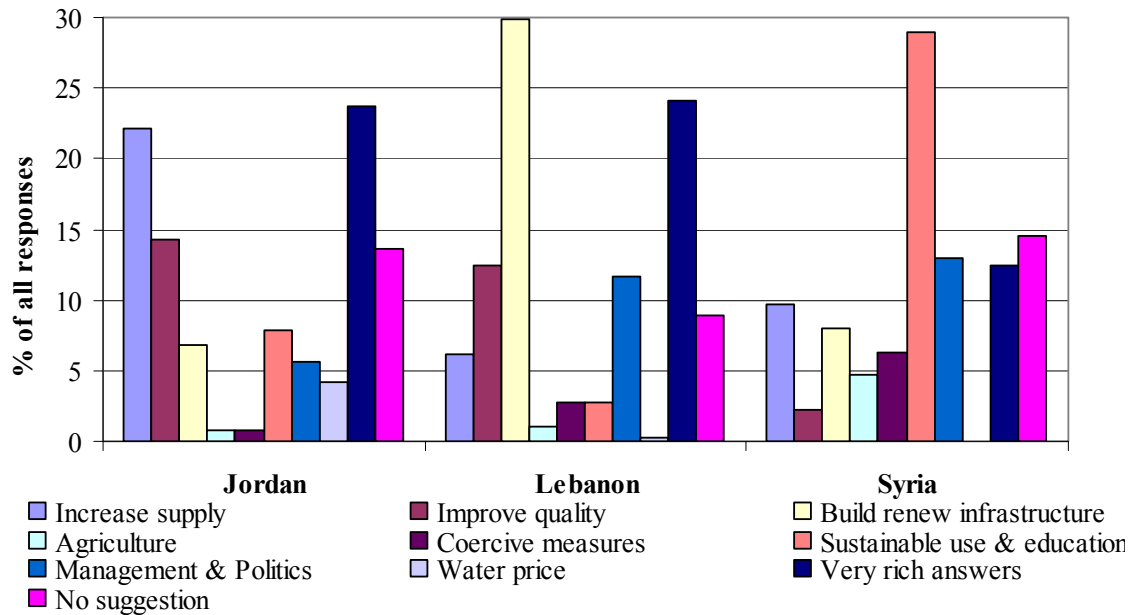


Figure 6.4: Respondents' suggestion to influence water management in their living areas, Very Rich Answers in Jordan, Lebanon and Syria

The percentage of respondents giving VRA is in 24% in Jordan, 24% in Lebanon and 13% in Syria. The interpretation of the results using VRA category, indicates first that in the Turkish respondents have individually and spontaneously little awareness of the different causes for poor management and ways to influence it. This low level of awareness is also reinforced with the high percentage of people providing 'no suggestion' and considering that in the current situation there is 'no urgency' to improve the way water is managed as seen with Question 1 (§6.3.1.1).

However, whereas a significant proportion of respondents in AZB 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 provide a VRA. One in four respondents in Lebanon, and one in eight in Syria gave a VRA. Those two populations' 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 significant proportion of VRAs, indicating a significant awareness of causes for poor water management and knowledge on the diversity of ways to influence water management. The analysis to identify whether there is a statistical correlation between perceptions of the urgency to improve the way is managed and whether respondents provide a VRA is presented in Section 6.4.

6.3.2.3 Suggestions to reduce household water consumption

The interpretation of scoping interviews and stakeholder questionnaire in Chapter V raised the role of behavioural scarcity in water consumption habits and the need to investigate grounded suggestions to address water management challenges and to initiate changes. Hence, the third and last elements of first key theme of this social survey (individual knowledge of water management challenges) focuses on eliciting methods to reduce water consumption at household level.

6.3.2.3.1 Knowledge and interest to reduce household water consumption

The first part of the analysis of the suggestions proposed by the respondents to reduce household water consumption focuses on the proportion of those who provided one or more suggestions versus no suggestion (Figure 6.5).

There is a clear difference between all study areas. The majority of respondents gave at least one answer in Jordan (76%) and Lebanon (58%), while in the Syrian and Turkish study areas a large majority gives no suggestion (69% and 83% respectively). This difference provides an indication on knowledge and interest to reduce household water consumption. Populations in Jordan and Lebanon experience regular and severe water shortage (due to physical water scarcity and/or poor infrastructures) and they have to adapt to such reality, as opposed to population in Syria and Turkey, although their access to water is not ideal. One might hypothesise the existence of a threshold in attitude to household water consumption habits, associated with the awareness and experience of acute water shortage. In the next section, the analysis of categories of suggestions and of the nature of the changes they imply will provide more insights towards the divide observed above.

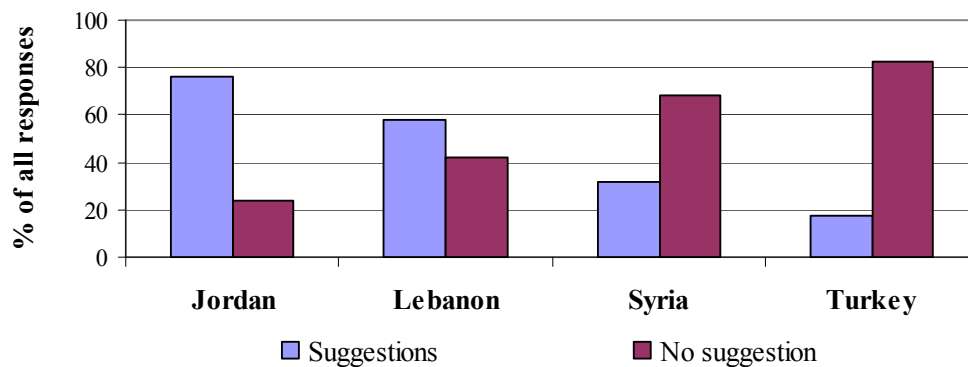


Figure 6.5: Percentage of respondents having at least one suggestion for reducing household water consumption in Jordan, Lebanon, Syria and Turkey.

6.3.2.3.2 Nature and categories of suggestions

The second part of the analysis of the suggestions proposed by the respondents to reduce household water consumption focuses on the substantive answers (Table 6.5, Figures 6.6 and 6.7). The answers were first organised into eight types of suggestions. This classification is the results of the initial analysis of valid answers. A second analysis of the raw data in the light of the classification, led to a reorganisation the categories according to the nature of changes they imply: (i) technological, (ii) behavioural and water usage habits, and (iii) those involving coercive-restrictive measures. The categories of suggestions provide a detailed picture of the diversity of measures elicited by the respondents, while the nature of categories favour the conceptualisation of means to tackle water scarcity at household level.

Table 6.5: Natures and code of measures proposed to reduce household water consumption in Jordan, Lebanon, Syria and Turkey.

Nature of Categories	Categories of suggestions
Technological changes	Improve efficiency of house appliances- tap pipes leaking, meter maintenance;
	Use water from well and alternative source of water;
Behavioural changes	Consume less for washing (cloth and dish), decrease frequency, organise water usage off peak time;
	Consume less general, save water, avoid wasting educate children on water usage;
	Restrain bath or awareness when using water for hygiene, open tap half position;
	Less water for garden, flowers, livestock, pets;
Coercive measures	Prevent excessive usage, prodigality, washing cars;
	Restriction on water, tighten utilisation, use drinking water for drinking only, for necessary/basic needs only;

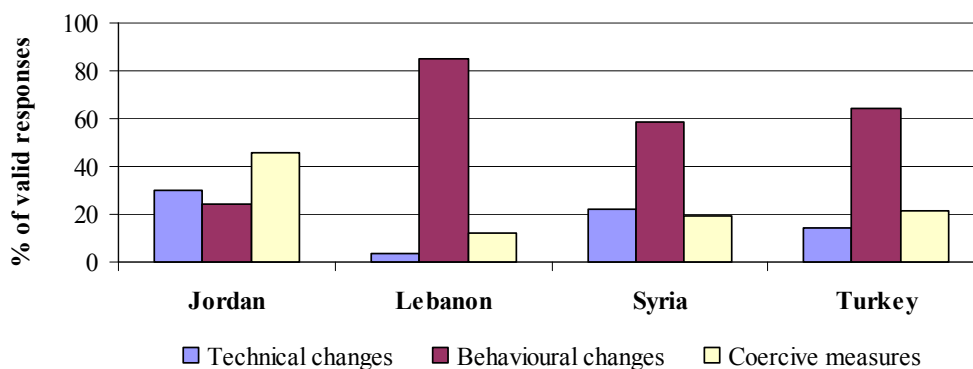


Figure 6.6: Breakdown of nature of measures elicited to reduce household water consumption in Jordan, Lebanon, Syria and Turkey

The interpretation of the nature of suggestions developed here, echoes the similar pattern in responses as when comparing suggestions given versus no suggestion (§6.3.2.3.1) with on the one hand Syrian and Turkish cases, and on the other hand suggestions from Jordanian and Lebanese respondents stand apart.

In the Syrian and in the Turkish catchments, the majority of measures proposed concerns behavioural changes (58% and 64% respectively). Suggestions implying technological changes (22%, 15%) and coercive measures (19% and 21%) are of comparable weight. Respondents in the Syrian and in the Turkish study area do not only provide little responses rate indicating low interest or low practical knowledge to reduce household water consumption they also provide suggestions of similar nature, emphasising first behavioural change. Specifically, they provide vague answers such as ‘consuming less water’, they postpone the responsibility to tackle water management issues onto next generation when suggesting to ‘educate children’, and finally they suggest to use less water for leisure usage of water ‘less water for plants and pests’(Figure 6.7).

The nature of suggestions elicited in Jordan is more balanced (in terms of frequency of appearance) between technological changes (30%), behavioural changes (24%) and coercive measures (46%) illustrating that changes in water consumption in a country affected by the four types of water scarcity identified in Chapter V, ought to be based on a wide ranges of measures.

The Lebanese respondents mainly focused their suggestions on behavioural changes (85%), then on coercive measures (12%), and technical changes is almost anecdotic (3%). They provide a wide range of specific and experienced solutions such as less water for house washing, for personal hygiene (Figure 6.7). Water scarcity in Lebanon has little to do with lack of natural resources (with the exception of long summer drought), but is more the result of poor infrastructures management and planning, as the result of thirty years of political instability onto which householders have no control onto.

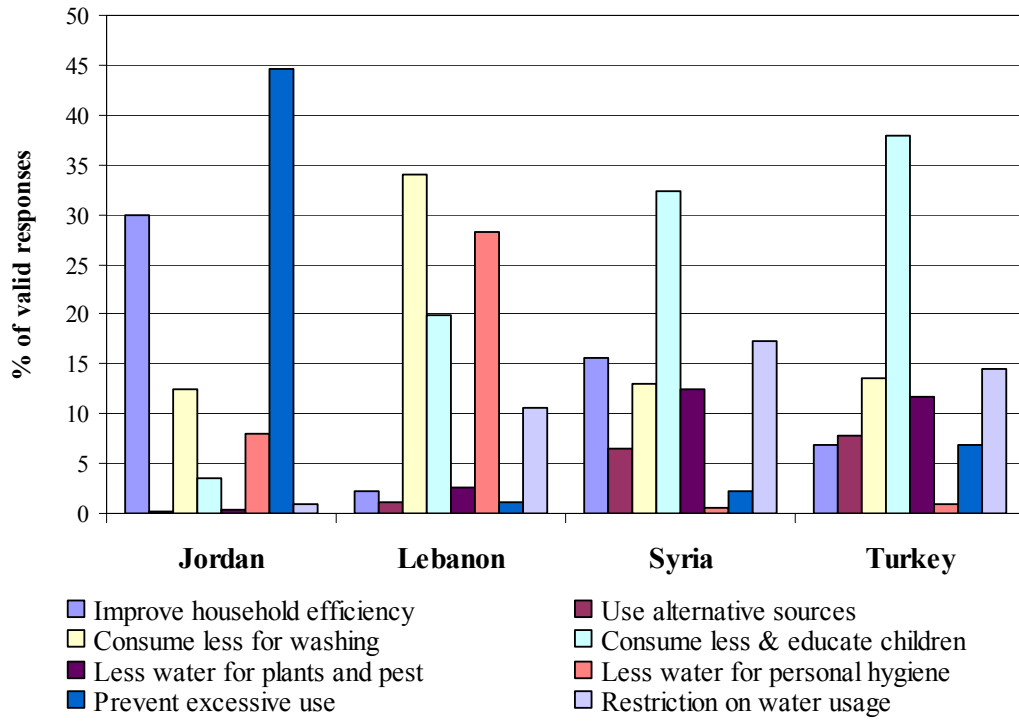


Figure 6.7: Percentage of suggestions to reduce household water consumption in Jordan, Lebanon, Syria and Turkey

6.3.3 Attitudes to public participation

The second key topic of the social survey investigates attitudes to participation, starting with an assessment of the experience and familiarity the local population have with PP, then assessing their willingness to be involved in debate over water management. If that was the case, they have been 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 author (based on the literature review and on the information resulting of the interpretation of the stakeholder questionnaire presented in Chapter V).

6.3.3.1 Experience & familiarity with PP

Table 6.6 presents the percentage of respondents that have been asked for their views on water management in this region or attended a meeting where water issues were discussed. Table 6.7 presents the origin of institutional actor that asked for the respondents' opinion and when it happened. In all study areas, consultation of the population on water issues is anecdotic.

Table 6.6: Valid percent of respondent that had been given the opportunity to give their view on water management or not

% all responses	Jordan	Lebanon	Syria	Turkey
Yes	1.2	2.2	4.5	2.5
No	99.4	97.0	93.0	94.2
Don't know	0.2	0.8	2.5	3.3

Table 6.7: Origin of who elicited respondent's opinions, count and when it happened

Who	Jordan	Lebanon	Syria	Turkey	Total category
Private company: water-building contractor	2	4	0	0	6
Water Authority	1	0	6	0	7
Local authority	2	4	7	2	15
University - survey	0	1	0	2	3
Total study area	5	9	13	4	31
When	Jordan	Lebanon	Syria	Turkey	Total category
This year (2006)	1	4	3	0	8
Last year (2005)	3	1	3	0	7
Two years ago (2004)	0	1	2	0	3
More than 2 years ago	2	2	4	2	10
Total study area	6	8	12	2	28

The difference in total count for the Jordanian cases between Q5 and Q6 is because one Jordanian respondent specified when he was asked for his opinion but not who did. Also not all respondents remembered when they were asked for their opinions. This does not affect the interpretation significantly, because a quantitative analysis would be meaningless with these data. Overall, the population sampled in the four study areas have not experienced any forms of participation.

6.3.3.2 Willingness to be involved in water debates

The majority of respondents in Jordan and Syria are willing to be involved in discussion and debates on the present and future management of water resources (64% and 65% respectively), while only 37 % and 27% respectively in Lebanon and Turkey are willing to do so (Figure 6.8). The respondents had the choice to answer ‘I don’t know’ and this answer was selected by 15% and 19% respectively in Jordan and Turkey, indicating a relative high level of indecision or a lack of interest amongst the population sampled. On the other hand, respondents in Lebanon and Syria appear to know whether they want to be involved in water debates with very low proportion of them answering ‘I don’t know’ with 3% and 5% respectively.

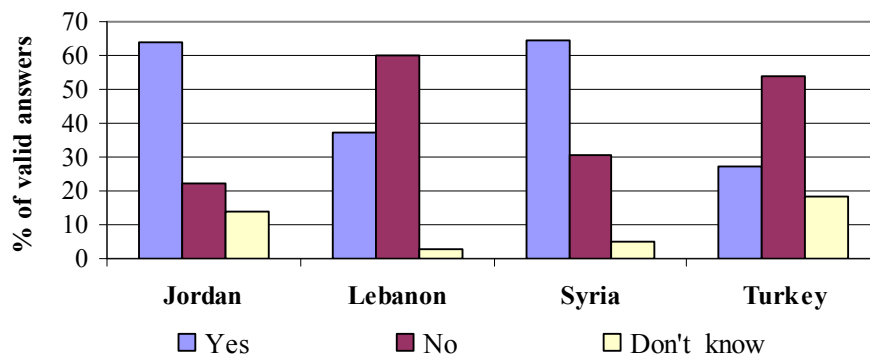


Figure 6.8: Respondents willingness to participate in water debates

6.3.3.3 Preferred type of involvement in discussion and debates

Respondents were asked to rank the four choices proposed to be involved in discussion and debates according to their preferences (Table 6.8). A simple average of frequency of rank (Excel ‘Average’ built-in formula) was used to compare populations sampled. The proposed choices respondents were submitted to is as follows:

- Electing spokespersons to represent your opinion (ES);
- Through participating yourself in public debates and public consultation (PPD);
- By being consulted to give an opinion about suggested propositions (CO);
- By voting on options (VO).

Table 6.8: Preferred types of involvement in water debates - Breakdown per choices, average of frequency of choice and aggregated rank for the population sampled

Number of responses	Jordan				Lebanon				Syria				Turkey			
	380				154				258				111			
Options	ES	PPD	CO	VO	ES	PPD	CO	VO	ES	PPD	CO	VO	ES	PPD	CO	VO
1 st choice	74	257	26	23	22	91	16	25	41	132	62	24	29	56	9	20
2 nd choice	117	21	141	101	36	32	42	41	54	40	113	50	23	16	44	24
3 rd choice	48	28	155	149	41	17	48	44	55	37	58	108	23	17	35	30
4 th choice	141	74	58	107	51	14	44	40	108	49	25	76	32	22	19	33
Average of frequency of choice	2.67	1.79	2.64	2.89	2.81	1.70	2.80	2.66	2.89	2.01	2.18	2.91	2.54	2.05	2.60	2.71
Rank	3rd	1st	2nd	4th	4th	1st	3rd	2nd	3rd	1st	2nd	4th	2nd	1st	3rd	4th

Table 6.8 displays the ranks of preferred types of involvement in each study area area. In all cases, respondents clearly favour involvement in water debates via direct participation themselves, and this is reinforced by the fact that the average of rank of frequency for 2nd, 3rd and 4th choice are very close (except for the second choice in the Syrian study area). Electing a spokesperson to represent respondents’ opinion is ranked low: 3rd in Jordan and Syria, 4th Lebanon, but 2nd in Turkey, the country with the longest experience of democracy (World Bank 2003, 2007; World Bank Institute, 2007). The lowest rank for voting on options (in all study areas but in Lebanon) indicates that respondents less favoured this type of distant decision making process as opposed to types of representation involving direct forms of communication.

As highlighted in Table 6.9, 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 6.9: Preferred types of involvement in water debates

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

6.3.3.4 Reasons and objectives for participating in water issues

Question 9 aimed to quantify the reasons and objectives for participating in water issues. Respondents were asked to rank a series of six choices identified from the answers elicited through the initial stakeholders questionnaire (Chapter VI). The reasons for involvement are as follows:

- To receive information about future plans the public authority will implement (RI);
- To give my opinion to the public authority about future plans (GO);
- To exchange my views with other citizens working in agriculture, tourism and industry and to propose a common solution to the public authority (EV);
- To avoid or to resolve conflict over the use of water (RC);
- To define a common solution with all citizens and sectors that will be implemented democratically (CS);
- To have some power over the decision making process (P).

Table 6.10 displays the frequency each reason (abbreviated as RI, GO, EV, RC, CS and P) is given a rank (1st, 2nd choice, etc...). A simple average of frequency of ranks (Excel ‘Average’ built-in formula) was used to compare population samples’ results.

Prior to looking at the results one ought to notice that the sample of the Syrian study area is for this question only, restricted to 17 cases only. This low number of answers was due to a problem of communication between the implementing local team and the author. The results presented based on this sample have no statistical value, but are informative given the limitations presented. However, the trends for this small Syrian sample are not different from those in the three other study areas.

Table 6.10: Preferred reasons to be involved in water debates – Breakdown per choices, average of frequency of choice and aggregated rank for the population sampled

	Jordan						Lebanon						Syria						Turkey					
Responses	380						151						17						110					
Options	RI	GO	EV	RC	CS	P	RI	GO	EV	RC	CS	P	RI	GO	EV	RC	CS	P	RI	GO	EV	RC	CS	P
1 st choice	50	147	84	30	35	33	58	22	14	36	19	2	4	4	3	3	3	0	31	23	11	14	13	18
2 nd	61	82	106	58	50	21	1	45	16	14	33	6	1	5	5	2	3	0	16	33	15	13	13	13
3 rd	82	60	64	57	68	49	0	0	40	16	9	9	6	1	4	2	1	2	21	16	29	14	8	12
4 th	86	53	63	80	67	30	0	0	0	39	15	1	2	3	3	5	2	1	14	15	13	37	15	5
5 th	62	29	53	117	77	41	0	0	0	0	38	8	3	1	1	4	6	2	7	11	20	13	32	12
6 th	38	7	9	37	82	205	0	0	0	0	0	28	0	2	0	0	2	12	15	4	10	8	20	41
Average	3.4	2.4	2.8	3.8	3.9	4.7	1.0	1.7	2.4	2.6	3.2	4.7	2.9	2.9	2.6	3.3	3.6	5.4	2.9	2.7	3.4	3.5	3.9	4.0
Rank	3	1	2	4	5	6	1	2	3	4	5	6	3	2	1	4	5	6	2	1	3	4	5	6

Table 6.11 displays the ranks of preferred reasons to be involved in 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 over 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 choice. 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 pursue of power over the decision neither to ‘define a common solution’ or ‘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. These results reinforced earlier work conducted in Europe and Northern America highlighting the importance for interactive communication between sponsors of participative activities and participants (English *et al.*, 1993; Glass, 1979; Mostert *et al.*, 2007; Pahl-Wostl, 2002; Pahl-Wostl *et al.*, 2007; Rowe & Frewer, 2004, 2005). Also one might start to strongly challenge the normative claims that ‘actual’, ‘real’, or ‘meaningful’ public participation is related to the pursue of power over decisions (Arnstein, 1969; House, 1999; Kessler, 2004; Pirk, 2002). A comprehensive analysis of public participation in environmental resource management would hence benefit

Which type of participation for which type of water management challenges?

from other focus than 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, to give an opinion i.e. power in relation to define what the problem is prior to define a set of solutions.

Table 6.11: Preferred reasons to be involved in water debates

	Jordan	Lebanon	Syria	Turkey
1 st choice	Give my opinion	Receive Information	Exchange Views	Give my opinion
2 nd choice	Exchange Views	Give my opinion	Give my opinion	Receive Information
3 rd choice	Receive Information	Exchange Views	Receive Information	Exchange Views
4 th choice	Resolve Conflict	Resolve Conflict	Resolve Conflict	Resolve Conflict
5 th choice	Common Solution	Common Solution	Common Solution	Common Solution
6 th choice	Have Power	Have Power	Have Power	Have Power

6.3.4 Responses to water policy mechanisms

The final objective of the present survey is to assess respondents' support to water policy mechanisms elicited during local stakeholder workshops.

6.3.4.1 Nature of incentives to make more effort to save water.

Three types of incentives were identified as being potential motivation to reduce water consumption habits; they involve either financial incentives, societal choice or environmental incentives. Question 10 was designed to assess whether respondents would be willing to make more effort to save money based on the six proposed choice. Figure 6.9 displays the percentage of approval to each type incentives. The reader might notice that one category of incentives is missing from the Lebanese results ('preserved water flows in streams and rivers'). This missing information is down to a lack of communication flow with the local partners.

At least 91% of the Jordanian respondents approve all proposed of incentives to make more effort to save water. No such trends can be observed in the other cases. Financial incentives scores high especially when concerning personal purse. Environmental incentives are the least favoured by Syrian and Turkish respondents but the most supported in Lebanon. Although the degradation of the environment perception to improve water management are similar in the Syrian and in the Lebanese study areas, environmental protection is not viewed as a relevant incentive to save water by 56% of Syrian respondents. Provided water for new houses is considered as a more important reasons to save water than to provide water for agriculture in Syria and Turkey, but in Lebanon. Agricultural activity and demographic growth are of similar weight in all cases (Chapter IV).

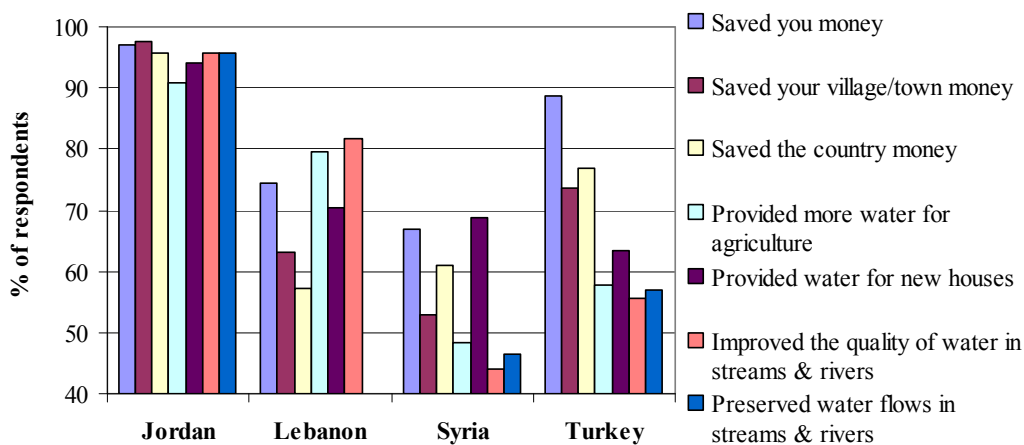


Figure 6.9: Support rate to incentives to make more effort to save water

6.3.4.2 Approval to saving water measures

Respondents were presented with six policy measures aiming to reduce water consumption and water pollution. Measures focused on three aspects: (i) water use for agriculture, (ii) fines and (iii) domestic water demand. Jordanian population support all measures at more than 96% but for limiting housing development (80%). All measures are approved by a vast majority of respondents in all study areas are, even imposing fines, forcing every household to have a water meter and tackling irrigation inefficiency. In all study areas the least approved policy measure is ‘to limit new housing development in the region’ and this measure is in rejected (‘No’ at 65%) by Syrian respondents.

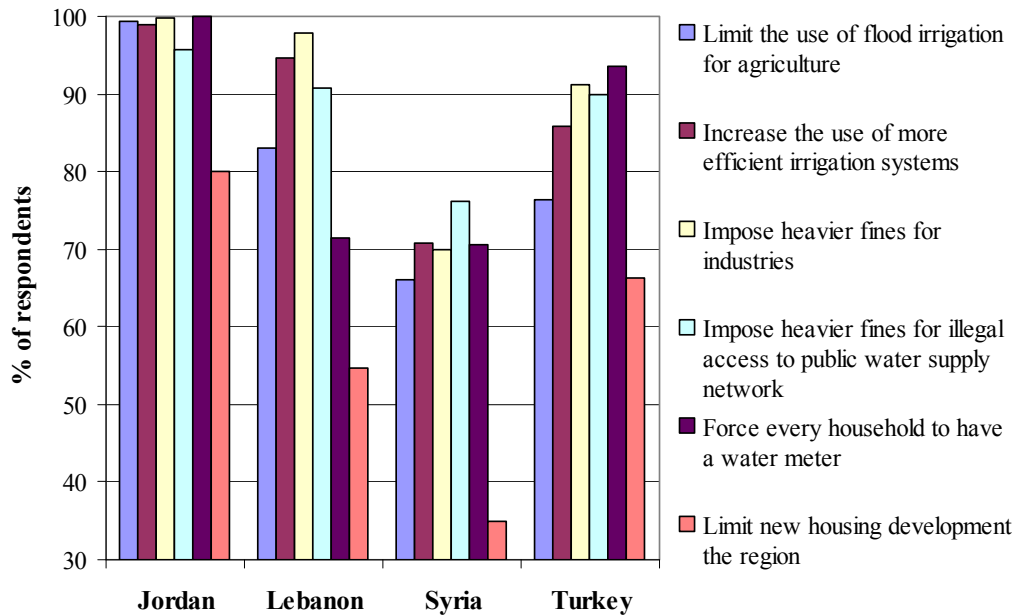


Figure 6.10: Percentage of approval rate to water saving policy measures in Jordan, Lebanon, Syria and Turkey

6.4 Influence of demographic and behavioural descriptors

Prior to present the extent to which socio-demographic and awareness descriptors might structure respondents' attitude and knowledge towards water related issues and willingness to be involved in water debates, I present first a justification of the selected descriptors followed by a justification of the statistical analysis applied.

6.4.1 Justification of use of descriptors and statistical analysis

Let us remind ourselves that the objective of the social survey is to produce an exploratory picture of the perception of public participation in water management of a sample of population at river basin scale in each study areas (with no claim of demographic representativeness of the entire population).

6.4.1.1 Foreword on socio-demographic and awareness descriptors

As identified in Chapter VI, through the scoping interviews, the local stakeholder workshops, and as consistently highlighted in key-stones international declarations and UN reports, the role of gender, age (generation), level of education and public awareness are considered as crucial when addressing water management challenges⁴⁰.

Socio-demographic descriptors have also long been used by academics to explain differences in attitudes and behaviour in many areas of study, including the field of water resources management. Hamilton (1983) studied the influence of characteristics such as income and education on household water conservation and Pender & Kerr (1998) looked at the effects of, amongst others, gender and ownership on soil and water conservation investments. Other studies focused on descriptors including age (Keshavarzi *et al.*, 2006; Racevskis & Lupi, 2006), social position (Anley *et al.*, 2007), household size (Bekele & Drake, 2003) and political allegiance (Gild & Barr, 2006). Gilg and Barr (2006) argue that differences in demographic descriptors should be taken into account when promoting certain policies and can be used to target specific groups that share similar attributes, but I argue that all descriptors are not relevant and cannot for practical reasons, be studied in the selected study areas.

The ontological grounded justification is that age and education level were identified through the scoping interviews (Chapter V) as potential promoters or

⁴⁰ This non exhaustive list includes: Dublin Principles (UNCED, 1992), Rio de Janeiro Declaration (UNEP, 1992), Malmo Declaration (UNEP, 2000), The Cairo Declaration of the League of Arab States to the World Summit of Sustainable Development (LAS, 2002), Human Development Report UNDP (1993, 1997, 2002, 2005) and in the UNESCO World Water Reports 1 & 2 (UNESCO, 2003, 2006).

inhibitors of behavioural change and as indicators of involvement in water management issues. On the one hand younger generations might be more predisposed to adopt consuming and social habits to tackle water scarcity, than older ones (also reported in The World Bank, 2007). On the other hand, a perceived hurdle to the implementation of participation in water management was the lack of understanding of economical, environmental and social dimensions, related to low level of education and awareness level of far reaching societal aspects of water management (Chapter V). However, there is still little empirical evidence that such distinctions are useful, relevant and pertinent. The socio-demographic descriptors and a descriptor of public awareness level of the need to make more effort to management water more efficiently, are presented here with the aim to assess whether they can, be indeed, statistically associated to certain types of answers and attitudes towards participation in water management challenges.

Socio-demographic descriptors present the extent of the non-homogeneity of the four sample and the multiple characteristics of individual surveyed. Prior to present study area individually and per themes, socio-demographic descriptors (gender, age group and level of education) of respondents are presented respectively in Table 6.12 for the four study areas.

Table 6.12: Summary of selected socio demographic descriptors of respondents

Socio-demographic characteristics		Jordan		Lebanon		Syria		Turkey	
		count	%	count	%	count	%	count	%
Gender	Female	348	58.0	206	51.4	124	31.0	77	19.3
	Male	252	42.0	195	48.6	276	69.0	322	80.7
	Total	600	100.0	401	100.0	400	100.0	399	100.0
Age	18-25	49	8.2	71	17.7	44	11.0	39	9.9
	26-35	123	20.5	90	22.3	139	34.8	54	13.7
	36-45	181	30.2	126	31.3	93	23.2	72	18.3
	46-55	120	20.0	63	15.7	85	21.2	70	17.7
	56-65	72	12.0	28	7.0	27	6.8	85	21.6
	66+	55	9.1	24	6.0	12	3.0	74	18.8
	Total	600	100.0	402	100.0	400	100.0	394	100.0
Level of Education	No formal education	82	13.7	23	5.7	15	3.8	22	5.7
	Basic education	348	58.1	129	32.1	70	17.5	247	63.7
	A level - Baccaureate	156	26.0	162	40.3	132	33.0	85	21.9
	Higher degree	13	2.2	88	21.9	183	45.8	34	8.8
	Total	599	100.0	402	100.0	400	100.0	388	100.0

6.4.1.2 Foreword on statistical analysis

Cross tabulation is a statistical data analysis method which is used to compare the responses to one question with the responses from another question, or with the

characteristics of the sample in order to determine whether there are identifiable significant patterns of relationship in pairs of answers. Cross tabulations display the joint distribution of two or more variables and can be used with nominal, ordinal, interval or ratio data. Cross tabulations are one way to quickly identify if two variables are statistically correlated. The analysis of data via cross tabulations presupposes both a large sample size and random results.

A Chi-square test is applied in order to identify the strength of any relationship when undertaking cross-tabs. The Chi-square test (abbreviated in tables as X^2) assesses the probability that a relationship between two variables is coincidental or not with the given sample. Chi-square values lower than 0.05 indicates that the relationship between the two variables is not coincidental with a probability higher than 0.95. Where a descriptor appeared to impact on a type of answers, but a Chi-square test indicated a coincidental statistical correlation between the two variables under scrutiny with a probability factor of less than 0.95, Chi square test is applied with a probability of 0.9. The underlying hypothesis to conduct this non parametric test is that the two variables are independent. In order for the test to be meaningful, the minimum cell count is five. Given that the overall sample size is at least 400, a count of five make result unreliable. However, due to the number of sub categories of answers for some questions (e.g. Questions 2, 3, 8, 9, 10 and 11) the cross tabulation of a given sub-category with another one or a given sample characteristic do restrict the sub sample to less than five and even to 0. For example, a cross tabulation of the nine categories of suggestion to improve water management (Question 2) with age group or education level is not applicable despite the initial large number of respondents. In some cases (for age group and level of education), two continuous sub-categories had to be aggregated in order to assess a more subtle divide with the population (and also to reach a minimum sample size of 5).

Cross tabulations and Chi square (where applicable) are applied to the following sub-themes:

- Perception of the urgency to improve water management (Q1),
- Suggestion to influence water management (Q2): suggestions / non suggestion, and VRA / No VRA,
- Suggestions to reduce household water consumptions (Q3): suggestions / non suggestion,

- Willingness to be involved in water debates (Q7).

Results are systematically presented for each study area according to the above sequence of sub-themes.

6.4.2 Amman Zarqa Basin, Jordan

6.4.2.1 Perception of the need to improve water management

There is no statistical correlation based on the sample collected of age or level of education on the perception of the urgency to make more effort to manage water efficiently. However, there is a statistical correlation between gender and a perception of the need to manage water more efficiently (Table 6.13), with women being more likely to perceive the need as very urgent (32%) compare with men (23%) (Appendix D1.1).

6.4.2.2 Suggestions to influence water management

No statistical correlation was identified between age and whether respondents provided a suggestion or not to influence water management. However there is one with age group, level of education, and perception of urgency (Table 6.13).

The Chi square test shows a statistical correlation ($p=0.951$) between age group and whether respondents gave a substantive answer to Q2. Respondents from the oldest age group (66 years old and older) are more likely to provide no suggestion (26%). For all other age group the proportion of respondent who gave an answer is greater than 86%. When investigating a possible inter-generational divide in the likelihood to provide an answer, the two youngest age groups (18-25 and 26-35) and on the other two oldest (56-65 and 66+) were aggregated. A Chi-square test showed a weak statistical correlation ($p=0.938$) between generation group and likelihood to give suggestions to manage water more efficiently. Therefore, there is no intergenerational correlation, but the proportion of the oldest respondents that give a substantive answer is lower compare to other age group (75%, Appendix D1.2).

Furthermore, there is a strong statistical correlation ($p>0.995$) between respondents' level of education and whether they gave a suggestion (Chi² test excluded 'higher degree' due to low cell count). The higher the level of education, the more likely respondents are to have a suggestion to influence the way water is managed, bearing in mind that the percentage of respondents giving a suggestion

remain nevertheless very high in the categories of lower level of education (62%, Appendix D1.2).

There are only 3 respondents that answer 'very urgent' to Q1 and that did not give any suggestion to Q2 (2%). Consequently, in order to have adequate sub sample size (>5), categories of answers for Q1 were aggregated: 'urgent' with 'very urgent' as opposed to 'not urgent' and 'not at all urgent'. There is a strong statistical correlation ($p>0.995$) between the perception of urgency whether respondents gave a suggestion to influence the way water is managed (Table 6.13). The higher the level of urgency to make more effort to manage water more efficiently, the most likely respondents are to have a suggestion to influence the way water is managed, bearing in mind that the percentage of respondent giving a suggestions remain very high for both those who selected the 'neutral' point of the Likert-response format and who consider that there is 'no urgency at all' (90% and 72%, Appendix D1.2).

6.4.2.3 Very Rich Answers to influence water management

There is no statistical correlation between VRAs and gender or level of education. However, there is a very strong statistical correlation ($p>0.995$) between whether respondents provide VRAs with either age group or public awareness (Table 6.13). The proportion of respondents giving VRAs is greater amongst the 26-35 years old (35%) and amongst the 36-45 years old (29%). The youngest and the oldest gave the lowest percentages of VRAs: 8% and 13% (Appendix D1.3). The higher the level of urgency to make more effort to manage water more efficiently, the more likely respondents are to provide VRAs to influence the way water is managed: 32% of those considering the need to improve water management as 'very urgent' gave a VRA while only 15% of those considering that water management is 'not at all urgent' provided a VRA (Appendix D1.3).

6.4.2.4 Suggestions to reduce household water consumption

Whether respondents provided at least a suggestion to reduce household water consumption is not statistically correlated with either respondent's gender or age or with their perception of the need to improve water management (Table 6.13). However, there is a strong statistical correlation ($p>0.995$) between level of education and whether respondents provide an answer for Q3 (Appendix D1.4). Respondents with basic education or A-level are statistically more likely to give a suggestion (respectively 79% and 73%). Respondents with no formal education and those with

higher degree are less likely to give suggestions (respectively 60% and 54%). There is a difference between groups but one cannot say with these data, unlike for Question 2, that the higher the education level the more respondent are likely to provide and answer.

6.4.2.5 Willingness to be involved in water debates

The observed willingness to be involved in water debates is statistically correlated to respondents' age group, level of education and awareness but is not with gender (Table 6.13). There is a weak non-coincidental relationship between age group and willingness to participate ($p=0.938$). The oldest respondents are less likely to be willing to participate to water debate (44%) than other age groups especially those between 26 and 35 years old (72%, Appendix D1.5).

There is a strong statistical correlation ($p=0.972$) between level of education and willingness to participate to water debate. Respondents with basic education or A-level are statistically more likely to be willing to participate (respectively 66% and 63%). Respondents with no formal education and those with higher degree are less likely to be willing to participate (respectively 57% and 46%). There is a difference between groups but one cannot say based on these data, that the higher the education level the more respondents are willing to participate. None of the respondent with a higher degree answer 'No'; they are either willing to participate in water debate or they 'don't know' (Appendix D1.5).

Finally, there is also a strong statistical correlation ($p>0.995$) with the perception of urgency. The higher the perception of urgency to make more effort to manage water more efficiently, the most likely respondents are to be willing to participate. Respondents that consider the need to manage water more efficiently as 'very urgent' or 'urgent' are more likely to be willing to participate (78% and 61% respectively), and symmetrically 27% of those who perceive water more efficiency as 'not at all urgent' are not willing to participate (Appendix D1.5).

6.4.2.6 Discussion and synthesis of the results for Amman Zarqa basin , Jordan

The analysis of the potential (influence/structuration) of the socio-demographic descriptors on public awareness, knowledge on water management challenges and willingness to participate, highlights that in AZB:

1. Responses from women and men are overall the same for this questionnaire in AZB. Gender differentiates only the perception of the need to improve water management where women are more likely to consider it as ‘very urgent’ (32%) than men (23%).
2. Age group structure has no impact on the perception of the need to make more effort to manage water more efficiently, but does on the whether respondents provide suggestion to improve water management: 92% of the 26-35 years old provide at least a suggestion and 35 % gave VRA. This age group is also the one that is the most willing to participate to water debate (72%). Only 74% of the 66 years old and above gave at least one suggestion to Q2, and only 12% of them provided VRAs. The oldest respondents are also those who are the less willing to participate to water debate (49%). The lowest percentage of VRAs (8%) is amongst the 18-25 years old.
3. The higher the level of education, the most likely respondents are to have suggestion to influence the way water is managed: 28% of respondent with A-level provided a VRA (28%). Respondents with a basic education or A-level statistically are more likely to be willing to participate (respectively 66% and 63%). Respondents with no formal education and those with higher degree are less likely to be willing to participate (respectively 57% and 46%). Let us remember ourselves that none of those with a higher degree refused to participate (either they are willing to or they don’t know).
4. The perception of the need to make more effort to manage water more efficiently, positively impact the likelihood to provide a suggestion to influence water management and on the quality of answers: 95% of the respondents that consider it as ‘very urgent’ gave at least a suggestion to Q2, and 32% provided a VRA. They are also more willing to participate in water debate (78%).

Overall, the population sampled in Amman Zarqa Basin, is not indifferent to water management challenges, especially the 26-55 years old. They are willing to participate

Which type of participation for which type of water management challenges?

and they propose solutions to influence water management policy and to reduce household water consumption both quantitatively and qualitatively.

Table 6.13: Summary of Chi square statistical test for Amman Zarqa basin, Jordan

Q1 - Perception of the need to improve water management				
Structural variable	Gender	Age	Education	
X ² probability factor	0.015	0.415	0.144	
No-coincidental relationship	Yes	No, but...	No	
Q2 – Suggestions to influence water management				
	Gender	Age	Education	Perception of urgency
X ² probability factor	0.238	0.049	0.002	0.000
No-coincidental relationship	No	Yes	Yes	Yes
Q2 – Very Rich Answer				
	Gender	Age	Education	Perception of urgency
X ² probability factor	0.396	0.000	0.151	0.004
No-coincidental relationship	No	Yes	No	Yes
Q3 – Suggestions to reduce household water consumption				
	Gender	Age	Education	Perception of urgency
X ² probability factor	0.104	0.200	0.007	0.217
No-coincidental relationship	No	No	Yes	No
Q7 – Willingness be involved in water debates				
	Gender	Age	Education	Perception of urgency
X ² probability factor	0.172	0.062	0.014	0.002
No-coincidental relationship	No	Yes at p=0.9	Yes	Yes

6.4.3 Chekka Bay, Lebanon

6.4.3.1 Perception of the need to improve water management

As mentioned in §6.3.1.1, two third of respondents in Lebanon consider that the need to management water more effectively is ‘very urgent’. This is to say that in fact the sub-samples per descriptors and different level of perception of urgency to improve water management are too small to apply a Chi² test (Appendix D2.1). Therefore no statistical correlation between perception of the urgency and gender or age group or education level, even when aggregating categories was measured (Table 6.14).

However, the percentage of respondents who selected ‘very urgent’ category is the lowest for both the youngest and the oldest age group (56% and 54% respectively, similar to Jordan).

6.4.3.2 Suggestions to influence water management

There is no statistical correlation between whether respondents provided a suggestion to influence the way water resources are managed and either gender, age group, level of education and perception of urgency to improve water management.

However, there is a strong opposition in the perception of urgency to make more effort to improve water management and whether respondents provided at least a suggestion to improve water management. Whether respondents answered ‘very urgent’, ‘urgent’ or even ‘neutral’, they provided substantive answers respectively at 96%, 96% and 100%. On the other hand 39% and 50% of those who answered ‘not urgent’ and ‘not at all urgent’ did not provided any suggestion. This indicates that respondents with a lower perception of the urgency towards water management issues are more likely to give ‘No’ answer (Appendix D2.2).

6.4.3.3 Very Rich Answers to influence water management

No statistical correlation was observed between VRA and either gender, age group, level of education and perception on urgency (Table 6.14).

However, the highest percentage of respondents giving a VRA is amongst the youngest age-group. One might be tempted to think that as far as suggestions to influence water management, the youngest they are the most imaginative or knowledgeable, but they are not the most aware of the urgency as seen in §6.4.3.1. Moreover, the higher the perception of urgency, the more likely respondents are to give a VRA. The proportion of respondents providing VRA increases with the

increasing perception of the urgency to improve water management (Table Appendix D2.3). But the proportion of respondent perceiving urgency as high is the second lowest amongst the young age group! Consequently, there is no straight causality between knowledge (VRA given) and awareness of urgency for the youngest age group in the sample studies for Lebanon.

6.4.3.4 Suggestions to reduce household water consumption

No statistical correlation was observed between whether respondents provided suggestion to reduce household water consumption and age group, level of education and awareness level. However, men are more likely to provide and answer than women (63% and 53% respectively), with a probability of 0.943 (Appendix D2.4, Table 6.14).

6.4.3.5 Willingness to be involved in water debates

There is no statistical correlation between whether respondents are willing to be involved in water debates and gender, age group and awareness of urgency. However, there is a strong statistical correlation ($p > 0.995$) between education level and willingness to participate in water debates. Respondents with higher degree are statistically more likely to be willing to participate than other categories Appendix D2.5).

6.4.3.6 Discussion and synthesis of the results for Chekka bay, Lebanon

Based on these data, there are very few statistical correlations between the descriptors selected and any of the themes studies. One exception was observed: the highest the education, the more respondent are willing to participate. Despite the lack of statistical correlation, one ought to emphasize some noticeable higher proportion amongst the sub-categories of descriptors:

1. Responses from women and men are overall the same for this questionnaire in Chekka Bay. Gender seems to only differentiate the suggestion to reduce household water consumption where men (63%) are more likely to provide a suggestion than women (53%).
2. Age group structure is observed to only impact on the perception of the need to make more effort to manage water more efficiently, with both the youngest and oldest age group less likely to select 'very urgent'.

Which type of participation for which type of water management challenges?

- The perception of the need to make more effort to manage water more efficiently, positively impact the likelihood to provide a suggestion to influence water management and on the quality of answers (VRA).

Table 6.14: Summary of Chi square statistical test for Chekka Bay, Lebanon

Q1 - Perception of the need to improve water management				
Structural variable	Gender	Age	Education	
Chi ² probability factor	0.333	NA	NA	
No-coincidental relationship	No	Low cell count, but...	Low cell count	
Q2 – Suggestions to influence water management				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	NA	0.687	0.558	NA
No-coincidental relationship	No	No	No	Low cell count
Q2 – Very Rich Answers				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.868	0.429	0.558	NA
No-coincidental relationship	No	No	No	Low cell count
Q3 – Suggestions to reduce household water consumption				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.057	0.294	0.911	0.160
No-coincidental relationship	No	No	No	No
Q7 – Willingness to be involved in water debates				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.819	0.245	0.000	0.951
No-coincidental relationship	No	No	Yes	No

6.4.4 Tartous Mohafaza, Syria

6.4.4.1 Perception of the need to improve water management

More than three out of four respondents perceived that the need to make more effort to improve water management efficiency is ‘very urgent’ (Appendix D3.1). A natural consequence is that cell count is low in other categories, and a Chi-square test is not applicable with gender, age group and level of education (Table 6.15). However, the highest proportion of people perceiving the need to improve water management as ‘very urgent’ or ‘urgent’ are amongst the mid age-group 26-35 year old (34%) and 36-45 (24%).

6.4.4.2 Suggestions to influence water management

No statistical correlation between whether respondents provided a suggestion to influence water management and gender, age group, level of education and perception of urgency was observed (Appendix D2.2, Table 6.15).

6.4.4.3 Very Rich Answers to influence water management

There is no statistical correlation between whether respondents provided VRA to influence water management and age group or public awareness. However, there is a strong statistical correlation between gender and whether respondents provide a VRA to influence water management ($p > 0.995$; Table 6.15). Women are more likely to provide VRA (24%) than men (7%). With regards to level of education, although a Chi-square test is not applicable (low cell count), one might observe in Appendix D2.3, that the proportion of respondents giving VRA increases with increasing level of education: A-level holders (13%) and higher degree (16%).

6.4.4.4 Suggestions to reduce household consumption

No statistical correlation between whether respondents provide suggestion to reduce household water consumption and gender, age group and level of education was measured (Table 6.15). Due to low cell count a Chi-square test is not applicable with awareness level. However, none of the respondent that perceived the need to manage water more efficiently as ‘not urgent’ or ‘not at all urgent’ provided a VRA. Moreover, 35% and 22% of those who perceive it respectively as ‘very urgent’ and ‘urgent’ gave a suggestion. This indicates that despite the lack of statistical correlation, the higher the awareness level, the greater the percentage to give a suggestion to reduce household water consumption (Appendix D3.4).

6.4.4.5 Willingness to be involved in water debates

There is no statistical correlation between willingness to be involved and gender or age group (Table 6.15). Due to low cell count Chi square with awareness level is not applicable. There a statistical correlation with the level of education ($p=0.9$). The higher the level of education the most likely respondents are to be willing to participate in water debates, bearing in mind that respondents with lower education level, no formal education or basic education, are still willing to participate at 43% and 56% respectively (Appendix D3.5).

6.4.4.6 Discussion and synthesis of the descriptors for Tartous Mohafaza, Syria

The analysis of the potential influence of the socio demographic descriptors on public awareness, knowledge on water management challenges and willingness to participate, highlights that:

1. Gender differentiates the quality of answers only when it comes to suggest ways to influence water management with women being more likely to give VRAs (24%) than men (7%).
2. Age groups are observed to have an impact on the perception of the need to improve water management: the highest percentage of respondents considering that issue is 'urgent' or 'very urgent' is amongst the mid-age groups (26-45 years old).
3. Level of education is the only descriptor that is observed to be likely to structure the type of answer for two themes. The higher the education level the most likely respondents are to provide a VRA, and also the most likely they are to be willing to participate in water debates. Education level is the only descriptor that stand out from this structural analysis.
4. The more urgent the perception to improve water management, the more respondents are likely to provide suggestion to reduce household water consumption.

Which type of participation for which type of water management challenges?

Table 6.15: Summary of Chi square statistical test for Tartous Mohafaza, Syria

Q1 - Perception of the need to improve water management				
Structural variable	Gender		Age	Education
Chi ² probability factor	NA		NA	NA
No-coincidental relationship	Low cell count	Low cell count, but...		Low cell count
Q2 – Suggestions to influence water management				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.681	0.986	0.345	NA
No-coincidental relationship	No	No	No	Low cell count
Q2 – Very Rich Answer				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.000	0.366	NA	NA
No-coincidental relationship	Yes	No	Low cell count, but...	Low cell count
Q3 – Suggestions to reduce household water consumption				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.749	0.996	0.792	NA
No-coincidental relationship	No	No	No	Low cell count, but...
Q7 – Willingness to be involved in water debates				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.229	0.365	0.084	NA
No-coincidental relationship	No	No	Yes	Low cell count

6.4.5 Gökova Bay, Turkey

As mentioned in §6.3.2.2 Turkish respondents provided only one answer to Question 2. This result was interpreted as an indication that the Turkish respondents appear to have individually and spontaneously little awareness of the different causes for poor management and ways to influence it. Consequently, there is no cross tabulations between VRA and socio-demographic descriptors or public awareness. As per other questions, the analysis remains identical to the previous three study areas.

6.4.5.1 Perception of the need to improve water management

There is no statistical correlation between the perception of the urgency to manage water efficiently and gender, age group or level of education (Appendix D4.1, Tables 6.16).

6.4.5.2 Suggestion to influence water management

A weak statistical correlation ($p=0.928$) with the level of education, and a strong one ($p>0.995$) with the perception of the risk and whether respondents provided a suggestion to influence water management were measured but no correlation with gender or age group was observed (Table 6.16). Respondents with a higher level of education are more likely to give an answer. Also, respondents considering the need to improve water management as ‘very urgent’ are more likely to give a suggestion to influence water management (80%) (Appendix D4.2).

6.4.5.3 Suggestions to reduce household water consumption

There is no correlation between whether respondents give a suggestion to reduce household water consumption and gender or age group. However, weak statistical correlations with the level of education ($p=0.938$) and with the perception of urgency ($p=0.904$) were measured (Table 6.16). The higher the level of education the more likely respondents are to give an answer. The highest percentage of respondents giving a suggestion are those who selected the neutral point on the Likert response format provided (Appendix D4.3). The interpretation of this statistical correlation is difficult because one can not say that the more urgent the need for improvement is perceived, the more likely respondents are to give a suggestion. This simply indicates that respondents that perceive the risk as either ‘urgent’ or ‘not urgent’ are nevertheless able to give a suggestion to reduce household water consumption. There is no straight causality between public awareness and knowledge to reduce household

water consumption and awareness to change water management ...they know but they don't care.

6.4.5.4 Willingness to be involved in water debates

No statistical correlation between respondent willingness to participate and gender or age group was observed. However, there are two strong statistical correlation ($p > 0.995$) with level of education and with the perception of urgency (Table 6.16); the higher the education level the most likely respondents are to be willing to participate in water debates. The more urgent the perception of the need to improve water management is, the most likely respondents are to be willing to participate in water debate (Appendix D4.4).

6.4.5.5 Discussion and synthesis of the descriptors for Gökova bay, Turkey

The analysis of the potential influence of the socio demographic descriptors on public awareness, knowledge on water management challenges and willingness to participate, highlights that:

1. There is no statistical recurrent distinction in trends based on gender or on age group.
2. The higher the level of education, the more respondents are likely to give an answer to influence the way water is managed, to reduce household water consumption, and the more there are willing to be involved in water debates.
3. The highest the perception of urgency to make more effort to manage water more efficiently, the more likely they are to give an answer to influence the way water is managed, to reduce household water consumption, and the more there are willing to be involved in water debates.

4. Education level and perception of the risk stand out from this structural analysis. However these two descriptors are not statistically correlated.

Overall only 47% of the population sampled in Gökova bay perceive the need to improve water management as either 'very urgent' or 'urgent', regardless of gender, age or level of education. However, Level of education and perception of urgency are identified as characteristics structuring the quality of answer for suggestion to influence water management, to reduce household water consumption, and willingness to be involved in water debates.

Which type of participation for which type of water management challenges?

Table 6.16: Summary of Chi square statistical test for Gökova Bay, Turkey

Q1 - Perception of the need to improve water management				
Structural variable	Gender	Age	Education	
Chi ² probability factor	0.897	0.371	0.316	
No-coincidental relationship	No	No	No	
Q2 – Suggestions to influence water management				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.542	0.273	0.072	0.000
No-coincidental relationship	No	No	Yes	Yes
Q3 – Suggestions to reduce household water consumption				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.300	0.392	0.062	0.096
No-coincidental relationship	No	No	Yes	Yes
Q7 – Would you like to have the opportunity to be involved in discussion...				
	Gender	Age	Education	Perception of urgency
Chi ² probability factor	0.183	0.403	0.000	0.000
No-coincidental relationship	No	No	Yes	Yes

6.5 Secondary Discussions: views from the public

The discussion drawn from the results of the medium scale survey is organised 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 the societal descriptors selected (summarised in Table 6.17). The final part of the discussion contributes to enrich the premise of the theory presented in Chapter V.

6.5.1 Public understanding of water management challenges

Public awareness and quality of knowledge

More than two third of the population sampled in Lebanon and Syria consider the need to management water more efficiently as 'very urgent' while in the Jordanian and the Turkish study areas, perception is much more balanced between high and low urgency level. The perception for the need to improve water management might be similar in Jordan and in Turkey but the actual quality and quantity of answers informing on public knowledge have little in common. There is *a priori* no straight correspondence between the perception for 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 main suggestion to improve water management is actually a lack of suggestion and an apparent satisfaction with current water management: 'no suggestion' (51%) while in Jordan not only that more than three quarters of the respondents gave a substantive answers, but one in four gave a VRA. 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 the study area in Turkey that is water rich and where the population does appear to have a moderate interest and quality of knowledge in WMCs. Lebanese and Syrian respondents are aware of the need to management water efficiently and also provide very rich answers indicating an acute concern about the situation and a good knowledge of the diversity of water management challenges.

What about water management can be improved?

The Jordanian respondents are solutions focused, wishing to increase water supply and to improve water quality by means associated to planning and managerial issues,

tackling physical scarcity and organisational and managerial scarcity. Suggestions concerning behavioural scarcity and scarcity of accountability are of similar weight. Their suggestions are not focused on agriculture nor on coercive measures as if irrigation practices were considered as water efficient and as if laws were generally implemented, fines issued, water meters installed and working. Means to reduce household water consumption include technical, behavioural and coercive measures, indicating a comprehensive global understanding of the diversity of means required to tackle water scarcity.

The Lebanese respondents focused on the need to renew or to rebuild infrastructure (treatment works and networks) as a mean to improve water quality and to increase supply. They also strongly suggested changing current management practices to make managers accountable for their actions addressing what was identified in Chapter V as scarcity of organisational capacity and of accountability. In order to reduce household water consumption, they mainly suggest behavioural changes as if the population were submissive to the idea that technical and coercive measures were not implementable over there.

The Syrian respondents focused first on 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 campaign). They also suggest to renew the infrastructure and change current management addressing scarcity of organisational capacity and of accountability.

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

It is interesting to notice that the proportion of people providing a suggestion to address WMCs and to reduce household water consumption increases as the TARWR per capita decreases. The public is overall more concerned and knowledgeable in water management in Jordan, Lebanon, and Syria than in the water rich Turkish study area. Jordanian respondents support all water saving measures and all incentives.

6.5.2 Attitude to public participation

There is no formal experience with PP in the four study area. However, two third of respondents are willing to participate for the Jordanian and the Syrian study area but only 37% and 27% respectively in Lebanon and Turkey are willing to. The willingness to participate does no appear to be associated to the countries with the longest experience of democracy but rather to a combination of water stress and political stability.

In all study areas respondents favour direct type of involvement (direct participation in public debates). The second favoured choice emphasises some difference in type of involvement, was 'to give my opinion on suggested options' for Jordan and Syria. Lebanese respondents favoured to 'vote on option', while Turkish (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'. Let us notice that two of the three preferred reasons imply a two-way communication process. These results reinforced earlier work conducted in Europe and Northern America highlighting the importance for interactive communication between competent authorities organising participative activities and participants (English *et al.*, 1993; Glass, 1979; Mostert *et al.*, 2007; Pahl-Wostl, 2002; Pahl-Wostl *et al.*, 2007; Ridder *et al.*, 2005; Rowe & Frewer, 2004, 2005).

Even more surprising is that the least favoured reason to be involved in a public debate over 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 choice. 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 pursue of power over the decision nor to 'define a common solution' or 'resolve conflict'. These results are similar to results from the initial stakeholder questionnaire (Chapter V).

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 hence benefits from a focus other than power over decisions (the output), and must take into consideration how power is exercised to communicate, to be informed, to give an opinion i.e. power in relation to define problems and solutions.

6.5.3 Structuration of the society: Do gender, age and level of education influence attitude to PP and how?

There is no statistical recurrent distinction in trends based on gender or age group. Responses from women and men are overall of 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 ground 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 is observed to be slightly higher amongst mid-age group (26-45 year old) than amongst the youngest and the oldest respondents. Hence, these evidences can not validate the idea that the youngest generations are more likely to be receptive to behavioural change to tackle water scarcity as identified through the scoping interviews. However, respondents in the four study areas favour awareness campaign and children 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 lower education level can be very knowledgeable and willing to participate in Jordan and in Lebanon, the two countries with the lowest TARWR.

A positive perception of the need to improve water management is clearly correlated to the quantity and quality of answers to either improve water management in general or to improve personal water consumption habits and also to the willingness to be involved in water debates. The next questions are then ‘how to raise public awareness? And how to organise them?’ Figure 6.17 below summarises the findings of the medium scale survey.

Which type of participation for which type of water management challenges?

Table 6.17. Summary and synthesis of results from the survey

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	93%	96%	91%	49%
		Type	Increase supply, improve quality, WTW,	WTW, increase supply & improve quality, Politics	Sustainable use, education, technical & planning	Management & politics
		VRA	24%	24%	13%	0%
	Suggestion to reduce household consumption	Suggestion	76%	58%	32%	17%
Nature of measures		Coercive, Technical, Behavioural	Behavioural	Behavioural, Coercive, Technical	Behavioural, Technical, Coercive	
Responses to water policy mechanisms	Incentives to make more effort to save water	All: Financial, Societal, environmental	Environmental, Agriculture	Societal (for news houses), Financial	Financial, Societal (for new houses)	
	Support to saving water measures	Decrease water for agriculture, fines, reduce domestic water demand	Fines, decrease water for agriculture	Fines	Decrease water demand, fines, decrease water for agriculture	
Attitudes to public participation	Experience & familiarity	Very limited				
	Willingness to be involved	64%	37%	65%	27%	
	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 view, give my opinion	Give my opinion, receive information	
Synthesis	Causes for water scarcity	Physical scarcity and technical issues, scarcity of accountability & governance, Behavioural	Scarcity of organisation capacity, accountability & governance issue	Sustainable use, education, technical & planning	Scarcity of organisation capacity, accountability & governance issue	
	Population's understandings 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	

6.5.4 Premise of a theory – bottom-up insights on water scarcity and PP

On public understanding of water management

As identified during the scoping interview a main hurdle to implement PP in IWM, was that the public was stigmatised as uneducated, with low concern and limited understanding of water management. On the contrary, the above evidences, demonstrate that the public is rather interested, knowledgeable and aware that water scarcity must be addressed at institutional and individual levels. The proportion of them increases as the TARWR decreases. In the country with the lowest TAWRA, Jordan, the population has the most comprehensive understanding of causes for poor water management. Their suggestions to improve water management address the four type of water scarcity identified in Chapter V: physical water scarcity, scarcity of accountability (governance issues), scarcity of organisational capacity (managerial and planning issues) and behavioural scarcity. In Gökova bay, a water rich catchment, interest, holistic knowledge and awareness are the lowest.

With regards to the perception of the urgency to improve the way water is managed, a nuance must be raised. These results highlight in fact that relationships between public awareness - knowledge of water management issues and socio-demographic descriptors, especially with the level of education are intransitive. By intransitivity, I understand that if the sub-sample A and B are disjoint, and that B is significantly different from C, then there is no direct cause for A and C to be disjoint- the relationship is intransitive. In the case of perception of urgency, level of education and individual knowledge on water related issues, there is no straight correspondence between all three but in pairs; relationship between these elements is intransitive. A low awareness level is not necessarily associated to low knowledge, or to low education level. However, a strong concern for water management challenges is positively associated to the quality of answers and willingness to participate. As observed for example in Jordan (§6.4.3.3) respondents with low level of education can be very knowledgeable about water management challenges while the perception of the urgency to change water management is relatively balanced (in terms of similar percentage) between ‘urgent’ and ‘not urgent’.

Awareness level and quality of understanding is comparable in the Lebanese and in the Syrian study area where TARWR is also comparable.

On public attitude towards participation in water management

Currently, participation is unsurprisingly very limited in the Levant (as it still is in Europe), but the populations studied appear to be willing to be involved to exchange views, to receive information and to comments on future plans. Respondents are willing to participate themselves even amongst those with low level of education and even in country where democracy has not yet flourished such as Syria. However, the least of their motivations are to resolve conflict, to define a common solution and to pursue power over decision making process. These evidence challenges normative justification of participation from academics and experts based on empowerment (ADB, 2003; Beierle & Cayford, 2002; Deleon, 1995; Dorsey *et al.*, 1994; Eidsvik, 1979; Fishhoff, 1998; Kessler, 2004; NOAA, 2000; Parenteau, 1988; Pretty & Shah, 1994; Ridder *et al.*, 2005; UNDP, 1997; Wilcox, 1994). The prime objective of PP is not to have power over a decision, but to have power to communicate and to exchange personal understanding of the situation one lives. Public participation is not about power over the decision making process but power to take part, to be listened to, 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 people experience.

6.5.5 Openings

The thematic links between the familiarisation phase (scoping interviews and initial stakeholder questionnaires), the quantification phase (medium scale survey) and the prioritisation phase (decision-influencer interviews and questionnaires reported in Chapter VII) are presented in Figure 6.11 at the end of the openings.

On water management challenges

From the suggestions to improve water management and to reduce household water consumption and in the light on the issues raised in recent state of the art reports (GWP, 2004; UNDP, 2006; UNESCO, 2002, 2003; 2006; World Bank, 2007), I will next submit local and national decision-influencers with a list of water challenges to be tackled and prioritised.

During the familiarisation phase, the hurdles to the implementation of PP in IWM were identified as the scale and the level of management, the responsibility of water management, the role of international institutions and finally the culture of decision making process. The list of water management challenges need to be questioned in

terms of appropriate perceived scale and level of management and type of actors to be involved.

The questions are now:

- Do you consider the following water management challenges to be of national regional or local interest?
- Which of the following actors must be involved for any given WMC?

On appropriateness of types of participation

From the insight gained on the objective of participation and the mode of involvement, a new panel of type of participation will be submitted to decision-influencers with the objective to identify whether some forms of participation are perceived to be more appropriate to specific water management challenges: Which type of PP for which type of water management challenges?

On the readiness of the CA and stakeholders to open the public sphere

Two other hurdles to the implementation of PP in IWM were on the one hand the fact that the public appears to be unorganised and consequently difficult to gather or to access especially on a large scale and on the other hand that the ‘centralised’ and ‘autocratic’ culture of decision making process prevent effective communication even within institutions (§5.2.4). The final fieldwork activity will investigate the actual and desirable role of the competent agency in order to foster participation and ultimately to open the public sphere to water management. The final set of questions is then:

- What is the current and desirable role of the CA?
- What are the preferred strategies to open the public sphere, to raise public awareness and ultimately to organise the interested public?

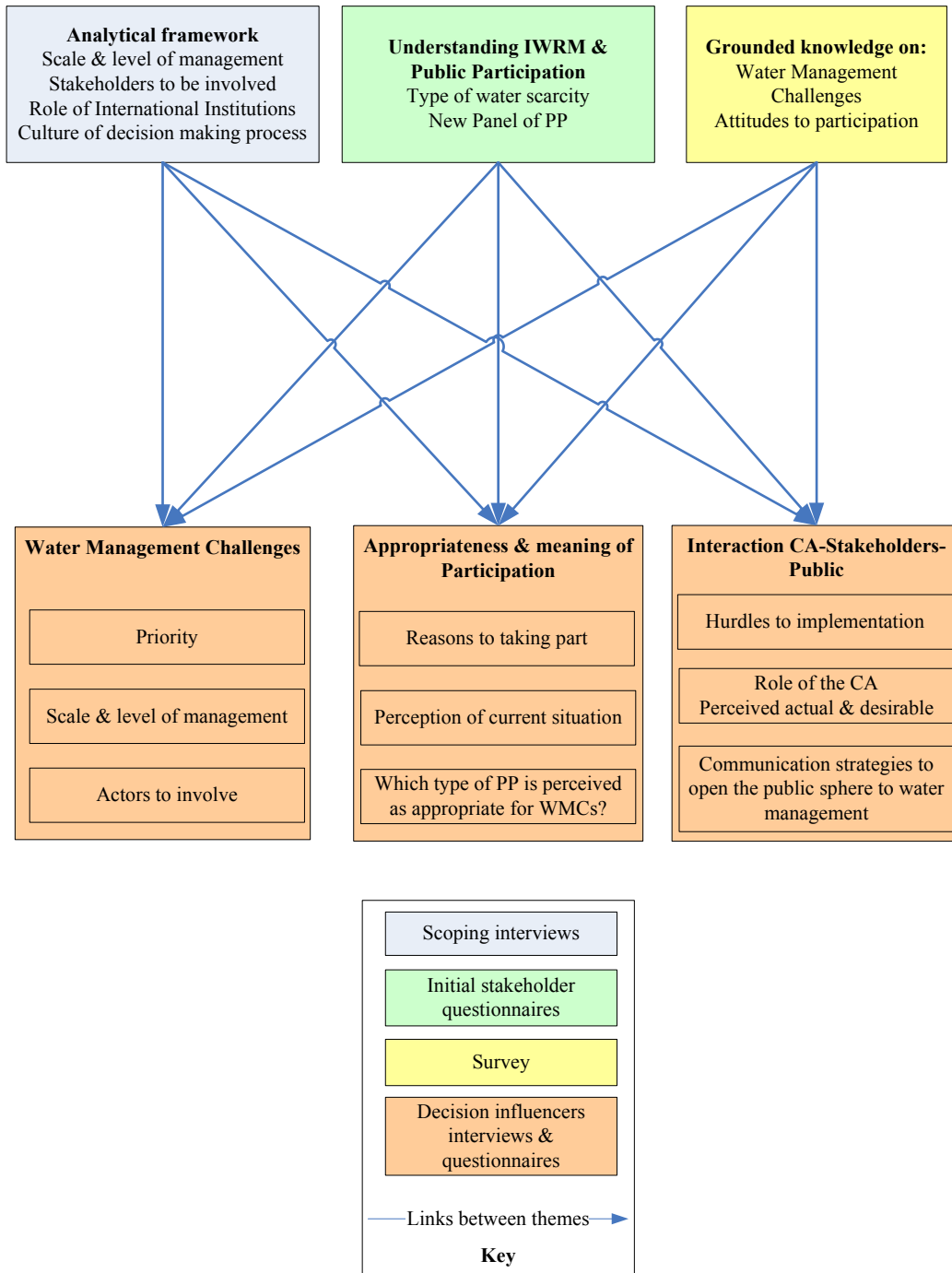


Figure 6.11: Thematic transitions between the familiarisation, the quantification and the prioritisation phase.

Chapter VII

7 Water management challenges, priorities and the exercise of public participation: views from decision-influencers

7.1 Introduction

The final fieldwork activity aims to submit decision-makers and key stakeholders (thereafter called decision-influencers) with a grounded list of WMCs and a panel of types of participation to identify which one would be perceived as appropriate for specific WMCs and attempt to explore hurdles for implementation. Data are elicited through questionnaire and interview.

The themes of the interview and of the questionnaire are:

- Water Management Challenges: their priorities, scale and level of interest, nature of stakeholders;
- Stakeholder's participation: perception of the current situation, which type of participation is perceived as appropriate for the given WMCs (how participation is and should be exercised);
- The role of the competent authority, the hurdles to initiate participation and the communication strategy to involve the wider public in integrated water management.

This Chapter is organised into three parts. Firstly, I present the questionnaire and the interview, I justify their use and design and how they are used together. The second part details the targets and the steps taken to ensure quality control of the qualitative study and its interpretation. Results are presented in the third part that includes initial discussions.

7.2 Presentation of interview and questionnaire

7.2.1 Justification for using interviews and questionnaires

Data were collected via two media designed with identical content for the specific aspects reported here but of different form: the final stakeholder questionnaire and the final decision-influencer interview. The choice to use two supporting material to collect data is first based on the methodological rigor and second on practical experience.

The first methodological justification is to return to experts and key stakeholders (local and regional) that were met during the inductive phase of this reflective thesis in order to collect opinions from the same individuals. While this was not always possible for practical reasons, stakeholders from the same organisation with similar responsibilities, hence with similar stakes and experience in both water management and participation, were met. This justification obviously does not apply in Lebanon since the first workshop was a fiasco. The second methodological justification is to enrich this research with opinions and perceptions from other stakeholders that were identified during the scoping interviews (Chapter V). Indeed, the role of international institutions such as the European Union, the UNDP, international aid agencies in promoting users' participation and also in funding water projects and advising on water policy, was identified as crucial to better understand which type of participation is or could be implemented at which scale and for which type of water management challenges (§5.2).

The practical justification for using interviews and questionnaires is that in order to reach relevant decision makers or influencers, face to face meeting is more suitable to adapt to time and professional constraints of targeted individuals. However, it would have been unrealistic to also conduct interviews with all stakeholders met during the second workshop. Consequently, all targeted stakeholders could not have been interviewed and all of them could not have attended the workshop where the questionnaire was presented.

A questionnaire was also considered to be the most effective method to collect data from the targeted audience given time and financial constraints, while interviews were considered as the most effective method to meet strategic and busy decision-influencers. From these methodological and practical constraints, follows the design of field activities suitable to grasp similar data while being different in nature.

The next concern is to collect data that are comparable and obviously to design questions that elicit answers that can be aggregated for the analysis. Carifio and Perla support the view "*there is little if any (conceptual) difference between having an open-ended question that some one responds to in writing or in an interview in some kind of recorded fashion that one codes with a protocol that has scalar properties built into it[...]*" (2007, p.113). Consequently one can use either interviews or questionnaires to collect the identical type of data based on open questions. The aim of this activities being to prioritise WMCs and to identify the appropriateness of type

of participation, respondents were presented with ranking-format questions and with two-entry tables to indicate preferences (details are presented in §7.2.2). Identical response-format questions are included in both questionnaire and interviews. The questionnaire and the interview are not exactly identical, but for the purpose on this research I am reporting only questions that are similar in both supporting material.

7.2.2 Presentation of targets

Decisions-makers (or influencers) interviewed and stakeholders that completed the questionnaires are presented in Table 7.1. All interviews and questionnaire were not suitable for a consistent analysis either due to the quality of answer or because some stakeholders were also available to be interviewed and provided additional information on their answers. In order to avoid double count of answers, information elicited from interviews were favoured over questionnaire. Information presented here was elicited from the same framework either in the form of interview or questionnaire. Results are first presented with all answers aggregated (labelled as ‘All’) and then presented by sectors: Central Administration (CA⁴¹), Local Authority (LA), Water Authority (WA), Farming Sector (FS,) Business & Tourism (B&T), University & Research Institute (U&RI) and International Institutions (UNDP, EC, Foreign Aid Agencies). As the geographical, institutional and political context the study area is unique (as presented in Chapter IV) access to institutional actors are not identical. For example, the sectorial analysis in Amman Zarqa Basin did not allow for local authority or for business and tourism to be investigated in this study. Access to International Institutions in Lebanon and Turkey was disappointing, although those interviewed were genuinely of great commitment and very helpful.

⁴¹ Up to now the acronym ‘CA’ was used to refer to the Competent Authority in water management. In this Chapter the same acronym is used for Central Administration that is in the countries studies also the competent authority in river basin management. The central administration, as exposed in Chapter IV do delegate some of the responsibility to regional Water Authority (WA) and to Local Authority (LA) such as municipalities.

Which type of participation for which type of water management challenges?

Table 7.1: Decision-influencers interviews and questionnaires realised and analysed

Amman Zarqa Basin, Jordan, 12th February 2007					
Institutional Interview			Stakeholder Questionnaires		
Actors	Realised	Analysed	Actors	Realised	Analysed
MWI	2	2	MWI	3	1
JVA	2	1	JVA	2	2
UNDP	1	1	MoS	3	3
EC	2	2	MoA	2	2
U&RI	2	1	U&RI	8	7
Agro Business	1	1	GTZ	1	1
			Farming	2	1
Total	11	8		21	17
Total : 25					
Tripoli, Lebanon, 6th February 2007					
Institutional Interviews			Stakeholder questionnaires		
Actors	Realised	Analysed	Actors	Realised	Analysed
MEW	3	2	MEW	5	5
NLWA	1	0	U&RI	6	5
MoA	1	1	Private business	4	4
NGO (Local)	2	2	NGO (Local)	2	1
Foreign Aid	2	2	Municipality	7	6
Total	9	7		24	21
Total : 28					
Tartous, Syria, 23rd January 2007					
Institutional Interviews			Stakeholder Questionnaires		
Actors	Realised	Analysed	Actors	Realised	Analysed
MoI (central)	5	5	MoI (central)	2	1
TASWA	1	1	WRIC	12	11
Tartous Municipality	2	2	TASWA	2	1
UNDP-UNRWA	3	3	MAAR	3	3
EC	2	2	MoT	3	3
Foreign Aid	1	1	U&RI	3	3
Total	14	15		25	21
Total : 36					
Akyaka, Turkey, 18th January 2007					
Institutional Interviews			Stakeholder Questionnaires		
Actors	Realised	Analysed	Actors	Realised	Analysed
MoIA – SPO	2	1	DSI	5	4
MoE	2	2	Governorate	2	2
DSI	1	1	MoC&T	1	1
Governor of Mugla	1	1	MoA	1	1
Municipality of Mugla	3	3	MoE	2	0
UNDP	3	3	Municipalities	3	3
WWF Turkey	1	1	Business	6	5
			NGO	1	1
			U&RI	3	3
Total	13	12		24	20
Total: 32					

7.2.3 Description of interview and questionnaire templates

The interview consisted of 20 items: water management challenges (six items); participation (seven items); practice of participation including role of Central Administration (CA) and communication strategy (seven items). The questionnaire consisted of 18 items: water management challenges (five items); participation (three items); practice of participation including role of CA and communication strategy: (seven items). The questionnaires also included three items related to the workshop itself which are not relevant here hence not presented. The frameworks for the questionnaire and the interview are displayed in Appendix E and F. The actual questions designed to inform sub-themes for each key topic and the response format are presented in Table 7.2.

Which type of participation for which type of water management challenges?

Table 7.2: Questions informing key research topics as reported in the thesis and as found in the interviews and in the questionnaire

Key topics	Sub-theme	Questions as reported in thesis	Response format	In Interview	In questionnaire
Water Management challenges	Priorities	Q1 - Rank the following water related issues according to their priority.	Ranking	QA3	Q3
	Scale - level of management	Q2 - Do you consider the following issues to be of national, regional or local interest?	Select	QA3B	Q4
	Actors to involve	Q3 - Which of these actors must be involved in the listed issues?	Select	QA4	Q5
Practice of participation	Reasons for taking part	Q4 - In your opinion, what are the reasons for taking part in public participation in water related issues?	Rank	QB3	Q8
	Perception of Current practice	Q5 - In your opinion, which of these definitions is most representative of public participation on water management issues in your country currently?	Rank	QB4	Q6
	Appropriateness of type of participation	Q6 - In your opinion, which of the following types of participation would be suitable for the listed water related issues?	Select	QB5	Q7
Interactions CA, Stakeholders, Citizens	Perceived role of CA	Q7 - How do you consider the role of the administration in water management according to the following definitions? What it is – what it should be?	Select	QC3	Q11
	Hurdles for implementation	Q7 – What are the challenges in engaging different stakeholders?	Open question	QD2	Q9
	Communication strategy	Q8 - Which of the following methods do you consider to be the most appropriate way to involve the public in integrated water resources management?	Rank	QD4	Q12

7.2.3.1 Water Management Challenges

The list of water management challenges presented to the stakeholders was based on the classification of suggestions elicited through the survey to influence water management (§6.3.2). The list of WMCs was restricted to eleven suggestions for the prioritisation phase because this ranking exercise was identified in the pilot as being very difficult to implement (Table 7.3). Respondents were required to prioritise each WMCs from first to eleventh rank. The colour code used in Table 7.3 associates each WMC to the type of water scarcity identified in Chapter V (§5.5.1). It is used subsequently to ease the comparison of WMC priorities per category of stakeholder in each study area.

Table 7.3: List of WMCs submitted to prioritisation and typology of water scarcity

Water Management Challenges	Abbreviation
Increase water quantity: dams, reservoirs, canal, new spring	WQt
Improve water quality	WQI
Renew the supply network	RN
Optimise the use of water for irrigation	Irri
Reduce pollution of water courses	P
Building water treatment works waste water treatment works	WTW
Enforce the law: paying water bills- fine for illegal use of water	EL
Water managers accountable for their actions	MA
Adapt current water management and policy	CMP
Awareness campaign for using less water in the house	AC
Involve water users in water debates	IU
Typology of water scarcity and causes of poor management	
Technical issues, lack of asset management: scarcity of physical resources	
Managerial & planning issue (pollution): scarcity of organisational capacity	
Governance issues, poor communication: scarcity of accountability	
Behavioural issues, irresponsible and illegal behaviour: behavioural scarcity	

The list of WMCs that was used to explore the level of perceived appropriated management (Q2), the perceived stakeholders to be involved (Q3) and the perceived appropriate type of participation (Q6) consisted on 13 items (Table 7.4). It was enriched by additional elements as raised in key water reports by the Global Water Partnership and the World Water Report (GWP-TAC 04, 2000, GWP-TAC 10, 2004; UNESCO, 2003, 2007). Wording was adapted to the nature of the question (see Appendix E & F).

Table 7.4: List of WMCs submitted for testing appropriateness of scale of management, actors and participation.(Q2, Q3 and Q6)

Water Management Challenges	Abbreviation
Planning a water or waste water treatment works	WTW
Planning a dam	BD
Planning a small reservoir or canal for irrigation	SR
Renew network (leakage)	RN
Water pricing policy	WPP
Law implementation and water police	EL
Responsibility & accountability for water management	Accountability
Outsourcing (Privatisation)water operation	Privatisation
Evaluation of water services	EWS
Water allocation for agriculture	Agriculture
Awareness campaign for sustainable usage	AC
Recycling water	Recycling
Protecting wetland-parks	Park

7.2.3.2 Panel of type of participation

As highlighted in Chapter V, current typologies of participation are not suitable for IWM because they do not integrate power issues and modes of communication and objectives of involvement related to water management challenges. A new panel of types of participation (Box 7.1) was developed to take into consideration better differentiation of communication (distant and unidirectional or direct and bidirectional) (Eidsvik, 1978; English *et al.*, 1993; CIS, 2003; Rowe & Frewer, 2005) and the objectives of empowerment (Borrini-Feyerabend, 1996; EBDR, 1995; Glass, 1979; Kessler, 2004; Rowe & Frewer, 2004).

Box 7.1: *Typology of public participation*

Informative participation (I) aims at informing interested or affected parties about a decision already made.

Indirect consultative participation (IC) aims at gathering information and opinion of interested or affected parties on a project or a problem that concerns them: make a survey about their reactions/opinion.

Direct consultative participation (ID) aims at gathering information and opinion of interested or affected parties on a project or a problem that concerns them through meetings.

Cooperative participation (C) encourages interested or affected parties to propose solutions and to advise the public administration that is accountable for taking the solution into account or no.

Partnership participation (P): interested or affected parties and public administration agree to share planning and decision-making responsibilities through structures like joint-policy board, planning committees.

Decisional participation (D): interested or affected parties are responsible and accountable for the decision and the management of a project or programme.

7.2.4 Quality control

Those measures for quality control in questionnaire design, implementation and response analysis presented in Chapter VI were followed and adapted for the interview and questionnaire used in this last piece of fieldwork. In brief, both questionnaire and interview were pilot-tested and modified according to comments. They were independently translated into Jordanian Arabic, Lebanese Arabic, Syrian Arabic and Turkish by local researchers and submitted to further quality control. Interviews were conducted in English in Jordan, Syria and Turkey, and both in English and French in Lebanon according to the preferred language of the interviewee. Two interviews were conducted in Arabic in Syria and four in Turkish with the help of a local researcher that ensured simultaneous translation. Interviews were recorded when authorised by the interviewee and notes were also taken. When not in English, responses and comments elicited through the questionnaire were translated back from Arabic or Turkish into English by informed local researchers.

7.2.5 Presentation of results

The strategy for reporting the results is to present results per country in order to construct a global picture of the potential appropriateness of participation in relation to WMCs per category of stakeholder. Detailed explanations as to how results are presented in tables and figures are given for the case of Jordan and do apply for the three other cases.

7.3 Public Participation and Water Management Challenges in Jordan

7.3.1 Organising Water Management Challenges in Jordan

7.3.1.1 Water Management Challenge Priorities

Table 7.5 displays the frequency of rank for each Water Management Challenge (number of times a WMC is ranked 1st, 2nd ... 11th). A simple average of frequency of rank (Excel ‘Average’ built-in formula) was used to compare the relative priority of WMCs.

Table 7.5: Water Management Challenge Priorities – breakdown per priority and aggregated rank for the decision makers and stakeholders met in Jordan

Water Management Challenges	WQt	RN	WQI	EL	CMP	OI	AC	P	WTW	MA	IU
1 st priority	8	1	3	2	5	1	1	2	0	2	1
2 nd priority	2	6	4	0	0	2	4	2	0	2	3
3 rd priority	3	2	3	6	1	1	0	4	2	2	1
4 th priority	3	2	1	2	3	3	2	0	6	1	1
5 th priority	1	4	4	3	3	2	3	1	2	0	2
6 th priority	2	3	1	2	1	5	3	0	1	3	4
7 th priority	0	2	1	2	5	4	4	4	3	0	0
8 th priority	1	1	1	2	1	2	2	2	5	6	2
9 th priority	1	2	2	3	1	1	1	6	3	2	3
10 th priority	1	1	4	2	3	1	2	2	1	5	3
11 th priority	3	1	1	1	2	2	3	2	2	2	5
Rank of average	1	2	3	4	5	6	7	8	9	10	11

Figure 7.1 presents the frequency of ranks for each WMCs. The WMCs are organised on the X axis according to the aggregated rank: WQt is overall ranked first and IU eleventh. The Y axis displays the rank for each WMC. The reader might first appreciate that the axis is inverted for the top priorities to appear at the top of the axis. Second, there is no rank ‘0’ or rank ‘12’ but these figures appear on the axis as part of the built-in setting, alternative presentations of the results were considered as unsatisfactory. The size of the ‘bubbles’ is a function of the frequency of rank (Table 7.5), for example, WQt is ranked eight times as first priority (top of the Y axis) and three times as eleventh priority (bottom of the Y axis). This representation of the data refines the diversity of prioritisation and enables the reader to appreciate how the priorities of WMCs are consensual or scattered.

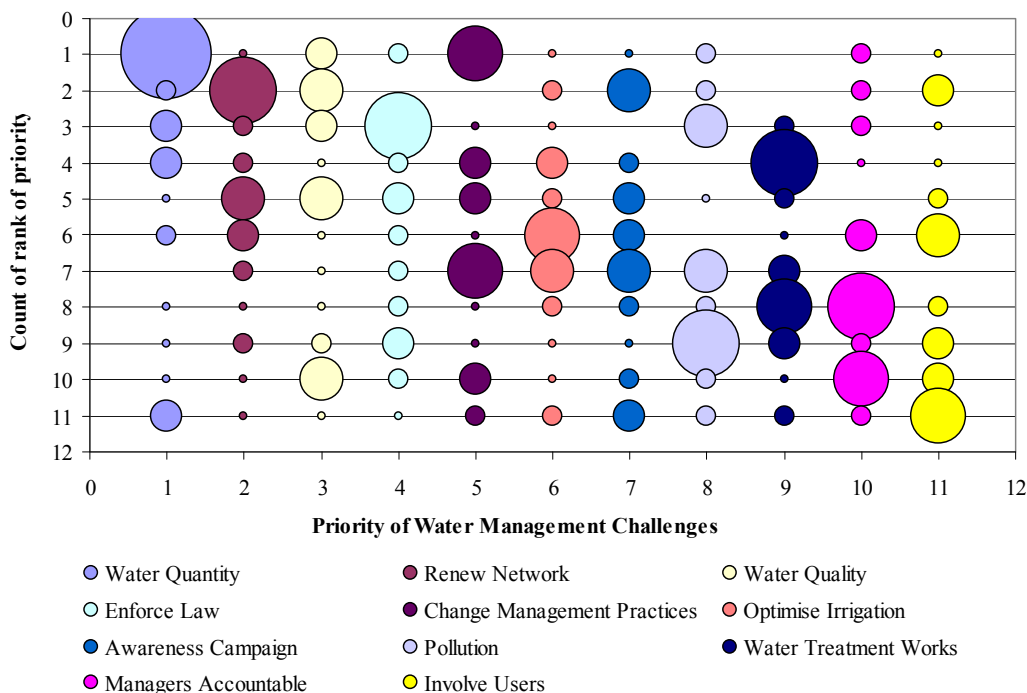


Figure 7.1: WMC Priorities in Jordan

7.3.1.2 Priorities and categories of stakeholders

Table 7.6 details the WMCs’ priorities per categories of stakeholders. The colour code reflects the association between the WMC’s and the classification of water scarcity identified in Chapter V (and used in Chapter VI).

Table 7.6: WMC Priorities per category of stakeholders in Jordan

Priority	All	CA	WA	Farming	U&RI	II
1 st	Water Quantity	EL	WQt	MA	WQt	IU
2 nd	Renewing Network	OI	CMP	RN	WQI	CMP
3 rd	Water Quality	RN	WQI	WQt	RN	AC
4 th	Enforcing Law	CMP	RN	WQI	EL	EL
5 th	Change Management Policy	AC	WTW	OI	AC	P
6 th	Optimise Irrigation	WTW	OI	P	OI	WTW
7 th	Awareness Campaign	WQt	P	AC	P	WQt
8 th	Pollution	IU	AC	EL	IU	RN
9 th	WTW	WQI	IU	WTW	CMP	OI
10 th	Managers Accountable	P	MA	CMP	WTW	WQI
11 th	Involve Users	MA	EL	IU	MA	MA

Overall the top priorities to be addressed tackle all forms of scarcity (physical resource, operational capacity, accountability and behavioural). Similar WMCs are

top priorities for all stakeholders but for International Institutions that emphasised behavioural and accountability WMCs. Awareness campaign is considered as a middle priority, while to involve user the bottom priority for all other stakeholders. These results are similar to those elicited through the social survey and the category of decision-influencers that have the closed understanding of WMCs to be addressed with the public are academics and research institutes.

7.3.1.3 Level and scale of appropriate management for Amman Zarqa Bassin, Jordan

As identified through the scoping interviews (Chapter V), size and scale of the WMC at stake and the responsibility over water resources and services management are two important factors to condition the relevance of PP in IWRM. Therefore, I investigated stakeholders' opinion on the appropriate level and scale of management for the WMCs identified from the survey (Chapter VI). Respondents were asked to indicate whether they considered the WMCs to be of national, regional (governorate) or municipal (local) interest. In order to identify whether some WMCs should be dealt at several territorial levels, respondents were given the choice to select up to three possibilities. Table 7.7 presents the frequency of selected perceived appropriate management and the colour used to ease the reading and interpretation of these results.

Table 7.7: Level and scale of appropriate management for identified WMCs in Jordan (values indicate number of respondents selecting option)

WMCs	National	Regional	Municipal	N & R	N & M	R & M	N & R & M
WTW	6	5	2	2	0	3	6
BD	16	0	0	4	0	0	2
SR	1	6	10	2	0	5	1
RN	6	6	4	2	2	2	3
WPP	19	2	0	0	0	0	3
EL	16	0	0	3	2	0	3
Accountability	11	1	0	3	0	1	6
Privatisation	18	3	0	1	0	1	2
EWS	5	6	2	2	1	4	5
Agriculture	13	3	1	2	1	0	4
AC	7	1	4	2	0	0	10
Recycling	10	1	4	3	2	1	4
Park	4	4	4	1	1	2	9
Colour code key							
bold	Level of management attracting most support						
13 & above	Selected by more than 50% of stakeholders						
6-12	Selected by 25-50% of stakeholders						
5-0	Selected by less than 25% of stakeholders						

Most WMCs are considered to be better managed at national level with some level of multi-territorial management. Building WTW, renewing the supply network, the evaluation of water services, awareness campaign and the management natural park are those challenges that are perceived to require multi-territorial level of management. These results indicate that:

- Strong agreement about the perception of centralised management for large technical infrastructure, water pricing policy, law enforcement, privatisation and water allocation for agriculture.
- Responsibility for water management, evaluation of water services, awareness campaign and recycling water are considered to potentially benefits from multi-territorial level of management.

7.3.1.4 Actors to be involved in specific WMC in Jordan

As highlighted in the literature review integrated water management is a complex societal problem characterised by interconnection of systems, uncertainties and interdependence between stakeholders. Uncertainties involved in water management policy are not only restricted to the quantity of technical knowledge but also to the quality of knowledge production that is incomplete by nature and subject to diverging interpretations by a multitude of stakeholders. As such, the construction of the problem might change according to the nature and interests of the affected parties. The interpretation of the scoping interviews highlighted that the nature of the actors that must be involved shape the responsibility for defining the problem and the relevance of stakeholders to involve in PP. Therefore, I investigated which actors are perceived to be involved for each WMCs. Table 7.8 presents the frequency of selected perceived appropriate actors and the colour used to ease the reading and interpretation of these results.

Table 7.8: Type of actors to be involved per WMC, Jordan (values indicate number of respondents selecting option)

WMCs	CA	LA	I&B	Farmers	NGO's	Citizens
WTW	22	20	12	9	10	13
BD	25	10	2	11	11	8
SR	9	18	2	21	7	9
RN	21	19	3	0	3	7
WPP	25	7	7	14	7	18
EL	25	15	7	13	9	15
Accountability	24	22	7	13	10	12
Privatisation	23	17	10	7	6	9
EWS	18	13	7	10	14	17
Agriculture	24	9	1	23	10	6
AC	20	22	11	14	21	19
Recycling	22	17	18	17	16	12
Park	14	22	4	5	21	17
Colour code key						
bold	Actor attracting most support					
13 & above	Selected by more than 50% of respondents					
6-12	Selected by 25-50% of respondents					
0 - 5	Selected by less than 25% of respondents					

Unsurprisingly, these results first suggest that the central administration and water authority are considered as the key actors and must be involved in all WMCs. Furthermore, all type of actors are to be involved with a strong emphasise on farmers, NGOs and citizens. Decision-influencers in Jordan do consider that water users and the public have to be involved in water management especially about the planning of big infrastructure, water pricing policy, enforcing the law, evaluating water services, awareness campaign and the management of Natural Park.

7.3.2 Exercise of Participation in Jordan

7.3.2.1 Reasons for taking part in PP

Targeted decision-influencers were asked to rank the reasons for participating in water debates, according to the reasons identified through the local stakeholder questionnaires and tested through an exploratory medium-scale survey of the wider public (Chapter VI). Table 7.9 presents the aggregated results for all decision-influencers and per category of stakeholders.

Table 7.9: Preferred reasons for participating in water management in Jordan

Rank	All	CA	WA	Farming	U&RI	II
1 st	Exchange Views	Exchange Views	Exchange Views	Exchange Views	Common Solution	Common Solution
2 nd	Common Solution	Receive Information	Receive Information	Common Solution	Exchange Views	Resolve Conflict
3 rd	Listen to opinion	Listen to opinion	Listen to opinion	Share Power	Receive Information	Share Power
4 th	Share Power	Resolve Conflict	Common Solution	Resolve Conflict	Listen to opinion	Exchange Views
5 th	Resolve Conflict	Common Solution	Share Power	Listen to opinion	Share Power	Listen to opinion
6 th	Receive Information	Share Power	Resolve Conflict	Receive Information	Resolve Conflict	Receive Information

Overall participation in water debate is understood as a way to exchange views, to listen to the opinion of other stakeholders with the objective to develop a common solution. Using participation with the objective to avoid or to resolve conflict is not one of the preferred reasons except for the International Institution. The view from the population (§6.3.3) is similar and favours the communicational rationale of participation (exchange views).

7.3.2.2 Perception of current practice of public participation in Jordan

In order to familiarise the targets with the panel of type of PP they were asked to reflect on the current state of PP with regards to water management in their country.

Table 7.10: Perception of current practices of PP in Jordan

Rank	All	CA	WA	Farming	U&RI	II
1 st	DC	DC	DC	I	DC	I
2 nd	IC	IC	IC	IC	IC	DC
3 rd	C	I	C	DC	P	IC
4 th	P	NA	P	C	C	C pilot scale only
5 th	I	NA	I	D	I	P pilot scale only
6 th	D	NA	D	P	D	D pilot scale only

Which type of participation for which type of water management challenges?

Consultation whether direct or indirect is perceived to be the current practice. During the interview two decision-influencers in CA clearly mentioned that ‘cooperative’, ‘partnership’ and ‘decisional participation’ did not take place in Jordan. Additionally, one manager of II expressed that cooperative, partnership and decisional participation were tried at pilot scale only with international funds, but not on water project funded nationally. The origin of fund and management style are confirmed to be important in the type of participation implemented.

7.3.2.3 Perceived appropriate type of participation per WMC in Jordan

Figure 7.2 presents the perceived appropriate type of participation (Y axis) per WMC (X axis). The size of the ‘bubbles’ is a function of the frequency of the selected option, the bigger the ‘bubble’, the more decision-influencers selected this form of participation. The reader might first appreciate that the Y axis is inverted: choice 1 at the bottom of the axis refers to ‘no participation’, choice 1 to 4 (focusing on the communicational dimension of participation) are on the middle of the axis and choice 5 to 7 (focusing on the empowerment dimension) are at the top of the Y axis. Second, there is no choice ‘0’ or ‘8’ but these figures appear on the axis as part of the built-in setting (alternative presentations of the results were considered as unsatisfactory). This representation of the data permits to visualise the extent to which one or several type of participation is/are perceived to be more appropriate than others.

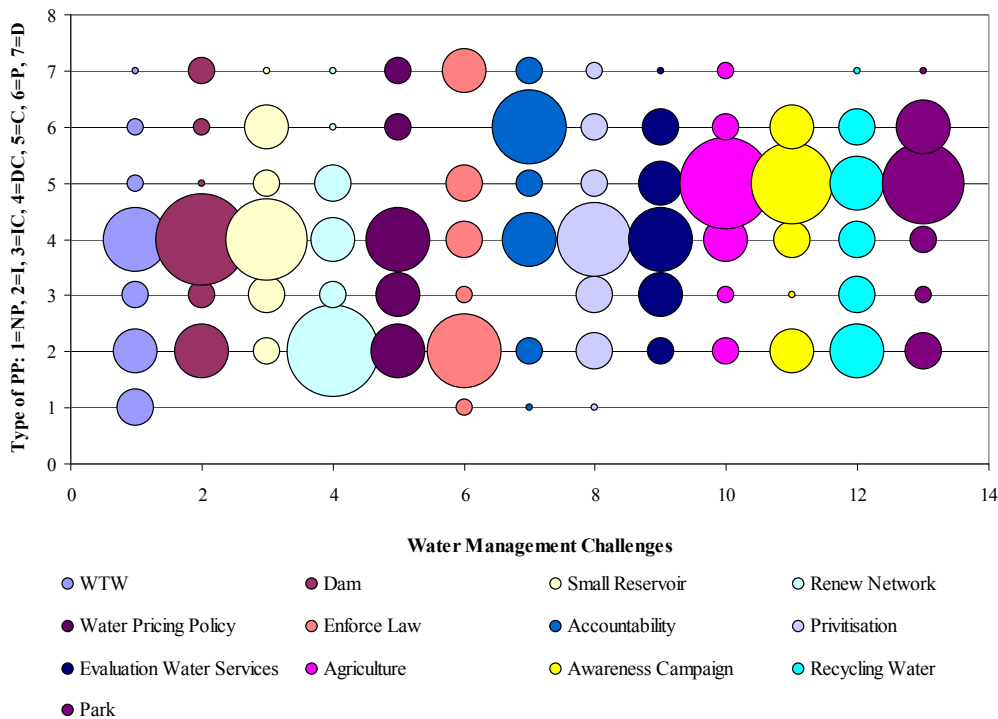


Figure 7.2: Perceived appropriate type of PP⁴² per WMC in Jordan

Not all types of participations are perceived to be appropriate for all WMCs and both ‘no participation’ and ‘decisional participation’ are not perceived as appropriate.

⁴² 1=NP: No Participation, 2=I: Informative Participation, 3=IC: Indirect Consultative Participation, 4=DC: Direct Consultative Participation, 5=C: Cooperative Participation, 6=P: Partnership and 7= D: Decisional Participation.

Public participation is a dynamic process and involves different types of participative modality at different time. One can identified sets of participation working as twosome or threesome for specific WMCs:

- For technical solutions addressing scarcity of the physical resource and water pricing policy: information, indirect then direct consultative participation;
- For the evaluation of water services, law enforcement, responsibility and accountability over water management: informative, direct consultative and partnership participation;
- For water allocation for agriculture, awareness campaign, and the protection of national park: informative and cooperative participation.

For small and local issues, whether they concern water allocation for agriculture, water recycling measures, decision-influencers raised the option to decentralise decision-centres (to municipalities) and to promote direct consultation, partnership and decisional participation. Participation is not about having power, it is rather a process and it takes time. For farmer-union representative, all farmers even those in remote areas need to be involved, because all are concerned with water quality and its availability. They need to be consulted not only for water allocation or for small reservoir or irrigation canals but also for planning of WWTW, recycling measures and awareness campaign.

7.3.3 Interactions Central Administration, Stakeholders, Citizens

7.3.3.1 Roles of the central Administration

As identified in the literature review, during the scoping interviews and through the stakeholder questionnaire, the role of the CA and the culture of decision making process is a strategic element to condition the appropriate type of public participation in IWM.

The proposed panel of role of the CA in Box 7.2, was based on the typologies of Pröpper & Steenbeek (1998, 1999) and enriched to reflect the objective of participation elicited during the familiarisation phase, tested in the quantification phase (the survey) and indentified in the literature (CIS, 2003; English *et al.*, 1993; Glass, 1979).

Box 7.2: Panel of roles of the CA and the culture of decision making

Authoritative Informative: The authority makes a decision and informs the public about it.

Closed Consultative: The authority defines the problem then gathers opinions about this problem and reaction to potential solution through surveys.

Open Consultative: The authority defines the problem then gathers opinions about a problem and reaction to potential solution through direct meetings.

Cooperative & Constructive: The authority organise meeting(s) with all concerned stakeholders to define the problem and potential solution together.

Facilitator & Emancipator: The authority prescribes the limits and within these limits citizens or user associations share decision-making responsibility and implementation.

Figure 7.3, presents the perceived current and desirable role of the CA in water management. The results are presented for all decision-influencers and broken down per category of stakeholders.

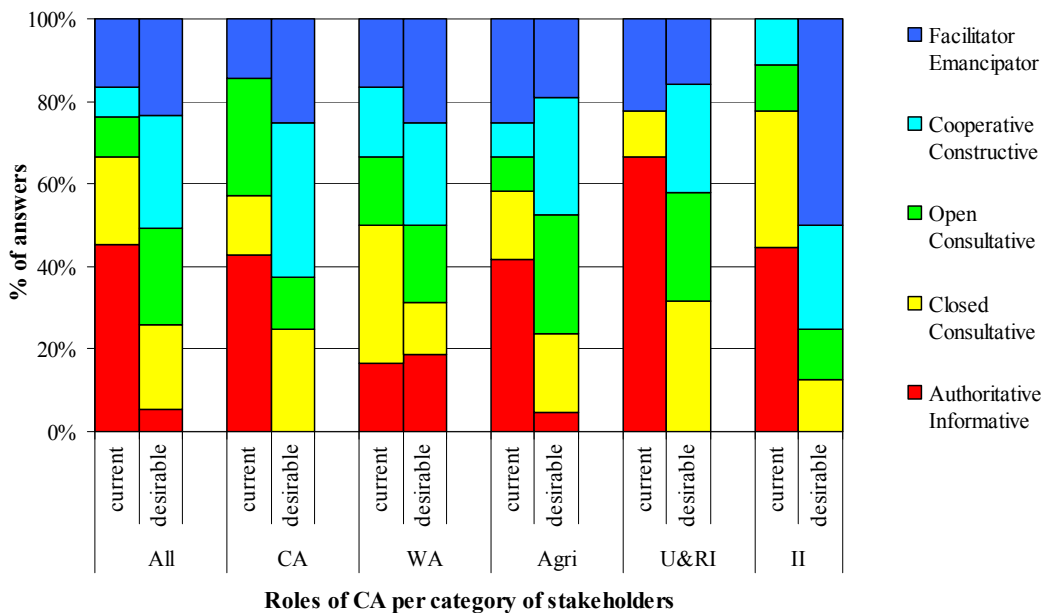


Figure 7.3: Perception of the role of CA by category of stakeholder in Jordan

The perceived current role of the CA is ‘authoritative informative’, or ‘closed consultative’ with limited experience of survey as commented during interviews. The

desirable roles are ‘open consultative’ and ‘cooperative constructive’, with enhanced sense for direct and bidirectional communication. Direct consultation should be facilitated by ‘independent, neutral and impartial parties’ such as foreign aid or consultants. Moreover, the current administration could learn for pilot projects initiated by International Institutions and promoting cooperative & constructive, facilitator & emancipator roles.

7.3.3.2 Hurdles to implementation

The participants explained that the current administration does not encourage PP in policy making due to three interlinked factors:

- Scarcity of governance and of accountability (do not want): autocratic decision and DAD attitude where PP is seen as potentially challenging the existing power structure;
- Scarcity of organisational capacity (can not): lack of experience in PP, lack of team-work;
- Behavioural scarcity and poor communication: (i) lack of horizontal dialogue and cooperation between administrations resulting in poor shared planning; (ii) lack of vertical communication (top-down and bottom-up) and (iii) poor knowledge of who are the interested parties.

Public participation is perceived in Jordan as a problem when it directly challenges existing power structure. As long as one stays out of the existing power structure, PP is perceived as beneficial process to gather stakeholders’ opinion. The performative power of PP is to convince and to influence existing power structures, not to abruptly challenge them. Participation is not about having power; public participation is a process and it takes time. Nevertheless, PP is also very difficult to define as a process and to facilitate due to the lack of team-work culture and capability of institutions, stakeholders and the public. As one decision-influencer expressed it, one cannot teach actors to work together if there is no pressure or needs to do so. The last comment suggests that once stakeholders are represented in bodies or unions then, it might become easier to formally include water user’s opinions in integrated water management policy. But which communication strategies to adopt to both raise public interest and to simultaneously open the public sphere to inclusive water management.

7.3.3.3 *Communication strategy to open the public sphere to water management*

The last sub-theme addressed in this study focus on the preferred communication strategy to involve the public in water management. Respondents were asked to rank the proposed communication options (Table 7.11).

Table 7.11: Ranking of preferred communication strategies in Jordan

Rank	All	CA	WA	Farming	U&RI	II
1 st	TV	TV	TV	TV	TV	TV
2 nd	Local newspaper	Local newspaper	Local newspaper	Local newspaper	Local newspaper	Local newspaper
3 rd	Public exhibition	Leaflet	Public exhibition	Leaflet	Public meeting	Public meeting
4 th	Leaflet	Internet	Public meeting	AWMC	Public exhibition	AWMC
5 th	AWMC	Public exhibition	AWMC	Public exhibition	AWMC	Public exhibition
6 th	Public meeting	Public meeting	Leaflet	Public meeting	Leaflet	Leaflet
7 th	Internet	AWMC	Internet	Internet	Internet	Internet

All categories of stakeholders prefer the use of TV and local newspaper. An important detail concerns the credibility of the media used. In the case of TV, national channels were commented as having low audience and credibility. Satellite TV channels were proposed as alternative. Here again, the impact of the nature of the channels would have to be thoroughly studied.

More interactive forms of communication such as public exhibition and public meeting are also considered as suitable. Setting-up Advisory water management committee is the least preferred option only for the CA.

In conclusion for the Jordanian study area (Table 7.12), the perception of the WMCs priorities according to decision-influencers, especially from U&RI are similar to those from the public and address all identified causes for water scarcity. The CA and the WA are, unsurprisingly, the main actors to be involved; however the decision-influencers highlighted the potential suitability of multi-territorial management and the involvement of a wider range of actors including farmers, NGO's and citizens. Although, current practices of PP are limited to information, other types of participative initiatives (such as cooperative, partnership and decisional participation) are being experienced at pilot scale under the supervision of International Institutions. Types of participation based on open and direct communication aiming to exchange views and to develop a common solution might be appropriate especially for accountability over water management, evaluation of water services, water allocation

for agriculture and awareness campaign, if the CA adopt a role more devoted towards consultation of opinions (through either survey or direct meeting) potentially evolving to a cooperative-constructive role.

Hurdles to initiate PP are of three different origins that are comparable to the causes of water scarcity:

- Scarcity of accountability (do not want): autocratic decision- DAD attitude, PP can challenge existing power structure;
- Scarcity of organisational capacity (can not): lack of experience in PP, lack of team-work;
- Behavioural scarcity and poor communication: (i) lack of horizontal dialogue and cooperation between administrations resulting in poor shared planning; (ii) lack of vertical communication (top-down and bottom-up) and (iii) poor knowledge of who are the interested parties.

Participation is not about having power over a decision, but power to raise one's opinion and to influence decision-makers to become more inclusive. When PP abruptly challenges existing power structure, communication is difficult to engage and decisions remain authoritative.

Which type of participation for which type of water management challenges?

Table 7.12: Summary of understanding of WMC and exercise of participation, in AZB, Jordan

Key topics	Sub-theme	Synthesis	Comments
Water Management Challenges	Priorities	Overall consensus on the priorities of WMC: scarcity physical resource, scarcity of accountability (enforce the law, change management practices, and accountability).	Similar understanding than to the public.
	Scale - level of management	National scale in general with some multi-territorial management for WTW, evaluation of water services, awareness campaign, recycling water.	Potential interconnection
	Actors to involve	Mainly the CA and the WS, all other to a lesser degree: WPP, EL, EWS, AC, Recycling water, Park.	Potential interaction
Practice of Participation	Reasons for taking part	Exchange views, listen to opinion with the intention to build common solution.	Similar understanding than to the sampled population
	Perception of Current practice	Informative, direct and indirect consultation (when it happens). Forms of participation based on empowerment are not applicable, or only at pilot scale on agricultural projects under the financial & managerial responsibility of II.	One way communication
	Appropriateness of type of participation	For technical solutions addressing scarcity of the physical resource and water pricing policy: information, indirect then direct consultative. For the evaluation of water services, law enforcement, responsibility and accountability over water management: informative, direct consultative and partnership participation. For water allocation for agriculture, awareness campaign, and the protection of national park: informative and cooperative participation.	Wide range of type of PP according to context
Interactions CA, Stakeholders, Citizens	Perceived role of CA	General consensus amongst stakeholders: currently authoritative; desirable: closed and open consultative, cooperative constructive	Room to open the public sphere
	Hurdles to implementation	Autocratic decision- DAD attitude, Lack of communication between administration and common/shared planning. Lack of experience, lack of both down-stream & upstream exchange of information and knowledge of who are the interested parties.	Lack of goodwill, Lack of horizontal and vertical communication
	Communication strategy	TV (satellite not state channels), local newspaper, public exhibition and meeting.	Global & local media, direct communication

7.4 Public Participation and Water Management Challenges in Lebanon

7.4.1 Organising Water Management Challenges in Lebanon

7.4.1.1 Water Management Challenge Priorities

One can observe a strong consensus over priorities especially for technical and managerial challenges (Figure 7.4). Ranks of priorities for WMCs related to governance and behavioural scarcity are more scattered, indicating a greater disparity of assessment of priorities for non technical challenges.

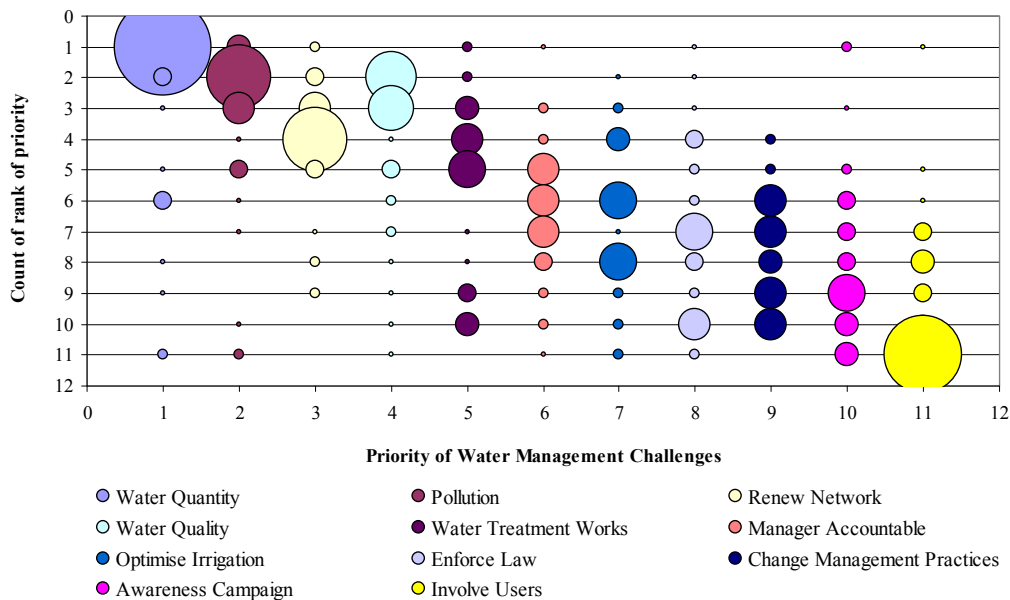


Figure 7.4: WMC Priorities of in Lebanon

Table 7.13: Water Management Challenge priorities – breakdown per priority and aggregated rank for the decision influencers in Lebanon

Water Management Challenges	WQt	P	RN	WQI	WTW	MA	OI	EL	CMP	AC	IU
1 st priority	15	4	2	0	2	1	0	1	0	2	1
2 nd priority	3	10	3	8	2	0	1	1	0	0	0
3 rd priority	1	5	5	7	4	2	2	1	0	1	0
4 th priority	0	1	10	1	5	2	4	3	2	0	0
5 th priority	1	3	3	3	6	5	0	2	2	2	1
6 th priority	3	1	0	2	0	5	6	2	5	3	1
7 th priority	0	1	1	2	1	5	1	6	5	3	3
8 th priority	1	0	2	1	1	3	6	3	4	3	4
9 th priority	1	0	2	1	3	2	2	2	5	6	3
10 th priority	0	1	0	1	4	2	2	5	5	4	3
11 th priority	2	2	0	1	0	1	2	2	0	4	12
Rank of average	1	2	3	4	5	6	7	8	9	10	11

Which type of participation for which type of water management challenges?

7.4.1.2 Priorities and categories of stakeholders

Measures addressing physical water scarcity and scarcity of organisational capacity come first for all types of stakeholders (Table 7.14). Measures addressing scarcity of governance and behavioural scarcity are the lowest priority, noticeably to involve water users.

Table 7.14: WMC Priorities per category of stakeholders in Lebanon

Priority	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	Water Supply	WS	WS	WS	WS	WS	RN	P
2 nd	Pollution	WQ	P	P	WQ	WTW	P	WQ
3 rd	Renewing Network	WTW	RN	RN	OI	P	WQ	AC
4 th	Water Quality	CMP	WTW	WQ	MA	RN	WTW	MA
5 th	WTW	EL	MA	WTW	CMP	WQ	WS	WS
6 th	Manager Accountable	P	WQ	OI	RN	OI	MA	RN
7 th	Optimise Irrigation	OI	OI	EL	IU	AC	EL	EL
8 th	Enforcing Law	MA	CMP	IU	EL	MA	OI	CMP
9 th	Change Management Policy	AC	EL	CMP	P	EL	AC	IU
10 th	Awareness Campaign	RN	AC	MA	WTW	CMP	CMP	OI
11 th	Involve Users	IU	IU	AC	AC	IU	IU	WTW

Results from the survey (§6.3.2) report a slight different understanding of water challenges, focusing first on building WTW, renewing the supply network, rather than on infrastructure to increase the available water supply (dams, reservoirs). The category of decision-influencers that have the closed understanding of WMCs to be addressed in comparison with the public's view, are academics and research institutes.

7.4.1.3 Level and scale of appropriate management

WMCs are understood as being either of central or local responsibility and multi-territorial management is simply not considered (Table 7.15).

Table 7.15: Level and scale of appropriate management for identified WMCs in Lebanon (values indicate number of respondents selecting option)

WMCs	National	Regional	Municipal	N & R	N & M	R & M	N & R & M
WTW	11	4	7	0	2	0	0
BD	19	4	0	1	0	0	0
SR	1	6	16	0	0	0	0
RN	7	5	9	0	2	0	0
WPP	15	5	2	0	0	2	0
EL	11	7	4	0	0	1	0
Accountability	13	4	6	0	0	1	0
Privatisation	19	2	0	0	0	0	0
EWS	8	9	7	0	0	0	0
Agriculture	4	7	12	0	0	1	0
AC	7	6	9	1	1	0	0
Recycling	10	10	4	0	0	0	0
Park	2	6	15	0	1	0	0
Colour code Key							
Bold	Level of management attracting most support						
13 & above	Selected by more than 50% of stakeholders						
6-12	Selected by 25-50% of stakeholders						
0-5	Selected by less than 25% of stakeholders						

7.4.1.4 Actors to be involved in specific water management challenges

There is little consideration for actors other than central and local administration except for the evaluation of water services and awareness campaign that are considered as requiring the involvement of farmers, NGO's and citizens (Table 7.16).

Table 7.16: Type of actors to be involved in the WMC in Lebanon (values indicate number of respondents selecting option)

WMCs	C A	LA	I&B	Farmers	NGO's	Citizens
WTW	23	11	4	1	2	2
BD	24	5	2	4	3	4
SR	3	23	0	13	0	5
RN	17	16	5	2	0	3
WPP	22	13	3	2	2	3
EL	23	12	1	3	0	11
Accountability	21	16	3	4	4	4
Privatisation	21	10	4	3	0	4
EWS	15	11	1	9	6	12
Agriculture	7	13	1	17	2	7
AC	9	15	2	7	11	12
Recycling	16	14	7	3	3	5
Park	10	22	3	2	6	10
Colour code Key						
bold	Actor attracting most support					
13 & above	Selected by more than 50% of respondents					
6-12	Selected by 25-50% of respondents					
0-5	Selected by less than 25% of respondents					

7.4.2 Exercise of Participation in Lebanon

7.4.2.1 Reasons for participating in water debates in Lebanon

Overall participation in the water debate is understood as a way to exchange views, to listen to the opinion of other stakeholders about proposed plans (Table 7.17). Using participation with the objective to avoid or to resolve conflict is not one of the preferred reasons except for the International Institutions (as also observed in Jordan).

Table 7.17: Preferred reasons for participating in water management in Lebanon

Rank	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	Listen to opinion	Receive Information	Listen to opinion	Receive Information	Listen to opinion	Listen to opinion	Exchange Views	Common Solution
2 nd	Exchange Views	Exchange Views	Receive Information	Listen to opinion	Receive Information	Receive Information	Listen to opinion	Exchange Views
3 rd	Receive Information	Resolve Conflict	Exchange Views	Exchange Views	Common Solution	Exchange Views	Resolve Conflict	Resolve Conflict
4 th	Common Solution	Common Solution	Common Solution	Common Solution	Share Power	Common Solution	Common Solution	Listen to opinion
5 th	Resolve Conflict	Listen to opinion	Resolve Conflict	Resolve Conflict	Exchange Views	Resolve Conflict	Receive Information	Share Power
6 th	Share Power	Share Power	Share Power	Share Power	Resolve Conflict	Share Power	Share Power	Receive Information

The view from the population (§6.3.3) is slightly different since it focuses more on receiving information rather than on listening to opinions and exchanging views. Understanding from the Water Authority is the closest to the population's view.

7.4.2.2 Perception of current practice in Lebanon

There is no homogeneity about the perception of the current practices of PP. The central and local administration and II perceived it as informative, water authorities and farmers as cooperative (Table 7.18). Comments from international institutions suggested that providing information to interested people should not be considered as a relevant type of participation for WMCs' and that information is released once decisions are made. Furthermore there appear to be some concerns about the way surveys can be 'manipulated' to influence public opinion and to justify public policy.

Table 7.18: Perception of current practices of public participation in Lebanon

Rank	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	C	I	I	C	C	P	DC	I
2 nd	P	P	DC	IC	P	DC	IC	C
3 rd	DC	IC	C	I	D	C	P	P
4 th	IC	DC	IC	DC	I	D	D	DC
5 th	I	C	P	P	IC	I	C	IC
6 th	D	D	D	D	DC	IC	I	D

7.4.2.3 Perceived appropriate type of participation per WMCs

One can observe a great diversity of perceived appropriate type of participation (Figure 7.5). Giving out information to interested parties is considered as appropriate for most of the WMCs as is ‘partnership’ participation. The latter form of participation implies a different nature of communication and empowerment than the former and between them ‘direct consultative’ participation might be a process to bright the gap from unidirectional and distant communication to shared planning and responsibilities. ‘No participation’ is not considered as appropriate except for water pricing policy, and ‘indirect consultation’ is not attracting much interest except for the evaluation of water services.

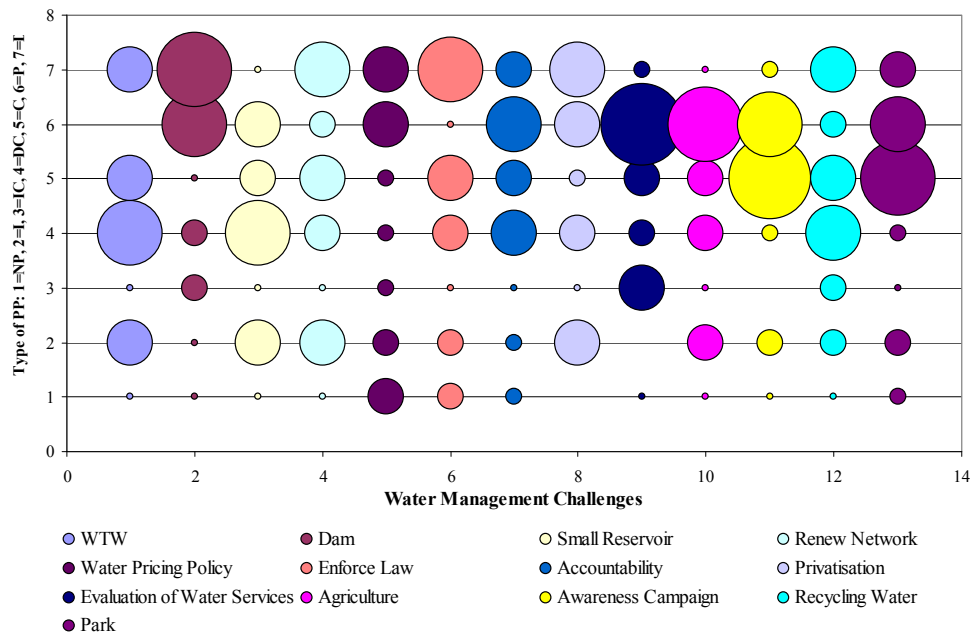


Figure 7.5: Perceived appropriate type of PP⁴³ per WMC in Lebanon

⁴³ 1=NP: No Participation, 2=I: Informative Participation, 3=IC: Indirect Consultative Participation, 4=DC: Direct Consultative Participation, 5=C: Cooperative Participation, 6=P: Partnership and 7= D: Decisional Participation.

7.4.3 Interactions Central Administration, Stakeholders, Citizens

7.4.3.1 Roles of the Central administration

Figure 7.6 presents the perceived current and desirable role of the CA. There is a strong consensus on the current role of the CA as ‘authoritative informative’, which is in contradiction with the perception of the current practices of PP (cooperative and delegating). The desirable roles vary equally from ‘closed authoritative’ to ‘cooperative constructive’.

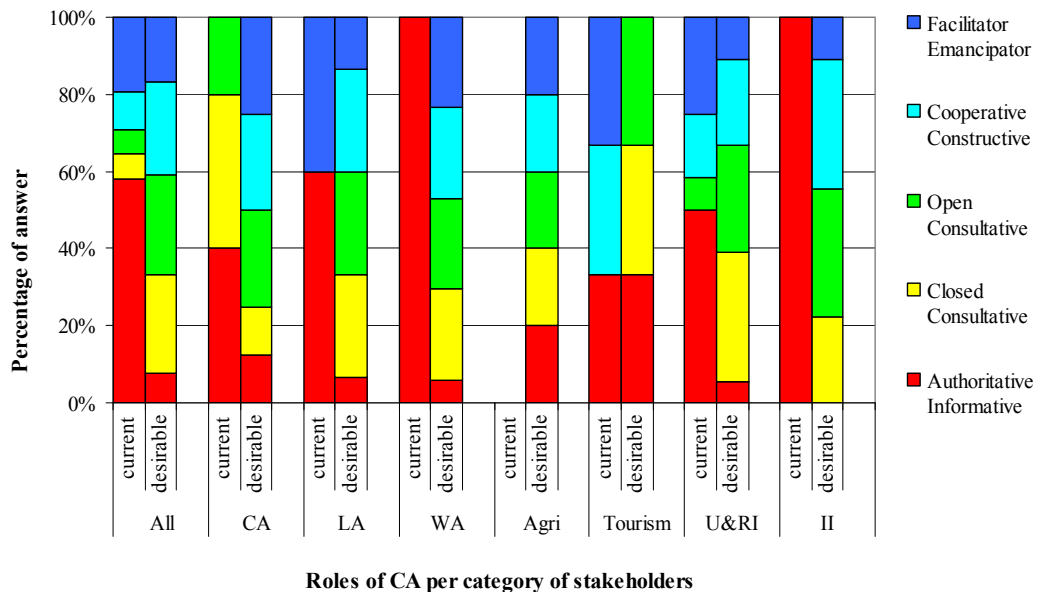


Figure 7.6: Perception of the role of the CA by category of Stakeholder in Lebanon

7.4.3.2 Hurdles to implementation

As identified in Jordan, the decision-influencers in Lebanon explained that the current administration does not encourage PP in policy making due to three interlinked factors:

- Scarcity of governance and of accountability (do not want): autocratic decision and DAD attitude where PP is seen as potentially challenging existing power structure;
- Scarcity of organisational capacity (can not): lack of experience in PP, lack of team-work;
- Behavioural scarcity and poor communication: (i) lack of horizontal dialogue and cooperation between administration resulting in poor shared planning; (ii)

lack of vertical communication (top-down and bottom-up) and (iii) poor knowledge of who are the interested parties.

Additionally, the perceived hurdles to initiate participation in Lebanon focus on the lack of trust between actors. On the one hand, the public administration is seen as corrupted and working for the private interests before the common good. On the other hand, an endemic lack of trust between stakeholders and wounds from the past thirty years prevent them to meet-up. The last aspect raised, is that participation can be ‘highjacked’ by some individuals to gain political visibility, and hence undermine any effort to gather societal actors even to address water scarcity (Wiedemann & Fremers, 1993; Mouffe, 1999; Motion, 2005).

7.4.3.3 Communication strategy to open the public sphere to water management

There is no consensus on the appropriate communication strategy. Most of the decision-influencers prefer the use of TV and local newspaper (Table 7.19). Public meeting is also considered as suitable but public exhibition or advisory water management committee. Once again, results from Lebanese decision-influencers are characterised by a great diversity of opinions and little commonality in preferences.

Table 7.19: Ranking of preferred communication strategies in Lebanon

Rank	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	TV	TV	Local newspaper	TV	Public meeting	Local newspaper	TV	TV
2 nd	Local newspaper	Public meeting	TV	AWMC	Local newspaper	Leaflet	Local newspaper	Public meeting
3 rd	Public meeting	Public exhibition	Public meeting	Internet	AWMC	Public meeting	Leaflet	Local newspaper
4 th	Leaflet	Internet	Leaflet	Local newspaper	Leaflet	TV	Public meeting	Leaflet
5 th	AWMC	Leaflet	Public exhibition	Leaflet	TV	Internet	Internet	Public exhibition
6 th	Internet	Local newspaper	Internet	Public exhibition	Public exhibition	AWMC	Public exhibition	AWMC
7 th	Public exhibition	AWMC	AWMC	Public meeting	Internet	Public exhibition	AWMC	Internet

In conclusion for the Lebanese study area (Table 7.20), the perception of the WMCs priorities according to the Lebanese decision-influencers focuses mainly on addressing scarcity of the physical resource. Awareness campaign and the involvement of users are the lowest priorities. The suggestions from the population are more focused on building WTW and renewing the supply network. The CA and the WA are, unsurprisingly, the main actors to be involved; there is no consideration

for multi-territorial management or for the involvement of a wider range of actors except for EWS, AC and water allocation for agriculture (where citizens and farmers could/should be involved). There is no consensual views on the current practices of participation, central administration and international institutions perceive it as informative, other actors as cooperative (Water Authority and farming sectors) or as direct consultation (Academics). All types of participation seem to be perceived as appropriate for the Lebanese decision-influencers, except 'no participation' and 'indirect consultation'. Suggested appropriate types of participation in Lebanon are 'informative', 'direct consultative', 'partnership' and even 'decisional participation'. There is no clear association between the WMC (or the causes of water scarcity) and the perceived appropriateness of PP in Lebanon. The implementation of participation and the understanding of the type of participation suggested is challenged by the lack of consideration for both multi-territorial management (low interconnection between level/scale of management) and multi-actors dynamic (low interactions between CA, stakeholders and citizens). However, one might consider that gathering decision-influencers and getting them to reflect on the objectives of PP and on the appropriateness of participation for specific WMCs in Lebanon, is an achievement in itself.

In addition to the three type of hurdles to initiate participation identified in the Jordanian study area (scarcity of accountability, of organisational capacity and behavioural scarcity), any efforts to engaged participation in Lebanon are undermined by an endemic and historical lack of trust between actors and the political manipulation participation is subjected to.

Which type of participation for which type of water management challenges?

Table 7. 20: Summary of understanding of WMC and exercise of participation, in Chekka Bay, Lebanon

Key topics	Sub-theme	Synthesis	Comments
Water management challenges	Priorities	Strong consensus amongst actors: top priority: address physical scarcity and management and planning, then scarcity of accountability, and behavioural scarcity.	Consensus on the problem and priority, discrepancy with the public
	Scale - level of management	National or municipal, no multi-territorial management.	Low interconnectivity
	Actors to involve	Central and local administration, little emphasis for other stakeholders except for EWS and awareness campaign	Low interactions
Practice of participation	Reasons for taking part	Receive-give information, exchange views, but to resolve conflict, common solution and sharing power are the least preferred options.	Similar to survey
	Perception of Current practice	No consensus on perception of current practices: for the CA & LA &II: Informative, for others cooperative.	One way communication
	Appropriateness of type of participation	No clear pattern.	Chaotic results
Interactions CA, Stakeholders, Citizens	Perceived role of CA	General consensus amongst stakeholders: currently authoritative; Desirable: closed consultative to cooperative constructive.	Room to open the public sphere
	Hurdles for implementation	Autocratic decision- DAD attitude, Lack of communication between administration and common/shared planning. Lack of experience, Lack of both down-stream & upstream exchange of information and knowledge of who are the interested parties. Lack of trust, intentions and process manipulated for personal political objectives.	Endemic and historical lack of trust between all actors
	Communication strategy	TV, Local newspaper, public meeting.	Global& local media

7.5 Public Participation and Water Management Challenges in Syria

7.5.1 Organising Water Management Challenges in Syria

7.5.1.1 Water Management Challenge Priorities

Priorities are scattered but for WTW and tackling pollution (Figure 7.7). There is apparently little consensual prioritisation of WMCs in Syria, they are considered as high or low by some.

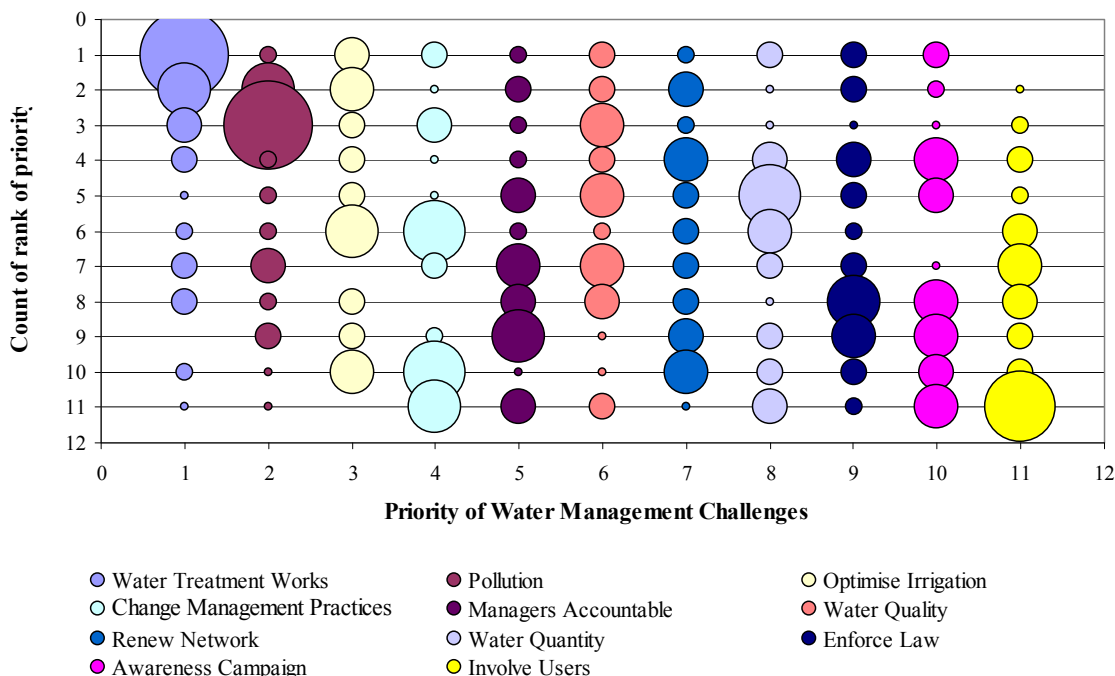


Figure 7.7: WMC Priorities in Syria

Table 7.21: Water Management Challenge Priorities – breakdown per priorities and aggregated rank for the decision–influencers in Syria

Water Management Challenges	WTW	P	OI	CMP	MA	WQI	RN	WQt	EL	AC	IU
1 st priority	10	2	4	3	2	3	2	3	3	3	0
2 nd priority	6	6	5	1	3	3	4	1	3	2	1
3 rd priority	4	10	3	4	2	5	2	1	1	1	2
4 th priority	3	2	3	1	2	3	5	4	4	5	3
5 th priority	1	2	3	1	4	5	3	7	3	4	2
6 th priority	2	2	6	7	2	2	3	5	2	0	4
7 th priority	3	4	0	3	5	5	3	3	3	1	5
8 th priority	3	2	3	0	4	4	3	1	6	5	4
9 th priority	0	3	3	2	6	1	4	3	5	5	3
10 th priority	2	1	5	7	1	1	5	3	3	4	3
11 th priority	1	1	0	6	4	3	1	4	2	5	8
Rank of average	1	2	3	4	5	6	7	8	9	10	11

7.5.1.2 *Priorities and categories of stakeholders*

The breakdown of priorities per category of decision-influencers highlights two general understandings of WMCs. On the one hand, LA, WA, Farming sector and tourism (local decision-influencers close to water users) rank high WMCs addressing scarcity of the physical resource and scarcity of organisational capacity. On the other hand, decision-influencers with a more high level and strategic view of water management (CA, academic & research institutes and International Institutions) rank as top priorities WMC's addressing all forms of scarcity (physical resource, operational capacity, accountability and behavioural). Those two types of prioritisation indicate that decision-influencers with a local mandate or responsibilities focus preferably on technical solutions, while those with a more global vision of water challenges take into consideration all causes of water scarcity.

Table 7.22: WMC Priorities per category of stakeholders in Syria

Priority	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	WTW	EL	WTW	WTW	WQI	P	II	CMP
2 nd	Pollution	II	WQt	P	P	WTW	EL	II
3 rd	Improve Irrigation	P	WQI	WQI	WTW	RN	RN	WTW
4 th	Change Management Policy	WQI	P	WQt	II	II	CMP	RN
5 th	Managers Accountable	AC	RN	MA	AC	AC	WQt	EL
6 th	Water Quality	WTW	II	II	MA	MA	IU	IU
7 th	Renewing Network	RN	MA	AC	RN	WQI	AC	WQt
8 th	Water Quantity	IU	EL	EL	IU	WQt	WTW	AC
9 th	Enforcing Law	MA	IU	RN	EL	EL	WQI	MA
10 th	Awareness Campaign	CMP	AC	CMP	WQt	CMP	MA	P
11 th	Involve Users	WQt	CMP	IU	CMP	IU	P	W QI

Results from the survey (§6.3.2) report a similar understanding of water challenges to the priorities according to the CA, U&RI and II.

7.5.1.3 Level and scale of appropriate management

Most WMCs are considered to be better managed at national level with some level of multi-territorial management (Table 7.23). Building WTW and small reservoir for irrigation, renewing the supply network, accountability over water management, the evaluation of water services, water allocation for agriculture, awareness campaign and the management natural park are those challenges that are perceived to require multi-territorial level of management. These results indicate that:

- Strong agreement about the perception of centralised management for large technical infrastructure, water pricing policy, law enforcement and privatisation;
- Responsibility for water management, evaluation of water services, awareness campaign and recycling water are considered to potentially benefits from multi-territorial level of management.

Similar consideration for multi-territorial management is also observed in Jordan.

Table 7.23: Level and scale of appropriate management for identified WMCs in Syria (values indicate number of respondents selecting option)

WMCs	National	Regional	Municipal	N & R	N & M	R & M	N & R & M
WTW	6	11	4	7	0	3	4
BD	25	2	2	4	0	0	2
SR	3	10	16	0	1	5	0
RN	1	12	11	3	0	6	2
WPP	29	2	0	3	0	0	1
EL	21	1	1	4	1	2	5
Accountability	15	10	0	3	0	2	6
Privatisation	17	5	4	2	0	5	2
EWS	3	13	7	1	1	8	3
Agriculture	12	10	3	5	0	2	3
AC	10	3	5	3	2	3	10
Recycling	9	9	2	6	0	4	6
Park	5	9	9	2	1	7	3
Colour code Key							
Bold	Level of management attracting most support						
17 & above	Selected by more than 50% of stakeholders						
8-16	Selected by 25-50% of stakeholders						
7-0	Selected by less than 25% of stakeholders						

7.5.1.4 Actors to be involved in specific water management challenges

According to the decision-influencers met, the most selected actors to be involved in WMCs are Central and Local administration. The perceived necessity to involve citizens is particularly important for WMC addressing scarcity of governance and accountability and behavioural scarcity (water pricing policy, evaluation of water services, awareness campaign and management of Natural Park). This last aspect is

Which type of participation for which type of water management challenges?

very surprising given the political culture of the country and the overwhelming presence of the Bath party.

Table 7.24: Type of actors to be involved per WMC in Syria (values indicate number of respondents selecting option).

WMCs	C A	LA	I&B	Farmers	NGO's	Citizens
WTW	27	34	16	6	11	5
BD	34	12	2	15	9	8
SR	10	26	2	21	5	11
RN	16	34	7	3	4	8
WPP	30	12	7	14	7	19
EL	35	23	4	6	4	10
Accountability	29	26	11	18	9	16
Privatisation	27	24	11	7	10	10
EWS	18	26	11	15	13	21
Agriculture	18	22	2	27	6	3
AC	23	30	11	16	18	22
Recycling	30	27	18	10	7	9
Park	18	30	5	5	13	26
Colour code Key						
bold	Actor attracting most support					
17 & above	Selected by more than 50% of respondents					
8-16	Selected by 25-50% of respondents					
0-7	Selected by less than 25% of respondents					

7.5.2 Exercise of Participation in Syria

7.5.2.1 Reasons for participating in water debates in Syria

Public participation is first understood as a platform to listen to opinion and to exchange views, then as a mean to receive or to diffuse information about future plan that will be implemented. Initiating participation as a mean to avoid or to resolve conflict is the least preferred reason for all categories of decision-influencers, as if conflict resolution do no concerns the public or stakeholders.

Table 7.25: Preferred reasons for participating in water management in Syria

Rank	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	Exchange Views	Listen to opinion	Share Power	Exchange Views	Receive Information	Receive Information	Exchange Views	Listen to opinion
2 nd	Listen to opinion	Exchange Views	Receive Information	Listen to opinion	Exchange Views	Exchange Views	Receive Information	Common Solution
3 rd	Receive Information	Receive Information	Common Solution	Receive Information	Share Power	Listen to opinion	Listen to opinion	Exchange Views
4 th	Share Power	Common Solution	Listen to opinion	Share Power	Common Solution	Common Solution	Common Solution	Share Power
5 th	Common Solution	Share Power	Exchange Views	Common Solution	Listen to opinion	Share Power	Share Power	Receive Information
6 th	Resolve Conflict	Resolve Conflict	Resolve Conflict	Resolve Conflict	Resolve Conflict	Resolve Conflict	Resolve Conflict	Resolve Conflict

The view from the population (§6.3.3) is similar and favours the communicational rationale of participation (exchange views) over empowerment and conflict resolution.

7.5.2.2 Perception of current practice in Syria

Perceived current practices of participation is direct consultative, and based on partnership. That is also very surprising knowing the openness of the society and its governance as presented by Transparency International (2005), the World Bank Institute (2007) and Worldwide Press Freedom Index (2005). The international institutions perceived participation as informative before all.

Table 7.26: Perception of current practices of PP in Syria

Rank	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	DC	DC	DC	P	P	I	D	I
2 nd	P	P	P	DC	C	IC	I	IC
3 rd	IC	IC	IC	C	D	DC	IC	DC
4 th	C	I	C	IC	IC	C	P	C
5 th	I	C	I	D	DC	D	DC	P
6 th	D	D	D	I	I	P	C	D

7.5.2.3 Perceived appropriate type of participation per WMCs

A wide range of PP appears to be appropriate for all WMCs. However, WMCs addressing scarcity of accountability and governance and behavioural scarcity are perceived to be better managed through type of PP based on empowerment and shared decision (cooperative, partnership and even decisional participation). Those very same WMCs (WPP, EWS, AC) were also understood as requiring some involvement from the public; those two results corroborate the possibility to open the public sphere to participatory water management in Syria.

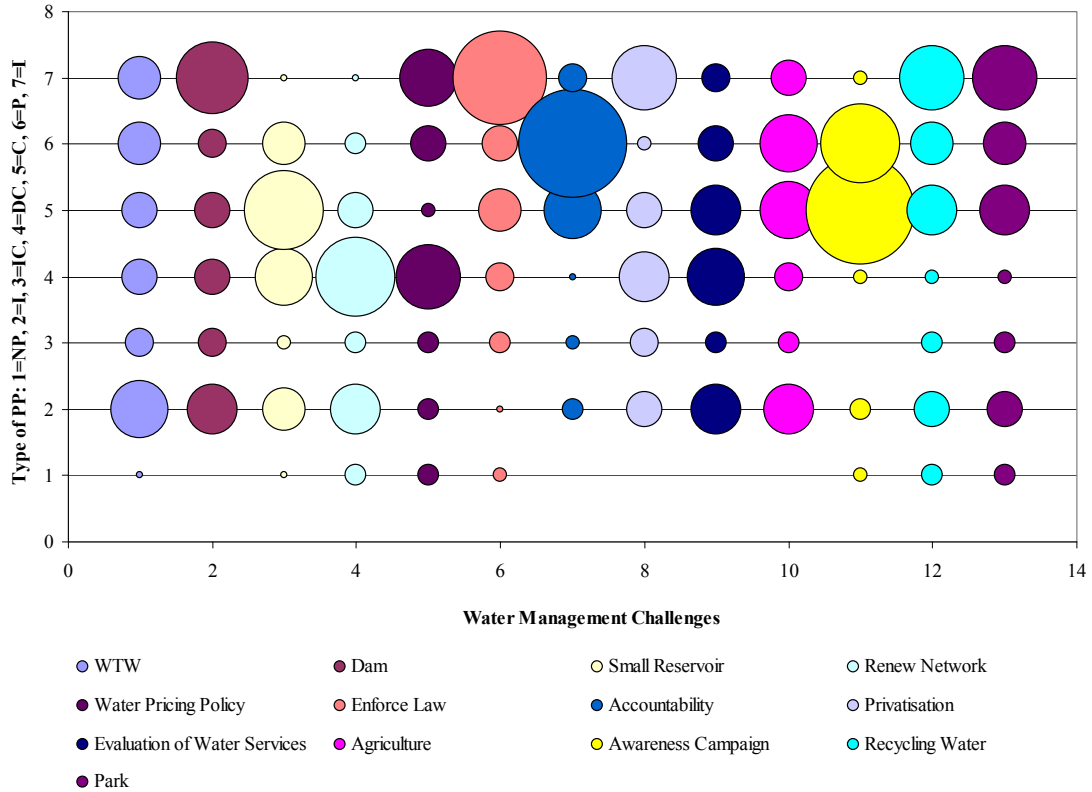


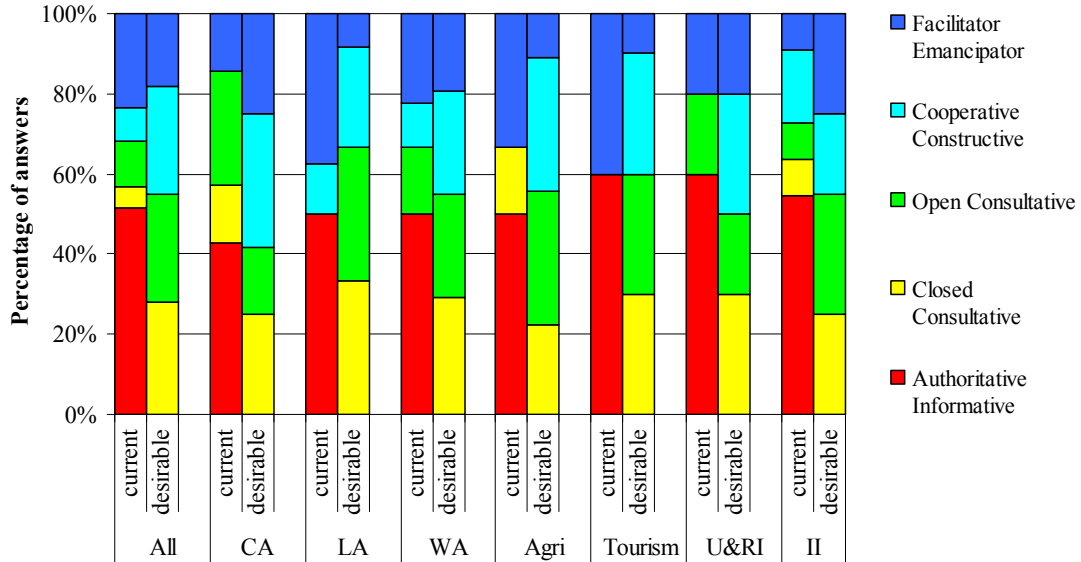
Figure 7.8: Perceived appropriate type of PP⁴⁴ per WMC in Syria

7.5.3 Interaction, Central Authority, Stakeholders, Citizens

7.5.3.1 Roles of the Central Administration

One can observe a strong consensus about the role of the central authority as being ‘authoritative informative’. This is coherent with the perceived external governance style of Syria and as informed by the measures of society openness and governance style (Transparency International, 2005; World Bank Institute, 2007; Worldwide Press Freedom Index, 2005). This role is not considered as desirable by any of the decision-influencers met. They all emphasised a desirable closed and open consultative role for the CA.

⁴⁴ 1=NP: No Participation, 2=I: Informative Participation, 3=IC: Indirect Consultative Participation, 4=DC: Direct Consultative Participation, 5=C: Cooperative Participation, 6=P: Partnership and 7= D: Decisional Participation.



Roles of CA per category of Stakeholder

Figure 7.9: Perception of the role of CA by category of Stakeholder in Syria

7.5.3.2 Hurdles to implementation

Additionally, the perceived hurdles to initiate participation identified in Jordan and in Lebanon, hurdles elicited in Syria highlight the passive role of the public in general that is perceived as having a ‘we need attitude’ instead of a ‘we can do attitude’. Given the current role of the CA, its the reluctance to decentralise and to open communication flow during the decision making process, the role of International Institution (foreign aid, cooperation, NGOs) is perceived by the decision influencers as crucial to initiate participatory pilot projects in Syria.

External initiatives are seen as enabling both communication and cooperation between the several competent authorities and the development of users’ organisational capacity and group thinking at a cost not bared by Syrian institutions.

7.5.3.3 *Communication strategy to open the public sphere to water management*

Most of the decision-influencers prefer the use of TV and local newspaper (Table 7.27). Setting-up Advisory water management committee is also considered as a mean to involve stakeholders in water management especially at local scale (water supply at village or for irrigation scheme) but more inclusive and interactive forms of communication such as public exhibition and public meeting are not yet considered as suitable.

Table 7.27: Ranking of preferred communication strategies in Syria

Rank	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	TV	TV	AWMC	TV	Local newspaper	TV	TV	TV
2 nd	Local newspaper	AWMC	Public exhibition	Local newspaper	Leaflet	Local newspaper	AWMC	Public meeting
3 rd	Leaflet	Local newspaper	Public meeting	Leaflet	TV	Internet	Local newspaper	AWMC
4 th	AWMC	Leaflet	TV	Public exhibition	Public exhibition	Leaflet	Internet	Local newspaper
5 th	Public exhibition	Internet	Leaflet	Public meeting	Internet	Public exhibition	Leaflet	Leaflet
6 th	Public meeting	Public meeting	Internet	AWMC	Public meeting	AWMC	Public exhibition	Public exhibition
7 th	Internet	Public exhibition	Local newspaper	Internet	AWMC	Public meeting	Public meeting	Internet

In conclusion for the Syrian study area (Table 7.28), the perception of the WMCs priorities according to decision-influencers focuses mainly on building water treatment works (and waster water) and on water pollution. The breakdown of priorities per category of decision-influencers highlights two general understandings of WMCs: decision-influencers with a local mandate or responsibilities (LA, WA, Farming) focus preferably on technical solutions, while those (CA, U&RI, II) with a more global vision of water challenges take into consideration all causes of water scarcity. Unsurprisingly, centralised management is perceived as appropriate for large technical infrastructure, water pricing policy, law enforcement and privatisation. More surprising is that evaluation of water services, awareness campaign and recycling water are considered to potentially benefits from multi-territorial level of management and that farmers and citizens are actors to be involved in all WMC’s but about water or wastewater treatment works.

There is no consensual view on the current practices of participation; central administration perceives it as ‘direct consultative’ and ‘partnership’, while

representatives from the tourism sector, university and research institute and International Institutions as 'informative'. All types of participation seem to be perceived as appropriate for the Syrian decision-influencers, except 'no participation' and 'indirect consultation'. Suggested appropriate types of participation in Syria are 'informative', 'direct consultative', 'partnership' and even 'decisional participation'. There is no clear association between the WMC (or the causes of water scarcity) and the perceived appropriateness of PP in Syria. In addition to the three type of hurdles to initiate participation identified in the Jordanian and Lebanese study area (scarcity of accountability, of organisational capacity and behavioural scarcity), any efforts to engaged participation in Syria are undermined by a strong authoritative governance style that is unanimously acknowledged and rejected as a desirable role. The role of International Institutions is perceived as potentially enabling both communication and cooperation between the several competent authorities and the development of users' organisational capacity. One might consider that gathering decision-influencers and getting them to reflect on the objective of PP and governance style for WMCs in Syria, is an achievement in itself.

Which type of participation for which type of water management challenges?

Table 7. 28: Summary of understanding of WMC and exercise of participation, in Tartous Mohafaza, Syria

Key topics	Sub-theme	Synthesis	Comments
Water management challenges	Priorities	Strong consensus for WTW and pollution, for other WCMs: local decision-influencers close to water users rank high WMCs addressing scarcity of the physical resource & scarcity of organisational capacity. Decision-influencers with strategic view of water management (CA, U& RI, II) rank as top priorities WMC's addressing all forms of scarcity.	Local and central priorities, CA, II U&RI have similar views than the public
	Scale - level of management	Strong agreement about the perception of centralised management for large technical infrastructure, water pricing policy, law enforcement and privatisation; Responsibility for water management, evaluation of water services, awareness campaign and recycling water are considered to potentially benefits from multi-territorial level of management.	Perception of some multi-territorial management
	Actors to involve	Central and local administration, strong emphasis for other stakeholders especially citizens.	Potential for interactions
Practice of participation	Reasons for taking part	Receive-give information, exchange views, but resolve conflict, common solution, sharing power rank low.	Similar to the public
	Perception of Current practice	No consensus on perception of current practices: appears to be decisional and partnership, for the CA & LA (in contradiction with external perception of Syrian governance); Informative for II, U&RI and tourism sector	Discrepancy in perception
	Appropriateness of type of participation	No clear pattern: small reservoir, renew the network DC and cooperative, To enforce the law and accountability: partnership and decisional, awareness campaign cooperative and partnership.	Lack of obvious patterns but range of potential forms of P
Interactions CA, Stakeholders, Citizens	Perceived role of CA	All emphasises the authoritative informative role of the CA. The desirable roles includes closed consultative to cooperative constructive, and all reject current governance style as desirable!	Consensus of the inappropriateness of current governance
	Hurdles to implementation	Scarcity of governance and of accountability (do not want); scarcity of organisational capacity (can not); Behavioural scarcity and poor communication. Passive role of the public in general perceived as having a 'we need attitude' instead of a 'we can do attitude'. Current role of the CA, its the reluctance to decentralise and to open communication flow during the decision making process.	Decision-making too central
	Communication strategy	TV, Local newspaper, public meeting with the objective to set-up AWMC	Global & local media, direct communication

7.6 Public participation and water management Challenges in Turkey

7.6.1 Organising Water Management Challenges in Turkey

7.6.1.1 Water Management Challenge Priorities

One can observe a relative consensus over priorities for technical and managerial challenges (Figure 7.10). Ranks of priorities for WMCs related to governance and behavioural scarcity are more scattered, indicating a greater disparity of assessment of priorities for non technical challenges.

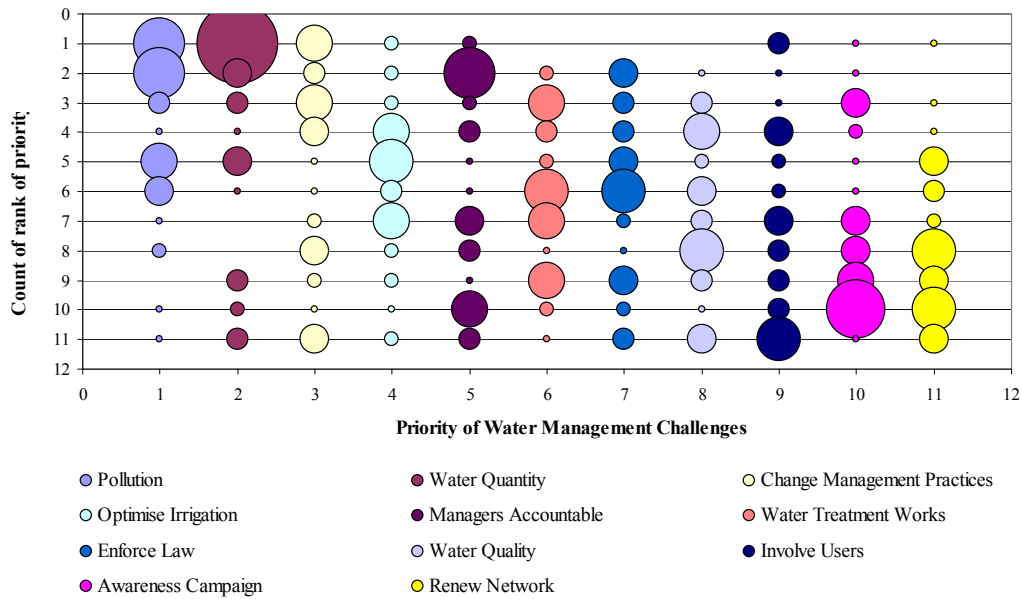


Figure 7.10: WMC Priorities in Turkey

Table 7.29: Priorities of Water Management Challenge – breakdown per priority and aggregated rank for decision-influencers in Turkey

Water Management Challenges	P	WQt	CMP	OI	MA	WTW	EL	WQI	IU	AC	RN
1 st priority	7	11	5	2	2	0	0	0	3	1	1
2 nd priority	7	4	3	2	7	2	4	1	1	1	0
3 rd priority	3	3	5	2	2	5	3	3	1	4	1
4 th priority	1	1	4	5	3	3	3	5	4	2	1
5 th priority	5	4	1	6	1	2	4	2	2	1	4
6 th priority	4	1	1	3	1	6	6	4	2	1	3
7 th priority	1	0	2	5	4	5	2	3	4	4	2
8 th priority	2	0	4	2	3	1	1	6	3	4	6
9 th priority	0	3	2	2	1	5	4	3	3	5	4
10 th priority	1	2	1	1	5	2	2	1	3	8	6
11 th priority	1	3	4	2	3	1	3	4	6	1	4
Rank of average	1	2	3	4	5	6	7	8	9	10	11

7.6.1.2 *Priorities and categories of stakeholders*

Overall the top priorities to be addressed tackle all forms of scarcity (physical resource, operational capacity, accountability and behavioural).

The breakdown of priorities per category of decision-influencers highlights two general understandings of WMCs. On the one hand, LA , WA, Farming sector and tourism (local decision-influencers close to water users) rank high WMCs addressing scarcity of the physical resource and scarcity of organisational capacity. On the other hand, decision-influencers with a more high level and strategic view of water management (CA, University & Research Institutes and International Institutions) rank as top priorities WMC’s addressing all forms of scarcity (physical resource, operational capacity, accountability and behavioural). Those two types of prioritisation indicate that decision-influencers with a local mandate or activity focus preferably on technical solutions, while those with a more global vision of water challenges take into consideration all causes of water scarcity.

These results are similar to those elicited through the social survey and the categories of decision-influencers that have the closed understanding (of WMCs to be addressed) with the view of the public are academics and research institutes and the central administration.

Table 7.30: *WMC Priorities per category of stakeholders in Turkey*

Priority	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	Pollution	WQt	P	WQt	WQt	P	CMP	MA
2 nd	Water Quantity	MA	WQt	P	P	WTW	EL	CMP
3 rd	Change Management Policy	P	CMP	OI	WQI	OI	MA	IU
4 th	Optimise Irrigation	EL	WQI	WQI	OI	WQt	II	II
5 th	Managers Accountable	OI	AC	IU	WTW	EL	RN	AC
6 th	WTW	WQI	IU	CMP	CMP	CMP	WTW	P
7 th	Enforcing Law	WTW	WTW	AC	MA	IU	WQt	EL
8 th	Water Quality	CMP	EL	WTW	RN	AC	IU	WQI
9 th	Involve Users	AC	RN	EL	AC	WQI	P	RN
10 th	Awareness Campaign	IU	MA	MA	IU	MA	WQI	WTW
11 th	Renewing Network	RN	OI	RN	EL	RN	AC	WQt

7.6.1.3 Level and scale of appropriate management

Most WMCs are considered to be better managed at national or municipal level with some strong consideration for multi-territorial management (Table 7.31). Two items only are considered to be better addressed with little multi-territorial management: building dams (national management) and renew the supply network (municipal management). These results indicate that responsibility for water management in general is considered to potentially benefits from multi-territorial level of management. Similar consideration for multi-territorial management is also observed in Jordan and in Syria but to a lesser extent.

Table 7.31: Level and scale of appropriate management for identified WMC in Turkey (values indicate number of respondents selecting option)

WMCs	National	Regional	Municipal	N & R	N & M	R & M	N & R & M
WTW	1	3	9	2	2	3	8
BD	20	0	2	4	0	0	2
SR	0	11	7	0	1	5	3
RN	2	0	19	0	0	3	4
WPP	7	1	9	0	3	3	5
EL	7	2	7	1	2	0	9
Accountability	5	0	5	2	2	1	12
Privatisation	7	1	9	2	0	0	5
EWS	5	2	4	2	3	6	6
Agriculture	12	2	2	3	1	1	7
AC	8	1	2	0	3	1	13
Recycling	4	1	6	1	6	2	8
Park	8	2	2	3	2	2	9
Colour code Key							
Bold	Level of management attracting most support						
14 & above	Selected by more than 50% of stakeholders						
7-13	Selected by 25-50% of stakeholders						
0-6	Selected by less than 25% of stakeholders						

7.6.1.4 *Actors to be involved in specific water management challenges*

Similarly to the understanding of the scale and level of appropriate management, the decision-influencers also understand that all type of actors should be involved for all issues (Table 7.32). Decision-influencers in Turkey do consider that farmers, NGOs and citizens should be involved in water management especially about water pricing policy, privatisation the evaluation of water services, awareness campaign and the management of Natural Park.

Table 7.32: *Type of actors to be involved in the WMC in Turkey (values indicate number of respondents selecting option)*

WMCs	C A	LA	I&B	Farmers	NGO's	Citizens
WTW	25	30	23	9	15	12
BD	32	12	12	12	12	10
SR	18	23	8	27	11	11
RN	18	31	11	10	8	11
WPP	23	32	16	16	15	22
EL	24	31	8	9	12	17
Accountability	26	29	18	19	17	21
Privatisation	22	26	18	12	12	16
EWS	23	28	19	20	22	22
Agriculture	27	17	9	31	14	14
AC	29	30	17	18	29	22
Recycling	26	31	19	10	12	14
Park	29	23	16	20	24	23
Colour code Key						
bold	Actor attracting most support					
16 & above	Selected by more than 50% of respondents					
8-15	Selected by 25-50% of respondents					
0-7	Selected by less than 25% of respondents					

7.6.2 Exercise of participation, in Turkey

7.6.2.1 Reasons for participating in water debates in Turkey

Overall participation in the water debate is understood as a way to exchange views, to listen to the opinion of other stakeholders with the objective to develop a common solution (Table 7.33). Using participation with the objective to share power in the decision making process is ranked high for local authority, water authority, tourism and academics. This results confirm the high expectation towards an active stakeholders' role in participatory practices in Turkey (as mentioned in §5.4.2). The view from the population (§6.3.3) is similar to those from the CA and II, where the communicational objective of participation is favoured over empowerment.

Table 7.33: Preferred reasons for participating in water management in Turkey

Rank	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	Exchange Views	Listen to opinion	Common Solution	Listen to opinion	Exchange Views	Share Power	Common Solution	Exchange Views
2 nd	Common Solution	Exchange Views	Share Power	Exchange Views	Receive Information	Common Solution	Exchange Views	Listen to opinion
3 rd	Listen to opinion	Receive Information	Exchange Views	Share Power	Common Solution	Exchange Views	Share Power	Common Solution
4 th	Share Power	Resolve Conflict	Receive Information	Receive Information	Listen to opinion	Listen to opinion	Resolve Conflict	Resolve Conflict
5 th	Receive Information	Common Solution	Resolve Conflict	Resolve Conflict	Resolve Conflict	Receive Information	Listen to opinion	Receive Information
6 th	Resolve Conflict	Share Power	Listen to opinion	Common Solution	Share Power	Resolve Conflict	Receive Information	Share Power

7.6.2.2 Perception of current practice of public participation in Turkey

Current perception of participation in Turkey is 'informative' and 'consultative' (direct and indirect).

Table 7.34: Perception of current practices of PP in Turkey

Rank	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	I	I	P	DC	P	DC	DC	I
2 nd	DC	IC	I	IC	DC	D	I	IC
3 rd	P	DC	DC	P	C	I	P	DC
4 th	IC	D	D	I	D	C	IC	C
5 th	C	C	C	C	IC	P	C	P
6 th	D	P	IC	D	I	IC	D	D

7.6.2.3 Perceived appropriate type of participation per WMCs

A wide range of PP appears to be appropriate for all WMCs. However, WMCs addressing scarcity of accountability and governance and behavioural scarcity are perceived to be better managed through type of PP based on empowerment and shared decision (cooperative, partnership and even decisional participation). Those very same WMCs (WPP, EWS, AC) were also understood as requiring some involvement from the public; those two results corroborate the possibility to open the public sphere to participatory water management in Turkey.

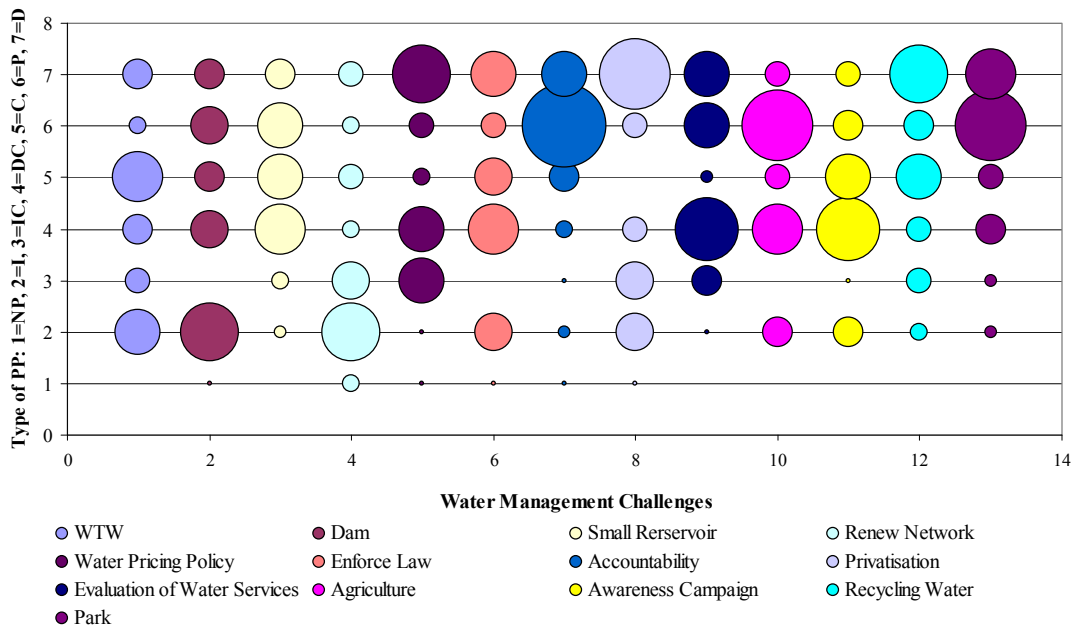


Figure 7.11: Perceived appropriate type of PP⁴⁵ per WMC in Turkey

⁴⁵ 1=NP: No Participation, 2=I: Informative Participation, 3=IC: Indirect Consultative Participation, 4=DC: Direct Consultative Participation, 5=C: Cooperative Participation, 6=P: Partnership and 7= D: Decisional Participation.

7.6.3 Interaction, Central Authority, Stakeholders, Citizens

7.6.3.1 Roles of the Central Authority

The perceived current role of the CA is ‘authoritative informative’; this role is however rejected as desirable. The desirable roles are ‘open consultative’ and ‘cooperative constructive’, with an enhanced sensibility for direct and bidirectional communication.

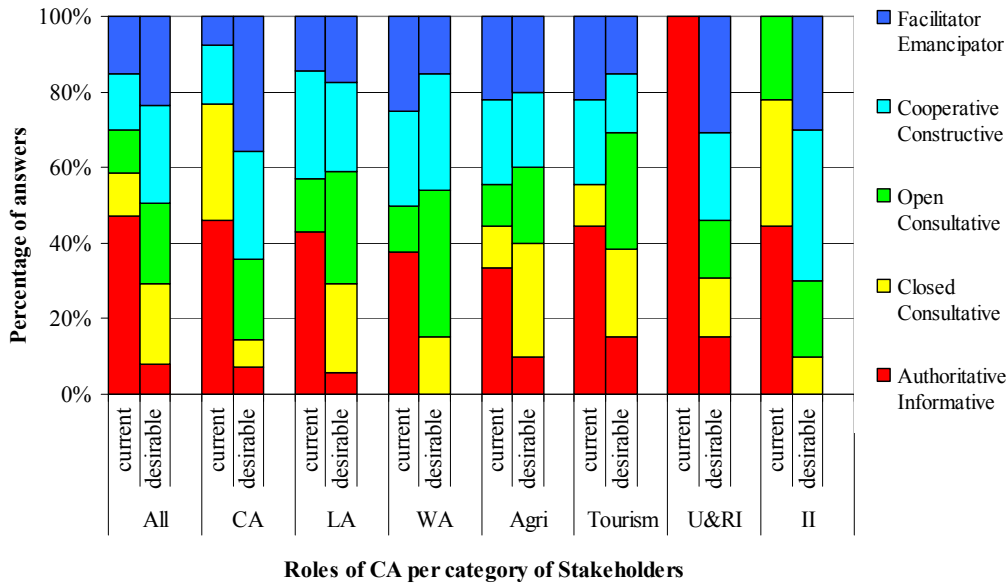


Figure 7.12: Perception of the role of CA by category of Stakeholder in Turkey

7.6.3.2 Hurdles to implementation

In addition to the three type of hurdles to initiate participation identified in the Jordan, Lebanon and Syria (scarcity of accountability, of organisational capacity and behavioural scarcity), efforts to engaged participation in Turkey are perceived to be sometime undermined by NGO’s that are regarded as not listening to each other and as lacking in professionalism. This cacophony leads the CA to exclude NGO’s from participatory opportunities and *de facto* to maintain an authoritative rather cooperative role. Furthermore, decision-influencers in Turkey mentioned that river basins are spread across several administrative entities. The current structure and culture of the central, regional and local administration prevent cooperation and integrated RBMP.

7.6.3.3 *Communication strategy to open the public sphere to water management*

Unlike in previous study areas, direct form of communication through public meeting, public exhibition is favoured by Turkish decision-influencers (Table 7.35). TV is also considered as an effective media to raise public awareness on water management challenges. Distant unidirectional communication media such as local newspaper, leaflet and internet are the least favoured communication strategy. As highlighted by decision-influencers from International Institutions, all communication strategy should be used to open the public sphere to water management and to establish, perhaps after a long process, Advisory Water Management Committee.

Table 7.35: Ranking of preferred communication strategies in Turkey

Rank	All	CA	LA	WA	Farming	Tourism	U&RI	II
1 st	Public meeting	TV	Public meeting	Public meeting	Leaflet	Public meeting	AWMC	Public exhibition
2 nd	Public exhibition	Public exhibition	Public exhibition	Public exhibition	Public meeting	Public exhibition	Public meeting	Public meeting
3 rd	TV	Public meeting	Leaflet	TV	TV	AWMC	Public exhibition	AWMC
4 th	AWMC	AWMC	Local newspaper	Leaflet	Local newspaper	TV	TV	Local newspaper
5 th	Local newspaper	Local newspaper	TV	Local newspaper	Public exhibition	Internet	Leaflet	TV
6 th	Leaflet	Leaflet	Internet	Internet	AWMC	Local newspaper	Local newspaper	Internet
7 th	Internet	Internet	AWMC	AWMC	Internet	Leaflet	Internet	Leaflet

In conclusion for the Turkish study area (Table 7.28), the perception of the WMCs priorities according to decision-influencers focuses mainly on addressing water pollution and on increasing water quality even though the study area is water rich (as presented in Chapter IV). The breakdown of priorities per category of decision-influencers highlights two general understandings of WMCs: decision-influencers with a local interest (WA, farming and tourism sectors) focus preferably on technical solutions, while those (CA, LA, U&RI, II) with a more global vision of water challenges take into consideration all causes of water scarcity. Responsibility over water management in general is considered to potentially benefit from multi-territorial level of management and from the involvement of all type of actors.

Current practices of participation are understood as informative and direct consultative. Types of participation based on open and direct communication aiming to exchange views and to develop a common solution might be appropriate especially for accountability over water management, evaluation of water services, water

allocation for agriculture and awareness campaign, if the CA adopt a role more devoted towards consultation of opinions (through either survey or direct meeting) potentially evolving to a cooperative-constructive role. Informative and indirect consultative type of participation appears to be appropriate both for large technical challenges (WTW, dams, renewing supply networks) and in association with partnership and decisional participation for societal public policy choice like water pricing policy, enforcing the law or evaluation of water services.

In addition to the three type of hurdles to initiate participation identified in all other case (scarcity of accountability, of organisational capacity and behavioural scarcity), efforts to engaged participation in Turkey are undermined by a perceived lack of professionalism and communication skills amongst NGO's leading the CA to exclude them from participative exercises and maintaining *de facto* a strong authoritative governance style that is however rejected as a desirable role. Furthermore, responsibilities for water management overlap horizontally and vertically for the catchments area and current administrative layout is not perceived as facilitating integrated management. Unlike the three other study areas, the communication strategy to open-up the public sphere to water management is preferably based on direct communication like public meeting and exhibition then on distant media like TV and newspaper.

Which type of participation for which type of water management challenges?

Table 7.36: Summary of understanding of WMC and exercise of participation, in Gökova bay, Turkey

Key topics	Sub-theme	Synthesis	Comments
Water management challenges	Priorities	Strong consensus for addressing pollution and increasing water quantity, Central and local administration address all type of water scarcity. Water users are more interested in addressing physical water scarcity and organisational capacity. U&RI and II emphasise the challenge of management and accountability.	Consensus on problems and priorities, central views similar to public views
	Scale - level of management	Strong Perception of multi territorial management for all WMCs but for Dam that is better managed at national level.	Multi-territorial management
	Actors to involve	Local administration first, strong emphasis for other stakeholders for all WMCs.	Involvement of several actors
Practice of participation	Reasons for taking part	Platform to empower opinion forming, through exchange of views and listen to opinion with the clear objective to define a common solution. To share power is not rank least in Turkey.	Similar to the public but solution orientated
	Perception of Current practice	Consensus about informative and indirect consultative types of participation.	One way communication
	Appropriateness of type of participation	For addressing physical scarcity and scarcity of operational capacity all types of PP with emphasis on indirect consultative. For scarcity of accountability and behavioural scarcity from direct consultative to decisional participation	Wide range of PP according to context
Role of CA	Perceived role of CA	All emphasise the authoritative informative role of the CA. The desirable roles include closed consultative to cooperative constructive.	Room to open the public sphere
	Hurdles for implementation	Scarcity of governance and of accountability (do not want); scarcity of organisational capacity (can not); Behavioural scarcity and poor communication. Difficult to work with NGO's due to lack of communication skills and professionalism. Administrative boundaries do not favour river basin integrated policy.	Lack of horizontal and vertical communication, especially with NGOs', issue of administrative boundaries
	Communication strategy	Public meeting public exhibition, TV with the objective to set-up AWMC. Low ranking for written media	Direct communication, Global media

Which type of participation for which type of water management challenges?

Chapter VIII

8 Discussions: some insights from the Levant on participation & water management challenges

8.1 Complex it is and wicked to discuss

I started this study with the argument that integrated water policy development is a complex societal problem and that public participation is a wicked process. The meaning (i.e. the descriptive definition and the semantic consequence) of both Integrated Water Management and Public Participation are subject to interpretation by different stakeholders, because the concepts of uncertainty, risk management and construction of a societal project challenge scientific expertise, political power, and concepts of democracy especially in terms of the representation and legitimacy of decisions concerning public good management (De Marchi, 2003; Dobson, 2003; Dryzek, 2000; Feeny *et al.*, 1990; Fiorino, 1990; Funtowicz & Ravets, 1993; Laird, 1993; Sidaway, 2005). The ontological consequence is that I suggest to not study Public Participation and Integrated Water Management with a normative aspiration to identify the 'true' problem and the 'true' form of participation, but to investigate the several constructions of reality of water management challenges and of participation from different perspectives. The aim of this research is to identify which type of participation is perceived as appropriate for which type of water management challenges according to top-down and bottom-up perspectives: how public participation should be exercised to support integrated water management policy?

The refined research objectives as stated in Section 2.5.5 were:

1. The identification of Water Management Challenges (WMCs) at stake according to different stakeholders (top-down and bottom-up perspectives); to organise and prioritise these WMCs, to compare and contrast them to highlight similarities and discrepancies of perception of the problem and elicited set of solutions: What are the water management challenges according to different stakeholder (top-down and bottom-up views)?
2. The identification of motivations and reasons for taking part in water management, and preferred mode of involvement; the development of a panel of type of participation taking into consideration different level of empowerment, of communication practices and of societal objectives: What is the meaning of public

- participation and how is PP understood according to a top-down and a bottom-up perspective?
3. Assessing the wider public knowledge of water management challenges and attitude toward participation: What is the wider public understanding of WMC and expectation toward PP?
 4. Investigating the gap between current and desirable water governance to foster PP in Integrated Water Management: What are the perceived existing practices of PP and perceived hurdle to a desirable implementation?

The flexible research design approach is based on a Grounded Theory Methodology principle in order to elicit meanings of both public participation and WMCs via qualitative and quantitative supporting material. I intended to elicit themes from practitioners and to construct several perspectives taking into account a bottom-up and a top-down understanding of both water scarcity (and related water management challenges) and participation (including power and communicational aspects, objectives, modes of involvement and hurdles to initiation).

Notwithstanding that the discussion of this study, where the subject of analysis, methodology and theorisation impact on each other, is wicker to articulate, it is organised around five aspects. Because they are interwoven (see Figure 3.3), the four refined research objectives stated above are not addressed in a strict linear way, but they follow the thematic discussion initiated in Chapter V and VI. Consequently, I first discuss the understandings of water management challenges and how water crisis is described according to the enriched typology of water scarcity (proposed in Chapter V and illustrated in Chapter VI and VII). Second, I discuss how PP is understood, how selected socio-demographic and behavioural descriptors structure the public attitude and knowledge towards water management challenges and its readiness to participate in water management. Third, I provide some insights on the appropriateness of PP for IWM in the Levant which provide some new elements of answers to address the interpretative challenges of the EUWFD reviewed in the fourth part. Fifth, I return on the methodological design, I clarify my understanding of GTM in the light of this study.

8.2 Understanding Water Management Challenges and water scarcity: Illustration of societal complexity

The information elicited from both the scoping interviews and the initial stakeholder questionnaire complete The World Bank (2007) description of the water crises as being explained as to be down to one or many of the following causes for water scarcity, with the behavioural dimension towards water:

- Scarcity of the physical resources and associated technical issues ;
- Scarcity of organisational capacity associated with managerial and planning issues;
- Scarcity of accountability and governance issues associated with poor communication between institutional bodies in charge of water management;
- Behavioural scarcity and low individual interest in the common good, irresponsible and illegal behaviour.

Water resources and services are not considered properly managed due to: (i) poor technical performances and assets management, (ii) individual attitude towards water usage leading to ‘wasting lots of water’, and (iii) ‘lack of fitness’ of the current legal and administrative framework to a- define clear water policy inclusive of all needs and b-means to implement and enforce it.

Based on this typology one can assess both the areas to be addressed, and whether the competent agencies, stakeholders and the public share similar constructs of the causes of unsatisfactory water management. However this typology is not ‘water-proof’ and some water management challenges could fall into two categories depending on the interpretation of the water management problem-solution (network leakage: physical water scarcity and/or scarcity of organisational capacity). A similar issue of categorisation was encountered when organising the Preambles and Articles of the WFD accounting for the economic, environmental and ethical dimensions (Figure 2.1 in §2.2.3). In fact, through this classification, one is not trying to place problems into boxes but to study the relationships between the numerous causes of a problem: what is in between, rather than independent elements. Hence, the weakness of this typology can actually become its strength: to give some weight and importance to the interactions between several causes of water scarcity and highlights the complexity of water management, interconnection of systems, interaction between actors and uncertainty of knowledge (§2.2.3.1).

The common suggestions to address water scarcity in the Levant are:

- Awareness campaigns to decrease domestic demand;
- Integrated and participative management for public policy to meet the need of the population;
- Training for water managers/administration to become more effective in communication & problem identification, improve communication horizontally and vertically within layers of competent agencies;
- Improving existing infrastructure: renew supply network, build water and wastewater treatment works (preferably connected to a network);
- Adapt farming practices to water efficiency requirements (crops, irrigation, illegal withdraw, chemical pollution...)

8.3 Understanding Public Participation: Illustration of wickedness

The insights gained from the brief literature review highlights that public participation is mainly analysed through three theoretical approach to focusing on the dimension of power, on the flow of communication between the initiator (usually the competent authority) and the stakeholders and the wider public (when it happens) and on the objectives to initiate it. I point out as Robert (1995) and Webler (1999) did, that Public Participation as a ‘catch-all’ expression has lost sharpness in meaning and that the confusion that surrounds PP is generated by the discrepancy between the purpose for initiation and the expectation of those involved. Thus, I have first developed a grounded typology of reasons to take part in participative exercises (§5.3.2) which was tested through the survey (§6.3.3.4) and with decisions-influencers (Chapter VII). I have investigated current practices and familiarity with PP from a bottom-up and a top-down approach, the public’s willingness to be involved in debates over water management and the preferred modes of involvement (§6.3.3). These sets of information lead me to develop a new panel of types of participation and to question the perceived hurdles to initiate Public Participation (Chapter VII).

8.3.1 A grounded typology of objectives for participation

One might have learnt through this study that simply asking stakeholders which form of PP they prefer is not sufficient to gain a rich picture of their understandings. The investigation of the reasons for taking part in PP and awareness of the benefits, learning and interest taken from a participative experience enrich the construction of meaning (definition and implication). Arnstein’s ladder of citizen empowerment is not

the most suitable mental map of types of participation to address environmental resources (and services) management such as water that is both state-strategic and a local public good. The main flaw in her typology and also in the way it is poorly understood and inelegantly translated outside its original context, is that it ordines participative practices under a hierarchy of empowerment; the ever-so-famous but misleading image of a ladder (Collins & Ison, 2006; Collins *et al.*, 2007). All evidences presented in this study support a view that PP is not only about power, that it is a process, that several forms of participative exercise that might be engaged in at different times with different stakeholders and diversity of objectives (also reported by Salman *et al.*, 2008). The grounded typology of objectives for PP in water management I propose, takes into consideration the communicational and empowerment aspects as follow:

- To receive information about future plans the public authority will implement;
- To give my opinion to the public authority about future plans;
- To exchange my views with other citizens working in agriculture, tourism and industry and to propose a common solution to the public authority;
- To avoid or to resolve conflict over the use of water;
- To define a common solution with all citizens and sectors that will be implemented democratically;
- To have some power over the decision making process.

Since I argue that there is no one correct type of participation in a given context, practitioners might consider to use several (or all) aspects of this typology depending on the management process developed to build a river basin management plan (defines the management challenges, stakeholders identifications, solutions development and evaluation, programme monitoring, etc...). This grounded typology of objectives for PP might be tested for other environmental and societal policies such as waste management, transport and gain in substantive and theoretical relevance.

The views from the population

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 over 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 choice.

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 neither to ‘define a common solution’ or 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 and social interaction.

The social learning dimension of participation was also salient in the initial stakeholder questionnaire (§5.3.2.4). These insights 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 style and opportunities for participative activities are seemingly incompatible. Even in countries where criteria characterising a democratic society are not all entirely satisfied (World Bank, 2003; World Bank Institute, 2007), there is a case for promoting participation of the public in water management as also reported by Salman *et al.* (2008) in a review of participative irrigation management initiative in Jordan.

8.3.2 Willingness and preferred mode of involvement of the public

There is no formal experience of the general public with public participation in the four study area based on the medium scale survey reported in Section 6.3.3. However, two third of respondents are willing to participate for the Jordanian and the Syrian study area but only 37% and 27% respectively in Lebanon and Turkey are willing to. The willingness to participate does no appear to be associated to the countries with the longest experience of democracy but rather to a combination of water stress and political stability. The next question I had to answer concerned the modality of involvement and I submitted the survey respondents the following choices:

- Electing spokespersons to represent your opinion;
- Through participating yourself in public debates and public consultation;
- By being consulted to give an opinion about suggested propositions;
- By voting on options.

In all study areas respondents favour direct forms of involvement (direct participation in public debates). The second favoured choice, which emphasises some difference in type of involvement, was ‘to give my opinion on suggested options’ for Jordan and Syria. Lebanese respondents favoured to ‘vote on option’, while Turkish (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. Preferred choice for modality of involvement might depend on the experience and familiarity with public participation. However, as reported above there is no formal experience with public participation in the four study areas (based on the social survey reported in Section 6.3.3) and unfortunately no ground to take into account experience and familiarity with preferred choice.

Thus, yes, the wider public in the four study areas is willing to participate in debates over water management and preferably through direct involvement with the objective to express their opinions. Here again the public’s preference is for direct mode of communication. However the public is inhomogeneous and can be sociologically analysed with demographic descriptors. As elicited through the scoping interviews, the initial stakeholders questionnaire and consistently highlighted in key-stones international declaration the role of gender, age, level of education and public awareness are considered to be crucial when addressing water management challenges. Consequently, I investigated in Chapter VI to what extent those demographic descriptors might structure respondents’ knowledge on water management challenges and attitude to public participation (see Figure 5.1, Table 6.1 and Table 6.17).

8.3.3 On the readiness of the public to participate

Women and men have a similar individual knowledge of water management challenges and attitudes towards participation. There seems to be no statistical ground 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 is observed to be slightly higher amongst mid-age group (26-45 year old) than amongst the youngest and the oldest respondents. Hence, these evidences can not validate the idea that the youngest generations are more likely to be receptive

to behavioural change to tackle water scarcity as identified through the scoping interviews.

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 lower education level can be very knowledgeable and willing to participate in Jordan and in Lebanon, the two countries with the lowest Total Actual Renewable Water Resources (see §4.5).

A positive perception of the need to improve water management is clearly correlated to the quantity and quality of answers to either improve water management in general or to improve personal water consumption habits and also to the willingness to be involved in water debates.

Although an uneducated public, with poor knowledge of the far reaching consequences of water management challenges is seen as a hurdle to initiate public participation (Chapter V), the evidences elicited from the medium scale survey show the contrary: a public aspiration, readiness and willingness to express ones' voice (§6.3.3 & 6.5).

8.3.4 Public participation as a palette of colours

Following the critique of Arnstein's ladder of citizen participation about its conceptual and practical inappropriateness to accommodate participation in IWM (§2.3 & §5.5.2), I prefer to conceptualise public participation as a palette of practices, like a palette of colour (with no *a priori* normative graduation), where one can pick and choose one or many types of participation presented below to develop a process anchored in a specific context and set in time.

The panel of public participation proposed to initiate a participative strategy addressing water scarcity is based on communication, empowerment and objectives, as follow:

- **Informative participation (I)** aims at informing interested or affected parties about a decision already made;
- **Indirect consultative participation (IC)** aims at gathering information and opinion of interested or affected parties on a project or a problem that concerns them: make a survey about their reactions/opinion;

- **Direct consultative participation (ID)** aims at gathering information and opinion of interested or affected parties on a project or a problem that concerns them through meetings;
- **Cooperative participation (C)** encourages interested or affected parties to propose solutions and to advise the public administration that is accountable for taking the solution into account or no;
- **Partnership participation (P)**: interested or affected parties and public administration agree to share planning and decision-making responsibilities through structures like joint-policy board, planning committees;
- **Decisional participation (D)**: interested or affected parties are responsible and accountable for the decision and the management of a project or programme.

Although, there is no evidence of participation of the public (§6.3.3), the competent authority and the international institutions perceive current practices as informative (§7.3). Other types of participation are either restricted to identified stakeholders (water authority, local authority, irritants) or to pilot water project sponsored by foreign aid. There is overall a great diversity in views of current practices of PP amongst decision-influencers in all four study areas. The insights on the meaning of public participation from several social actors confirm and enriched the presented understanding that PP as a problem solving process is wicked:

1. There is no definite formulation of what participation is: a communication process like giving out information, or gathering people's opinion, or about sharing power in defining the problem, making a decision or implementing a policy;
2. There are no stopping rules to indicate when participation stops; it can be one-off even short or long, or continuous involvement in developing, evaluating river basin management plans;
3. A proposed type of participation is not right or wrong but good or bad in appropriately addressing the contextual needs (normative assessment);
4. There is no ultimate test to evaluate the efficiency of participation (the output and/or the process) partly because social interactions are hardly commensurable;
5. There is no consensual, comprehensive set of potential solutions. Various stakeholders have differing views on appropriate type of participation; the details

of the participative process is the result of a shared reflexive interactions between engaged actors;

6. Every situation is essentially unique so that there are no classes of solutions that can be readily and *a priori* applied to a specific case. Participation is issue and stakeholders' specific;
7. The quality and quantity of social interconnections between the several layers of administration (local to national) and of interactions between stakeholders are changing so that the degree of organisation(s) within a society affects communication flow, interests, commitments and empowerment.

8.4 Some insights on the appropriateness of PP for IWM in the Levant

The discussion on the potential appropriateness of public participation for integrated water management in the Levant begins with a review of the potential exercise of PP for IWM in each study area. It is then followed by an exploration of the reasons for similarities and differences observed, an attempt to identify some appropriate forms of participation for specific WMCs and hurdles to initiates PP.

8.4.1 On the potential exercise of public participation for integrated water management in Jordan

In Jordan, the country with the lowest TARWR, while the perception of the need to improve water management is balanced between high and low level of urgency, the wider population is knowledgeable, aware of the far reaching extent of water management challenges and of the diversity of suggestions to better manage water resources and services as well to reduce water consumption at household level. The public surveyed is solutions focused, wishing to increase water supply and to improve water quality by means associated to planning and managerial issues, tackling physical scarcity and organisational and managerial scarcity. Suggestions concerning behavioural scarcity and scarcity of accountability are of similar weight. Their suggestions are not focused on agriculture or on coercive measures as if irrigation practices were considered as water efficient and as if laws were generally implemented, fines issued, water meters installed and working. Means to reduce household water consumption include technical, behavioural and coercive measures, indicating a comprehensive global understanding of the diversity of means required to tackle water scarcity. One observes that the perception of the WMCs priorities

according to decision-influencers, especially from University & Research Institute is similar to those from the public and address all identified causes for water scarcity. The Central Administration and the Water Authority are, unsurprisingly, the main actors to be involved; however the decision-influencers highlighted the potential suitability of multi-territorial management and the involvement of a wider range of actors including farmers, NGO's and citizens. Although, current practices of PP are limited to information, other types of participative initiatives (such as cooperative, partnership and decisional participation) are being experienced at pilot scale under the supervision of International Institutions (also reported by Salman *et al.* 2008). Types of participation based on open and direct communication aiming to exchange views and to develop a common solution might be appropriate especially for accountability over water management, evaluation of water services, water allocation for agriculture and awareness campaign, if the CA adopt a role more devoted towards consultation of opinions (through either survey or direct meeting) potentially evolving to a cooperative-constructive role. When this conception of PP is related to the environmental context where both quantity and quality of water are threatened and where there is some urgency and awareness to accommodate the needs of different users, participation is perceived of as a *platform to express opinions on technical solutions*.

8.4.2 On the potential exercise of public participation for integrated water management in Lebanon

Although Lebanon is considered as water stressed country with a TARWR estimated of 1,190m³/yr per capita in 2005, the biggest threat for Lebanon water management is not perceived by the author to be about water but over governance. Unfortunately, the ongoing civil war might be more damaging for the population's access to drinking water and sanitation than climate change.

The understanding of the WMCs priorities according to the Lebanese decision-influencers focuses mainly on addressing scarcity of the physical resource. Awareness campaign and the involvement of users are the lowest priorities. The suggestions from the population are also focused on measures to address scarcity of the physical resource and of organisational capacity (building water treatment works and renewing the supply network). However, the public also strongly suggested changing current management practices to make managers accountable for their actions addressing

what was identified in Chapter V as scarcity of organisational capacity and of accountability. In order to reduce household water consumption, they mainly suggest behavioural changes as if the population were submissive to the idea that technical and coercive measures were not implementable over there. The Central Administration and the Water Authority are, unsurprisingly, the main actors to be involved; there is no consideration for multi-territorial management or for the involvement of a wider range of actors except for evaluation of water services, awareness campaign and water allocation for agriculture (where citizens and farmers could/should be involved). There is no consensual views on the current practices of participation, central administration and international institutions perceive it as informative, other actors as cooperative (Water Authority and Farming Sectors) or as direct consultation (Academics). All types of participation seem to be perceived as appropriate for the Lebanese decision-influencers, except ‘no participation’ and ‘indirect consultation’. Suggested appropriate types of participation in Lebanon are ‘informative’, ‘direct consultative’, ‘partnership’ and even ‘decisional participation’. There is no clear association between the WMC (or the causes of water scarcity) and the perceived appropriateness of PP in Lebanon. The implementation of participation and the understanding of the type of participation suggested is challenged by the lack of consideration for both multi-territorial management (low interconnection between level/scale of management) and multi-actors dynamic (low interactions between CA, stakeholders and citizens).

Two discrepancies between bottom-up and top-down understandings of PP in WMC are obvious: a) asymmetry of constructs of WMCs’ addressing mainly physical water scarcity and occulting governance and behavioural scarcity, and b) the lack of concern for multi-territorial management and of consideration for actors other than central administration in water management.

8.4.3 On the potential exercise of public participation for integrated water management in Syria

The Syrian respondents focused first on 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 campaign). They also suggest to renew the infrastructure and to change current management addressing scarcity of organisational capacity and of accountability. The perception of the WMCs

priorities according to the decision-influencers focuses mainly on building water treatment works (and waster water) and on water pollution. The breakdown of priorities per category of decision-influencers highlights two general understandings of WMCs: decision-influencers with a local mandate or responsibilities (Local Authority, Water Authority, Farming) focus preferably on technical solutions, while those (Central Administration, University & Research Institute, International Institutions) with a more global vision of water challenges take into consideration all causes of water scarcity. Unsurprisingly, centralised management is perceived as appropriate for large technical infrastructure, water pricing policy, law enforcement and privatisation. More surprising is that evaluation of water services, awareness campaign and recycling water are considered to potentially benefits from multi-territorial level of management and that farmers and citizens are actors to be involved in all WMC's but about water or wastewater treatment works.

There is no consensual view on the current practices of participation; central administration perceives it as 'direct consultative' and 'partnership', while representatives from the tourism sector, university and research institute and International Institutions as 'informative'. All types of participation seem to be perceived as appropriate for the Syrian decision-influencers, except 'no participation' and 'indirect consultation'. Suggested appropriate types of participation in Syria are 'informative', 'direct consultative', 'partnership' and even 'decisional participation'. There is no clear association between the WMC (or the causes of water scarcity) and the perceived appropriateness of PP in Syria. The public understands participation as a mean to exchange opinions through direct involvement, but decision-influencers recognised unanimously that current water governance is not appropriate to foster participative initiatives. Participation is viewed as a *platform for dialogue* and the benefit of PP is to *learn to work together* rather that to *reach a consensus and to empower it*. The role of International Institutions is perceived as potentially enabling both communication and cooperation between the several competent authorities and the development of users' organisational capacity.

8.4.4 On the potential exercise of public participation for integrated water management in Turkey

The Turkish respondents surveyed are not that concerned with ways to influence water management, only one in two respondents gave a suggestion. For them, water

management is before all a managerial and political issue. Only one in ten would recommend to increase the supply or to improve quality. Indeed, water is generally of good quality and sufficient quantity in the study area. There is no immediate threat on water resources and services and the public perceive the need to improve water management as moderate, and less that one in three would consider taking part in debates over water management. The perception of the WMCs priorities according to decision-influencers focuses mainly on addressing water pollution and on increasing water quality even though the study area is water rich (as presented in Chapter IV). The breakdown of priorities per category of decision-influencers highlights two general understandings of WMCs: decision-influencers with a local interest (Water Authority, farming and tourism sectors) focus preferably on technical solutions, while those (Central Administration, Local Authority, University & Research Institute, International Institution) with a more global vision of water challenges take into consideration all causes of water scarcity. Responsibility over water management in general is considered to potentially benefit from multi-territorial level of management and from the involvement of all type of actors.

Current practices of participation are understood as informative and direct consultative. Types of participation based on open and direct communication aiming to exchange views and to develop a common solution might be appropriate especially for accountability over water management, evaluation of water services, water allocation for agriculture and awareness campaign, if the Central administration A adopts a role more devoted towards consultation of opinions (through either survey or direct meeting) potentially evolving to a cooperative-constructive role. Informative and indirect consultative type of participation appears to be appropriate both for large technical challenges (WTW, dams, renewing supply networks) and in association with partnership and decisional participation for societal public policy choice like water pricing policy, enforcing the law or evaluation of water services.

In this environmental and societal context, PP is seen as a *platform to empower opinion forming through social interactions* where the identification of a solution requires working together and understanding other stakeholders' arguments.

8.4.5 Some insights of the political, environmental and social contexts to exercise PP in the Levant

Jordan and Turkey are similar in many respects: top-down WMC priorities are similar to bottom-up concerns, decision-influencers showed potential interest for multi-territorial management and to involve several types of actors (§7.3.2 & §7.3.5). Amongst the four study areas, there are also the two most open and democratic societies according to Transparency International (2005), the World Bank Institute (2007) and Worldwide Press Freedom Index (2005). However, Gökova bay is water rich while Amman Zarqa Basin is water scarce, and although the perception of the need to improve water management is similar (§6.3.1.1), the public knowledge of water management challenges and ways to improve the management and use of water have little in common in terms of quantity and quality of answers (§6.3.2), and the percentage of the Jordanians willing to participate in water debates is twice as much as for the Turks.

The Lebanese and Syrian cases are water stressed (with a comparable TARWR), both population sampled perceived the need to improve water management as at least urgent (above 80%), and individual knowledge of water management challenges are quantitatively and qualitatively comparable. However, the percentage of Syrian population sampled willing to participate to water debates is almost twice more than the percentage of the Lebanese (§6.3.3) who unlike other populations surveyed, would consider to be involved by voting on option (second choice), and least favour electing a spokesperson, as if the population in Lebanon was less motivated to participate and would rather favour vote over indirect involvement.

Conditions to foster public participation seems to require both political stability, and an open society where opinions can be formed and exchanged, but also enough pressure on resources and services for the public to be interested and willing to take part in water management, and for the competent authority to be willing to engage with the “*extended peer communities*” to complement experts and consultants understandings of complex societal problems (Funtowicz & Ravetz, 1993, p.753).

8.4.6 Appropriateness of Public Participation for specific water management challenges

Not all types of participation are perceived to be appropriate for all water management challenges. Both ‘no participation’ and ‘decisional participation’ are perceived as inappropriate. A participative strategy to develop an integrated water policy should

take several forms emphasising communication, empowerment, specific objectives depending on the challenge, the interaction between actors, and the project management process. Participative planning as a dynamic social process involves different types of participation and is multi-objective; I would like to draw attention on a step by step approach and suggest that the following causes for water scarcity might be addressed with specific forms of participation:

- Physical scarcity & scarcity of operational capacity: informative, indirect then direct consultative participation;
- Scarcity of Governance & Accountability: direct consultation- cooperative participation for targeted actors;
- Behavioural scarcity: wide range of participation for a wide range of actors.

8.4.7 Hurdles to initiate public participation

Information elicited in the four study areas highlights that hurdles to initiate PP are of three different origins (comparable to the causes of water scarcity):

- Scarcity of accountability (do not want): autocratic decision- DAD attitude, PP can challenge existing power structure;
- Scarcity of organisational capacity (can not): lack of experience in PP, lack of team-work;
- Behavioural scarcity and poor communication: (i) lack of horizontal dialogue and cooperation between administrations resulting in poor shared planning; (ii) lack of vertical communication (top-down and bottom-up) and (iii) poor knowledge of who are the interested parties.

Additionally, some country specific issues currently prevent public participation.

In Jordan, PP is also very difficult to define as a process and to facilitate due to the lack of team-work culture and capability of institutions, stakeholders and the public. As one decision-influencer expressed it, one cannot teach actors to work together if there is no pressure or needs to do so. Furthermore, it might become easier to formally include water user's opinions in integrated water management policy once stakeholders are represented in bodies or unions.

In Lebanon, a specific perceived hurdle to initiate participation in Lebanon focus on the lack of trust between actors. On the one hand, the public administration is seen as corrupted and working for the private interests before the common good. On the other hand, an endemic lack of trust between stakeholders and wounds from the past thirty years prevent them to meet-up. The last aspect raised, is that participation can be 'highjacked' by some individuals to gain political visibility, and hence undermine any effort to gather societal actors even to address water scarcity

In Syria, the passive role of the public in general that is perceived as having a 'we need attitude' instead of a 'we can do attitude', prevent citizen involvement. Given the current role of the CA, its the reluctance to decentralise and to open communication flow during the decision making process, the role of International Institution (foreign aid, cooperation, NGOs) is perceived by the decision influencers as crucial to initiate participatory pilot projects in Syria. External initiatives are seen as enabling both communication and cooperation between the several competent authorities and the

development of users' organisational capacity and group thinking at a cost not bared by Syrian institutions.

In Turkey, efforts to engaged participation are perceived to be sometime undermined by NGO's that are regarded as not listening to each other and as lacking in professionalism. This cacophony leads the CA to exclude NGO's from participatory opportunities and *de facto* to maintain an authoritative rather cooperative role. Furthermore, decision-influencers in Turkey mentioned that river basins are spread across several administrative entities. The current structure and culture of the central, regional and local administration prevents cooperation and integrated RBMP.

Political, environmental and societal context would appear to be more predisposed to foster participative river basin management plan in Jordan and in Turkey than in Syria or in Lebanon.

Let us now return to the meaning of public participation in the EU Water Framework Directive and explore the interpretative challenges identified in section 2.4 at the light of the insights gained on the appropriateness of PP for IWM in the Levant.

8.5 Making sense of Public Participation in the EU WFD

The EU Water Framework Directive is currently one of the few legislative bodies that reflect both IWRM and public participation. The directive does not only apply to member countries but also to candidate country and as a model for environmental public policy development in signatories to the Barcelona process and participants in the MED EU-Water Initiative Joint Process. As presented in Chapter II (introduction and §2.2.4) and raised by the Common Implementing Strategy Guidance document n.8, there is no blue-prints for PP. The question 'how come such an important element has no blue-print' was partly answered in illustrating PP as a wicked process (§2.3.2 and revisited in §8.3.4). The proposed deconstruction of the WFD presented in Chapter II, provided some insights on the difficulties to implement IWM and PP and opens the challenge to interpret the Directive in terms of participation for what, with whom and when. Although democratic systems in European member states and the openness of the society circumscribe a comparison EU-Levant, this study on the potential appropriateness of types of participation in relation to water management challenges in the Levant provides some new element of answers to better understand

the five interpretative challenging reading with the letter or the spirit of the EU Water Framework Directive initially presented in Section 2.4.

8.5.1 Insights on some interpretative challenges of the WFD

Consultation when plans are already draft as post problem definition?

The public in general is willing to receive some information about future plans the public authority will implement. Having said that, the results illustrate that the public is also willing to be involved in water management to exchange its view, to share opinions, to be informed about projects before they are implemented. To be meaningful the label ‘consultation’ (or consultative participation) should not be used to get support of a decision already taken. The consequence is likely to disillusion interested parties and to lead to contestation.

Written consultation might not encourage social interactions;

A recurrent objective of participation is to improve communication amongst stakeholders and to promote social learning. Direct modes of involvement by (e.g.) participation to public debates (and giving opinions about options) is preferred to voting on options or electing a spokesperson. Distant modes of consultation (such as surveys) have the potential advantage of gathering opinions from a large sample of the population and reaching people who’s personal constraints or initial low level of interest in water management would prevent engagement in direct participation. However, this would not be an appropriate means to foster social learning, build trust and capacity.

“Shall encourage active involvement” – the role of the Competent Authority in promoting participative River Basin Management Plan;

There cannot be participative River Basin Management Plans if the Competent Authority is not willing to open the public sphere to a more inclusive and democratic decision making process. The term ‘encourage’ means to be willing to engage and confers a role as facilitator. Currently the CA is understood in the four study areas as authoritative (DAD) even by the decision-influencers. Similar critiques concerning the current role of the CA in EU member states which reference hierarchic bureaucracy and lack of communication internally and externally as a major cause of water management inefficiency have been voiced (Enserink *et al.*, 2007; Mostert *et al.*, 2007; Pahl-Wostl, 2002; Pahl-Wostl *et al.*, 2007; Rowe & Frewer, 2004, 2005;

Shrader-Frechette, 1985, 1998). A more desirable type of role for the competent authority in the Levant and also in Europe, might be ‘consultative’ and ‘cooperative constructive’ (§7.3.3), where the CA either defines the problem and gather opinions and reactions to potential solution through direct meeting, or defines the problem and potential solutions in cooperation with the identified stakeholders. This shift in governance implies that the CA would be willing to open the public sphere to discursive and participative initiatives (also suggested by Hall *et al.*, 2007), to restructure governmental organisations to facilitate transfer of responsibilities (Salman *et al.*, 2008) and to depart from current cumbersome bureaucracy that prevents bottom-up participative initiatives (Giammusso, 1999; World Bank, 2003).

The nature of who is appropriate to participate is subject to value-judgement and shapes the process

Page & Kaika (2003, p.341) also raised that a key question for implementing PP in the WFD remains “*who participate and who choose who participates.*” This question is relevant not only in the EU context but also in the Levant. A perceived difficulty for participation to be more inclusive is the lack of structuration of the society. The perception that parts of the wider public is un-organised and unable to promote and to defend their interests while others are, changes with time. There is obviously no universal recommendation to change qualitatively and quantitatively the structuration of interested parties, recommendations are context-dependent. However, suggestions from the decision-influencers in the Levant to raise interest in water management through public exhibitions coupled with awareness campaigns supported via TV and leaflet with the objective of facilitating the creation advisory water management committees might even be worth generalisation in European river basins.

When, sooner or never?

The fifth interpretive challenge aroused is the issue of the starting point from which engagement is initiated. Both water management policy and participation are long processes. If one has to start by organising interested parties and adapt current management styles amongst competent agencies and administration layers to open the public sphere, little else than lack of political courage could prevent a trial and error approach and policy experimentation at pilot scale; the sooner rather than never.

8.5.2 Wickedness of PP prevent early guidelines

Consequently, there cannot, be a single set of guidelines. Public Participation should be a flexible, adaptative process; it needs to an open process to take into account a changing environment (e.g. new entrants, modification of scope), and to allow modification of the rules of the process (CIS, 2003). Public Participation is a learning exercise (Collins *et al.*, 2007; Mostert *et al.*, 2007; Muro & Jeffrey, 2008; Pahl-Wostl *et al.*, 2007; Pateman, 1970) and as such guidelines will result from both individual and collective self-reflection about what worked, what did not; what could have been changed during the process, what needs to be adapted to the needs of a specific RBMP, what the barriers to change are, etc . . . All these interrogations could be rephrased by replacing ‘what’ with ‘who’. In this respect, “*a clear signal should be given that no blueprint exists for public participation and that the public participation process should be organised and adapted to national, regional and local circumstances*” (CIS, 2003, pp. iv–v); this point is emphasised several times (*ibidem*, pp. 1, 26; 57 and 60). The Common Implementation Strategy guidance document n.8 is also explicit on the educative nature of PP, “[c]apacity-building is a two way process” (*ibidem*, p.55), and “[i]n an ideal situation both competent authority (the organiser of the participation) and participants are involved in the evaluation” (*ibidem*, p.47).

Public Participation is indeed a wicked process (§2.3.2 & §8.3.4), but the WFD as a piece of European legislation, is not complex as it sets out streamlined principles which are coherent within EU governance principles and applicable in the context of all Member States and Candidate Countries. Given the institutional and cultural diversity of each Member State, the complexity of water management challenges and the wickedness of participation, the WFD is pragmatic, and leaves the details of implementation to national competent authorities. There cannot be a comprehensive and meaningful blueprint, because there is no definite formulation of what PP is, because it is subject to interpretation based on values, cultures and local conditions, and because the evaluation of the effectiveness of the process is normative not logical (good or bad, not true or false). Therefore, guidelines and recommendations need to be based on experience (inductive approach), then tested (hypothetico-deductive approach) and finally interpreted and presented with the limitations and warnings necessary to confer coherence for potential transfer of knowledge (abductive

approach), i.e. there are context dependent. The WFD is a short piece of legislation that while not being complicated to implement, is challenging because it leaves room for interpretation.

Consequently, beside the challenges of defining and implementing RBMP, another challenge concerning the construction of law and governance is raised. The WFD is a framework presenting a set of coherent principles called ‘primary laws’, not a set of detailed laws referred to as ‘secondary laws’. Specific laws and regulations are the responsibilities of member states depending on specific competences, not of the EC (CEC, 2001, p.20). A framework directive can, in some aspects, be compared with a constitution that enunciates the guiding principles of societal life, and regulates the different forms of power. A constitution is subsequently supported by secondary laws as specific cases arise and are judged. The construction of secondary laws is in part anchored in the reality of argumentative confrontation and arbitration that constitute jurisprudence. Jurisprudence provides, following rigorous debates, new direction and interpretation of the law within the constitutional guarantees of social cohesion at local, national and European level. Jurisprudence is anticipated to provide the cultural, political and legal context to legally interpret public participation in the WFD.

8.5.3 Openings on the implementation of the water Framework Directive

A way forward for the construction of a coherent implementation of PP in IWM and for the interpretation of the WFD (within and outside the European Union political borders, and even more relevant with the launch of the Union for the Mediterranean on the 14th of July 2008) would be partly based on pragmatism, political courage, managerial introspection, trial and error, education & communication, shared experience and best practice. The main recommendation from the CIS n.8 is that the key to success involves developing a learning approach to public participation. That is *“that competent authorities and other stakeholders collectively take responsibility for creating the necessary conditions so that public participation becomes a way of learning about each others perspectives, views and knowledges, thereby providing the basis for negotiation between stakeholders about how best to implement the Directive. [...] Sharing the management of natural resources with the people that depend upon them for their livelihood, can help to make their management more sustainable, more efficient, less expensive, and more socially acceptable. This shift means that the competent authorities may have to*

change their own organisational perspectives on the value of involving stakeholders in the process of decision-making and implementation. [...] Adopting an attitude, which begins by defining water problems as human problems rather than technical issues, is a good way to begin to appreciate perspectives of other stakeholders.” (CIS, 2003, pp.50-52)

The WFD is setting ambitious environmental and managerial objectives, it is building on existing planning activities and provides additional practices; as such we are in a transition period. Rather than seeking to comply only with the letter of the law, I suggest that compliance with the spirit of the WFD will have far reaching impacts on water management and public policy. Although the EC emphasises the need for a “*trial and error*” approach (CIS, 2003, p.60), one can see the seeds of a much more radical participation strategy based on a broader understanding of complexity and wickedness, dominion and uncertainty, ambitions and dependencies. As identified through this study of the implementation of PP in IWM in the Levant, there are (at least) three necessary conditions that underpin such a learning approach to participation:

- To simultaneously raise awareness of the rights and duties of competent authorities, traditional stakeholders, new entrants and the unaware affected wider public;
- An introspective approach to enable competent authorities to review and assess their own and others’ current approaches to PP (public policy analysis);
- To adapt political and institutional frameworks to enable competent authorities and other stakeholders to begin to develop a learning approach to PP.

Further research on the implementation of the WFD would gain:

- To compare and contrast the implementation of Article 14 (public participation) across different institutional settings, decision-making culture;
- To identify to what extent recommendations and guidelines have been used in the definition of RBMP and in the involvement of new entrants (new stakeholders in contrast to traditional stakeholders);
- To investigate the hurdles to implement guidelines and recommendations on PP in the definition of RBMP: bridge the gap between knowledge producers (academics, research institutes) and knowledge users (competent authorities, private actors and NGOs).

8.6 Discussion on adapted methodological approach

The critique begun in Chapter III was articulated around three on-going arguments about the GTM namely: i.) the controversy over axial coding and conditional matrix, ii.) the vague concept of theoretical saturation and when to stop sampling? and iii.) theoretical sensitivity and the researcher's capacity to develop a theory grounded in data. The concluding discussion on the methodology follows this order and then exposes some critiques about the implementation of the fieldwork activities and interpretation of the data.

8.6.1 No controversy over the conditional matrix for societal complexity

Glaser rejects unconditionally the use of the conditional matrix and axial coding because it, allegedly, provides an artificial analytical framework that does not come from the interpretation of the data. The process is blamed for too easily misleading researchers in forcing data into a preconceived framework and missing the theoretical relationships between codes and categories (Babchuk, 1996; Charmaz, 2006; Glaser 1992, 2001, 2002, 2004; Goulding 2002; Kendall, 1999). Strauss & Corbin (1994, 1998), on the other hand, emphasise that axial coding and the conditional matrix provide a systemic analytical framework integrating initial findings in the wider societal dynamic with: (i) the environmental framework: conditions, contexts, nature of the phenomena and (ii) the causal framework based on actions, interactions, strategies and consequences.

To answer the question I raised in Section 3.3.2.2 (about the relevance and coherence for a context dependent study involving several actors, involving different construction of meanings, to take into consideration environment, structure, process, action/interaction) one needs to review the themes elicited from the scoping interviews (Figure 5.9 in §5.4) and the initial stakeholder questionnaires (Figure 5.10 in §5.5). The interpretation of the scoping interviews provides an analytical framework integrating the structure and process of a wicked process applied to a complex societal problem (scale and size of the water related issue at stake, responsibility over water management, origin of funds, culture of decision making process and objectives and rationale of public participation). The interpretation of the initial stakeholder questionnaires refined the scope of the study and generated open codes that were tested in the survey and in the decision-influencer interviews and questionnaires. In this study, on societal complexity, the depth of uncertainty

associated with the interconnection of systems and interactions between the object and the wider social and institutional environment are one of the first results of the interpretation of data. The resulting interpretive framework is similar in character to the framework imposed by the conditional matrix (based on action interactions, structural and procedural environment), but it was the result of interpretation, not of a methodological setting as proposed by Strauss and Corbin.

Hence, the controversy about the conditional matrix and axial coding for such complex societal problems appears here to be a false debate; there was no need to design a conditional matrix, because it (or something very similar) was the result of the grounded familiarisation phase. Yes, it is coherent and relevant for a context dependent study of societal complexity to take into consideration environment, structure, process, action/interaction, but a predefined framework will over-complicate the analysis while the interpretation of the initial grounded messiness of data results in an analytical framework (§5.2).

8.6.2 Theoretical sufficiency rather than saturation

Theoretical saturation was presented in Chapter III as the point in the research process when the core category (and each category) is saturated i.e. data collection and interpretation does not add anymore information nor characteristic about the core category. The two main critiques I had were: when does it stop, and is the concept of saturation meaningful when investigating societal complexity? Let us go back to the results. This study has generated lists of objectives for public participation, type of PP, water management challenges, a list of hurdles to initiate PP and the core category is the relationship between PP and water management challenges. The reader might appreciate that in this post-modernist study, the core category is not a category as such but the relation between two key concepts (PP in relation to IWM), that is materialised through the thesis overarching question: which type of public participation for which type of water management challenges?

As seen above, because PP and WMCs are context, actor, and time dependent, it would be foolish to a) claim that all relationships between PP and WMC have been observed and understood, b) to claim that any category is saturated and c) to know when data collection should stop based on the concept of saturation. Indeed, the idea of saturation in a study focused on societal complexity characterised by emerging properties (as the result of auto-organisation in reaction the changing environment)

might be considered as a paradox. By nature complex systems display emerging behaviours and as a logical consequence one cannot pretend nor prove theoretical saturation is reached on the ground that “*no new properties of the pattern emerge*” (Glaser, 1992, p.102). There is no such thing as saturation in societal complexity.

However one can identify a body of patterns that are consistent amongst all study areas and a series of case-specific characteristics. Interpretation of results generates a theory that is self-sufficient throughout the entire study with some case-specific characteristics. For example, the typology of hurdles to initiate PP illustrates that there is a core body of hurdles through the four study areas (supporting a theory) and each data-set also inform on specific hurdles to each culture and exercise of PP. This typology of hurdles has no pretension to be exhaustive but is sufficient for the development of a theory because it addresses (in the four cases) the interconnection, interdependence, interactions within the subset of the system studied and it allows for additional context specific elements to be taken into consideration. This typology of hurdles allows for theoretical sufficiency as presented by Dey (1999).

8.6.3 Theoretical sensitivity and theorising societal complexity

From their milestone book, Glaser & Strauss emphasised the role of background, experience and even character of the researcher him/herself in analysis the results and in developing a sharp substantive and formal theory (1967). Theoretical sensibility is somehow very vague and is not of much help in developing a social theory: it just acknowledges the biases of the subject-object relationships in interpretation and in producing new knowledge. GTM was initially claimed to be both the development of a method and of a theory (substantive then formal). However, postmodernism rejects grand narratives (including system theory) and shares a common interest with complexity theory in acknowledging the biases of subject-object relationships in producing knowledge. One might question whether social theory embedded in interpretivism is restricted to contextual narrative and generating only substantive rather than formal theory? On the one hand, one might consider that the lack of theoretical sensitivity might be the cause for the difficulty to extract grand narrative from all the data (especially the difficulty to interpret Lebanese and Syrian study area). On the other hand, one might reflect on the ontological nature of societal complexity and acknowledge that given the high degree of interconnections, interaction, uncertainty, and emerging properties, there can not be indeed grand or

single narrative for societal complexity as pointed out by De Marchi & Ravetz (1999), Flyvberg (2001), Funtowicz & Ravetz (1993) and Stacey (1996) nor there is blue print or formal theory for public participation (CIS, 2003; Pateman, 1970).

8.6.4 Recommendations on methodology

Understanding GTM requires to experience it. It is not so surprising that the novice researcher might be hesitating when selecting which methodological approach to undertake, elaborating her/his judgement only on a literature body that, although rich in presenting end-results, is not very explanatory about the implementing stage of GTM as also noticed by Thomas & James (2006). I understand the worries of novice researchers because one does not know the quality or quantity of data sets, nor the turn her/his research will take with an approach grounded in interpretation of data. Some of the literature is also rather defensive and narrowly argumentative rather than pedagogic. Although all literature is initially interesting to read, I would advise to stay aside of the 'false debate' between Glaser's and Strauss' understanding of GTM and to start with open interviews, to navigate through data interpretation and to reflect on what the research is about (the dialogue ontology-epistemology). One will also learn a lot from questionnaire and interview implementation about rigors in research design, targets' interest and availability, relevance of data to inform research questions, tricks of implementation and for attracting targets about his/her subject. One will also learn about the object of his/her research and about her/himself.

Katy Charmaz (2006) and Udo Kelle (2005) have a much more mature and wise attitude in presenting GTM and they both encourage researchers to design a sequence of fieldwork and interpretive framework that is before all coherent with the aim of the research rather than trying to adhere prematurely one of the two main schools because ontology and epistemology shape each other throughout the advancement of interpretative research. In this respect, I support and confirm Blaikie (2007), Charmaz (2006), Kelle (2005) and Thomas & James (2006) understanding of GTM that is an abductive approach to social inquiry not a mere marriage between inductive and hypothetic-deductive approach to theory generation, and emphasis the role of research to interpret data and phenomena into knowledge.

Chapter IX

9 Conclusions

The conclusions are initially structured around the review of the first-order research questions (§2.5.2). The answers to second order questions are summarised in Table 9.1; specific details of the views from the stakeholders were presented in Table 5.3 (§5.3.2.4), summary and synthesis of results from the survey in Table 6.17 (§6.5.3), and summary of understanding of WMC and exercise of participation in Tables 7.12, 7.20, 7.28 and 7.36 respectively for Jordan, Lebanon, Syria and Turkey. The second part of the conclusions presents an attempt to conceptualise the findings with the theory of ‘structurative participation’. Finally, I provide some recommendations to refine implementation strategies of public participation in integrated water management and for future policy analysis research.

9.1 Which Type of participation for which type of Water Management Challenges?

What are the water management challenges according to different stakeholders: top-down and bottom-up participation views?

This thesis illustrates that IWM is a complex societal problem (§2.2.3.1 & §8.2) and confirm the relevance of the World Bank (2007) typology of cause of water scarcity: (i) scarcity of the physical resources and associated technical issues; (ii) scarcity of organisational capacity associated with managerial and planning issues; (iii) scarcity of accountability and governance issues associated with poor communication between institutional bodies in charge of water management. Additionally, individual interest in the common good, irresponsible and illegal behaviour from both decision-influencers and water users contribute to inefficient water management; a fourth element is added to the World Bank typology: behavioural scarcity. However this typology is not ‘water-proof’ and some water management challenges could fall into two categories depending on the interpretation of water management problem-solution (network leakage: physical water scarcity and/or scarcity of organisational capacity). In fact, through this classification, one is not trying to place problems into boxes but to study the relationships between the numerous causes of a problem. Hence, the weakness of this typology can actually become its strength: to give some weight and importance to the interactions between several causes of water scarcity and highlights the complexity of water management,

interconnection of systems, interaction between actors and uncertainty of knowledge (§2.2.3.1).

The common suggestions to address water scarcity in the Levant (which this study highlights) are:

- Awareness campaigns to decrease domestic demand;
- Integrated and participative management for public policy to meet the need of the population;
- Training for water managers/administration to become more effective in communication & problem identification, improve communication horizontally and vertically within layers of competent agencies;
- Improving existing infrastructure: renew supply network, build water and wastewater treatment works (preferably connected to a network);
- Adapt farming practices to water efficiency requirements (crops, irrigation, illegal withdraw, chemical pollution...).

Consensus or discrepancy in terms of priorities of water management challenges (addressing the above causes of water scarcity) between decision-influencers (top-down) and the wider public (bottom-up views) is associated with the consideration of the need for multi territorial management (interconnection between scale/level of management) and the involvement of several actors (interaction between stakeholders) as observed in Jordan, Turkey, to a lesser extent in Syria, but not in Lebanon (§8.4).

What is the meaning of PP and how is PP understood according to a top-down and a bottom-up perspective?

On the one hand, there are no perceived benefits in initiating public participation since ‘the state knows what people want’, funds are limited and PP might incur additional costs. From a top down approach, PP is considered ‘messy’, ‘unrealistic’ and a potential driver of social divides between scheme beneficiaries and losers. Public participation can become a ‘nuisance’ as highlighted above and as reported elsewhere (Innes & Booher, 2004; White, 1996). Hence current decision making strategies of Decide Announce Defend (DAD) are protected and the rationale for no PP in water management challenges is considered to be better than change (§5.2). On the other hand, as also pointed out by the interviewees, decisions impact all stakeholders and in the absence of a single omniscient and omnipotent stakeholder both dissent and

inequitable interventions are likely (§5.2, §7.3). Public participation promotes project acceptance and cooperation from the stakeholders because they reciprocate trust and accountability which potentially leads to better problem identification and problem solving.

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 neither to ‘define a common solution’ or to ‘resolve conflict’. 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 and social interaction.

The performative power of participation is to communicate. This communication is powerful in the sense that it strengthens social learning, understanding of societal complexity and it opens the public sphere to democratic decision making.

What is the wider public’s understanding of WMC and expectation towards PP?

Details of the public’s understanding of WMC in the four study areas are presented in Sections 6.3.2, 6.5.1 and 8.4. The proportion of people providing a suggestion to address WMCs and to reduce household water consumption increases as the TARWR per capita decreases. The public is overall more concerned and knowledgeable in water management in Jordan, Lebanon, and Syria than in the water rich Turkish study area. Moreover, the public surveys illustrate a strong support rate for water saving policy measures especially in Jordan (§6.3.4).

Although an uneducated public, with poor knowledge of the far reaching consequences of water management challenges is seen as a hurdle to initiate public participation (Chapter V), the evidences elicited from the medium scale survey show the contrary: a public aspiration, readiness and willingness to express ones’ voice (§6.3.3 & 6.5). 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 lower education level can be very knowledgeable and willing to participate in Jordan and in Lebanon, the two countries with the lowest Total Actual Renewable Water Resources (see §4.5).

Yes, the wider public in the four study areas is willing to participate in debates over water management and preferably through direct involvement with the objective to express their opinions; the public's preference is for direct mode of communication (§6.3.2, 8.3.2).

These results reinforce earlier work conducted in Europe and Northern America highlighting the importance for interactive communication between sponsors of participative activities and participants (English *et al.*, 1993; Glass, 1979; Mostert *et al.*, 2007; Pahl-Wostl, 2002; Pahl-Wostl *et al.*, 2007; Rowe & Frewer, 2004, 2005). Also one might 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; Kessler, 2004; Pirk, 2002). The above approach to participation tends to minimise the temporal and procedural character of participation; somehow eluding that informed decision for policy making takes time, information, interpretation of and some degree of consensus through socially constructed shared values. I confirm that Arnstein's ladder of citizen empowerment is not the most suitable mental map of types of participation to address environmental resources (and services) management such as water that is both state-strategic and a local public good (Colins & Ison, 2006). More specifically, "*Non-Participation*" and "*Citizen Control*" are the least favoured types of participation for both decision-influencers and the wider public.

Therefore, I propose to conceptualise Public Participation as a palette of colours where one can pick and choose one or many types of participation (see §8.3.4) not as a ladder and I would recommend to shift from a normative approach to a pragmatic contextual participative strategy.

What are the existing practices of PP and perceived hurdles to a desirable implementation?

Despite little evidence of participation of the public in the Jordan, Lebanon, Syria and Turkey, both decision-influencers and the wider public appreciate the need to initiate public participation in debates over water management.

Nevertheless not all types of participation are perceived to be appropriate for all water management challenges. Both 'no participation' and 'decisional participation' are perceived as inappropriate. A participative strategy to develop an integrated water policy should take several forms emphasising communication, empowerment, specific objectives depending on the challenge, the interaction between actors, and the project

management process. Participative planning as a dynamic social process involves different types of participation and is multi-objective; I would like to draw attention on a step by step approach and suggest that the following causes for water scarcity might be addressed with specific forms of participation:

- Physical scarcity & scarcity of operational capacity: informative, indirect then direct consultative participation;
- Scarcity of Governance & Accountability: direct consultation- cooperative participation for targeted actors;
- Behavioural scarcity: wide range of participation for a wide range of actors.

However, as identified in the literature review, the culture of the administration in decision-making can foster or inhibit a favourable context into which communication will flow and power will be shared depending on the objectives to initiate participation (Dahl, 1989; Deleon, 1995; Dobson, 2003; Dryzek, 2000; Fiorino, 1990; Hamlet, 2003; Laird, 1993; Pateman, 1970; Reich, 1985; Robert, 2003; Sewel & O’Riordan, 1976; and van Ast & Boot, 2003). The evidences from the scoping interviews and the stakeholder questionnaire, confirm the critical role of the Competent Authority and the culture of decision making process to foster public participation (§2.3.1.4, §5.4.3). The proposed typology of role of the Competent Authority (below), was based on the typologies of Pröpper & Steenbeek (1998, 1999) and enriched to reflect the objective of participation elicited during the familiarisation phase (§5.3), tested through the social survey (§6.3.3) and identified in the literature (CIS, 2003; English *et al.*, 1993; Glass, 1979):

- **Authoritative Informative:** The authority makes a decision and informs the public about it.
- **Closed Consultative:** The authority defines the problem then gathers opinions about this problem and reaction to potential solution through surveys.
- **Open Consultative:** The authority defines the problem then gathers opinions about a problem and reaction to potential solution through direct meetings.
- **Cooperative & Constructive:** The authority organise meeting(s) with all concerned stakeholders to define the problem and potential solution together.
- **Facilitator & Emancipator:** The authority prescribes the limits and within these limits citizens or user associations share decision-making responsibility and implementation.

The perceived current role of the competent authority in all study areas is ‘authoritative informative’, or ‘closed consultative’ and this role is not selected as desirable for integrated water management. The desirable roles are ‘open consultative’ and ‘cooperative constructive’, with enhanced sense for direct and bidirectional communication. Direct consultation should be facilitated by ‘independent, neutral and impartial parties’ such as foreign aid or consultants. Moreover, the current administration could learn from pilot projects initiated by International Institutions and promoting cooperative & constructive, facilitator & emancipator roles.

Integration in policy development is perceived to be achieved by consultation and cooperation rather than via bureaucratic hierarchies of competent authorities and that lack of communication internally and externally is a major cause of water management inefficiency (as also reported by Mostert *et al.*, 2007; Pahl-Wostl *et al.*, 2007). In order to redress this lack of integration between technical, environmental and social aspects, the information elicited (§7.3.3) corroborates suggestions made by Tabara & Pahl-Wostl (2007) that a change in decision-making culture is necessary to change governance paradigm.

Hurdles identified in this study to the initiation of public participation in IWM can be traced back to three different origins:

- Scarcity of accountability (do not want): autocratic decision- DAD attitude, PP can challenge existing power structure;
- Scarcity of organisational capacity (can not): lack of experience in PP, lack of team-work;
- Behavioural scarcity and poor communication: (i) lack of horizontal dialogue and cooperation between administrations resulting in poor shared planning; (ii) lack of vertical communication (top-down and bottom-up) and (iii) poor knowledge of who are the interested parties.

Mostert *et al.* (2007) present similar evidence based on European study areas where governance style and opportunities for participative opportunities are seemingly incompatible. I have found that, even where criteria characterising a democratic society are not all entirely satisfied, there is a case for promoting participation of the public in water management, even in Syria (§6.4.4, 7.5 & 8.4.3)

However, I note that the ongoing debate over whether a democratic society is needed to promote citizen participation or vice versa (see e.g. Berger *et al.*, 2006;

Laird, 1993; Pateman, 1970; Robert, 1995) might be misplaced because public participation and democracy are means for inclusive governance and ends in themselves. The prime objective of PP is not to have power over a decision, but to have power to communicate and to exchange personal understanding of the situation one lives. Public participation is not about power over the decision making process but power to take part, to be listened to, to be able to meet-up to exchange views. The performative power of participation is initially to construct a rich and inclusive picture of the reality people experience.

Public Participation is not only to pursue power over the final decision, but rather about defining what problems are about according to different constructs of reality, i.e, water crisis. To this respect, the newly developed grounded typologies of objectives of public participation (§8.3.1) and of types for public participation (§8.3.4) are expected to help identifying appropriate forms of participatory practices in relation to the contextual water management crisis.

Transition towards participative water management would benefit from training and education to raise the public's environmental awareness and civil servants' awareness of integrated governance through multi-territorial management and multi-stakeholders' analysis as presented in (§8.4.7).

The concluding insight of this study is not a set of answers to be taken for granted but the development of a methodology that enables:

- To define an analytical framework to try understand better the relationships between the objectives and mechanism of different type of participation and water management challenges;
- The investigation of the nature of the management challenges and associated priorities;
- A comparison of construct: what is important, what should be addressed first according to whom;
- To develop a participative and reflective stakeholders analysis;
- To get decision-influencers to consider to ask the core question of this thesis and to realise that the public might have interests and knowledge in water management.

Which type of participation for which type of water management challenges?

Table 9.1: Research questions addressed in the thesis and outcome

Which type of participation might be appropriate for which type of water management challenges?		
First order research questions	Second order research questions	Outcome
What are the water management challenges according to different stakeholder (top-down and bottom-up views)?	What are the water management challenges at stake?	Ch. V §5.4.1, VI §6.3.2, VIII §8.2: List of WMCs, VIII §8.2
	What is considered to be at risk, what are considered to be the causes of poor water management, what could be improved?	Ch. V §5.4.1, VIII §8.2: Typology: causes of water scarcity
	To what extent are water management issues perceived differently by different stakeholders?	Ch. VII, VIII: Comparison of constructs & priorities
	Who are the stakeholders that need to be involved?	Ch. VII : Potential for multi territorial management & stakeholders interactions
What is the meaning of PP and how is PP understood according to a top-down and a bottom-up perspective?	What are the current practices of PP in the study areas?	Ch. V, VI §6.3.3, VII, VIII §8.2
	What are the perceived benefits and inconvenient of PP?	Ch. V §5.2: Analytical framework
	Are people willing to participation in water management/ debate? If yes why and how?	Ch. VI §6.3.3: Statistical description
	What are the reasons for organising and taking part in participative exercises on water management?	Ch. V, VI, VII: Typology & Ranking of option & comparison
	What is the public's preferred mode of involvement in debate on water issues?	Ch. VI, §6.3.3, VII §8.3.2 : Typology & ranking of option
What is the wider public's understanding of WMC and expectation toward PP?	What is the individual knowledge of water management challenges for the wider public at river basin level in the Levant?	Ch. VI, §6.3.1: Quantitative & qualitative assessment, VIII, §8.4
	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?	Ch. VI, §6.4: statistics, discussion in §6.5.3, VIII, §8.4
What are the perceived existing practices of PP and perceived hurdles to a desirable implementation?	What is the current style of water governance and does it promote PP in IWRM? What should it be?	Ch. VII, §7.3.3: Typology for roles of the CA, comparison of perception of current and desirable situation, VII, §8.4.7
	Which communication strategies can be used to open the public sphere to water management, to raise public awareness and knowledge to tackle water scarcity?	Ch VII, §8.4.7: Ranking and comparison of options

9.2 A theory of structurative participation

This thesis illustrates that public participation is a wicked concept and that Integrated Water Management a complex societal problem. The meaning of both IWM and PP are subject to interpretation by different stakeholders, because the concepts of uncertainty, risk management and construction of a societal project challenge scientific expertise, political power, and concepts of democracy especially in terms of the representation and legitimacy of decisions concerning public good management. Furthermore, interpretations of the objectives of IWM and the participatory practices that support them evolve as problems are being identified and as solutions developed.

More fundamentally, as Foucault is not interested in truth *per se*, and that social science should not focus on the truth but rather on “*the ensemble of rules according to which the true and the false are separated and specific effect of power attached to the true*” (1994, p.132); I would like to emphasise in these concluding remarks that intellectual and practical research on public participation should shift from an attitude to find out the ‘right type participation’ the ‘actual’, the ‘true one’ towards the ensemble of contextual rules and structures according to which a set of types of participation could be exercised in a given context. A comprehensive analysis of public participation in environmental resource management hence benefits from other focus than power over decisions (the output), and gains forms a Foucauldian approach to take into consideration how power is exercised to communicate, to be informed, to give an opinion i.e. power in relation to define what the problem is, prior to define a set of solutions.

The main hurdle to implement PP is maybe not that the public is uneducated and lack of interest and sound knowledge in water management challenges because even people with low education level have a sound knowledge, interest, especially in countries with either acute physical water scarcity or scarcity of organisational capacity and scarcity of governance and accountability, and behavioural scarcity.

The main hurdles for implementing public participation might be that on the one hand, the wider public is not structured in stakeholder groups and that on the other hand current decision-making culture and water governance does not foster mechanisms to encourage the involvement of interested parties. The scale of the issue at stake does not make the structuration of the public opinion easy, but one might

investigate communication strategy in the light of the scale of the WMC identifies as a priority: how to generate organised interested groups from apparent societal chaos?

Consequently, one can envisage public participation as a way to structure disorder into a more cohesive and inclusive order to reach through participative consensus a new equilibrium in societal complexity. What appears really important to implement public participation in Integrated Water Management, is to think the exercise of participation in relation to both the object and the actors: to define a sequence of participative practices in the light of the water management challenges, to define a sequence of activities to structure existing stakeholders and the wider public into informed interest groups and to initiate social learning and capacity building amongst all interested parties especially public administration.

Public participation is a mean and an end in itself and should be seen as a vehicle to structure problem and problem solving process in a specific context; i.e. participation as a mean to structure the problem (the content) and as an end in promoting inclusive and transparent problem solving process (the process), in collaboration with stakeholders. I propose a three-step approach to public participation in integrated water management in order to create a structurative link between social actors over water management.

- Structuration of the problem: what is the problem, what are the water management challenges, what is the appropriate scale/level of management, and what are the priorities? The objective of the first step is to initiate the identification of the challenges.
- Structuration of the social actor and participative stakeholder maps: what are the existing and organised stakeholders? Ask them what their understanding of the problem is, and who are the stakeholders according to them. 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
- Structuration of the process i.e. define who participate for what (which challenges, which task, at which scale), and when in the project management process. The objective of the third step is to consensually define with the stakeholders the problem solving process.

Responsibilities in public policy ongoing development and implementations are fragmented over geographical, institutional and vested interests but the construction of shared understanding of what is at stake requires dialogue, political courage and participation. Hence, and maybe at the disappointment of those readers seeking for readily implementable solutions, there is no ‘grand narrative’ or single narrative for such a complex societal problem. In this account, Flyvberg reposition social science research in its interpretative mission rather than on its descriptive and prescription unfruitful attempt: “*the task of [...] social science is to clarify and deliberate about the problems and risks we face and to outline how things may be done differently, in full knowledge that we cannot find ultimate answers to these questions or even a single version of what the questions are*” (2001, p. 140).

In this respect the understanding of the Grounded Theory Methodology developed in this thesis enables structuration and contextualisation of societal complexity.

9.3 Recommendations on areas for future research

Recommendations on areas for further research are based on a grounded identification of the challenges in designing and using policy evaluation frameworks that supports adaptive capacity through learning in multi-actor systems: local and pilot based policy trials, water governance transition, competent authority capacity building, and interaction between policies.

Encourage participative pilot initiatives

Knowing the uncertainty associated with complex societal problems, one should encourage participative pilot initiatives and knowledge development in and scaling-up of pilots, investigation of incentives and barriers for scaling-up. How to use pilots projects as policy instruments to foster participative initiatives? How to scale-up contextualised learning points and recommendations from pilots to national water management policy?

Open-up the public sphere and promote democratisation of decision making process in public policy

Studies should focus on the mechanisms to structure the wider public in organised stakeholders groups: how to organise the wider public in interest groups? Research could focus on the role and impact of international institutions, development banks and foreign aid that might act as facilitator and emancipator between the competent agency and social actors. Participative strategy should be anchored in the political, cultural and environmental context and supported through communication strategies based on TV programme, newspaper campaign, and more direct support such as water exhibition. Communication strategies and awareness campaign should actually be used as a vehicle to promote and exercise public participation in the given context.

Focus on training programme to build competent authority internal capacity

Research programmes should focus on the science policy interface to build competent authority internal adaptive capacity, to promote training programmes for decision-influencers and policy implementers on the participative and social dimensions of water management. Better collaboration between research and policy makers is anticipated to bridge the gap between scientific knowledge and water policy implementation, while the promotion of training programmes for water managers is expected to encourage open and transparent water governance.

Integration of policies and initiating Multi-actor policy evaluation framework

One should consider the interactions and interconnections with other policies such as the habitat and conservation policies, agriculture (nitrate, irrigation, crop type...), pricing and service delivery policy, transport and energy policies as a whole and urban-rural planning in particular. With this regard coming research programme should investigate interactions and convergence between policies' objectives and enhance connectivity between policy makers, private businesses, end-users, NGOs across territorial scales (River Basin). Policy objectives might be in conflict with each other and could benefit from multi-actor policy evaluation. The ultimate objective being to anticipate and to avoid societal conflict related to the share and management of water exacerbated by climate change.

The main implication of this study for competent agencies and practitioners is to involve stakeholders early in the process of defining RBMP and to encourage stakeholder based problem definition.

My main recommendation for practitioners, sponsors, decision-makers, interested parties is to think about which type of participation could be appropriate for which type of water management challenge and to *share* their thoughts!

10 References

- Abel-Massih, Y. (2005). Public participation programme: the Akkar watershed study. Lakes & reservoirs. *Research and management*, **10**, p. 135-139.
- ADB, (2003). *Water for all, the water policy of the Asian Development Bank*, Asian Development Bank, Bangkok.
- Allan, J.A. (2002). *The Middle East water question – Hydropolitics and the Global Economy*. I.B. Tauris, London.
- Annells, M.P. (1996). Grounded theory Method: Philosophical perspectives paradigm of inquiry and postmodernism. *Qualitative Health Research*, **6**(3), p. 379-393.
- Annells, M.P. (1997a). Grounded theory Method, part I: Within the five moments of qualitative research. *Nursing Inquiry*, **4**, p. 120-129.
- Annells, M.P. (1997b). Grounded theory Method, part II: Option for the users of the method. *Nursing Inquiry*, **4**, p. 176-180.
- Anley, Y., Bogale, A., Haile-Gabriel, A. (2007). Adoption decision and use intensity of soil and water conservation measures by smallholder subsistence farmers in Dedo district, Western Ethiopia. *Land Degradation and Development*, **18**(3), p. 289-302.
- Arnstein, S. (1969). A ladder of Citizen Participation. *Journal of the American Planning Association*, **35**(4), p. 216-224.
- Asher, W. (2001). Coping with complexity and organizational interest in Natural resource management. *Ecosystems*, **4**, p. 742-757.
- Ashford, N.A., Rest. K.M. (1999). *Public Participation in Contaminated Communities*. Center for Technology, Policy, and Industrial Development. Massachusetts Institute of Technology, Cambridge, Massachusetts. <http://web.mit.edu/ctpid/www/tl/PPCC3.pdf> (accessed 11/06/08).
- Babchuk, W. A., (1996) Glaser or Strauss?: Grounded theory and adult education, Presented at the Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education, University of Nebraska-Lincoln, Lincoln, Nebraska, October 17-19. (accessed 20/06/06) <http://www.iupui.edu/~adulced/mwr2p/prior/gradpr96.htm>
- Baszanger, I. (1992). Deciphering chronic pain. *Sociology of Health & Illness*, **14**, p. 181-215.
- Beierle, T.C., & Cayford, J. (2002). *Democracy in Practice, Public participation in Environmental Decision*. Resource for the Future, Washington D.C.
- Bekele, W., Drake, L. (2003). Soil and water conservation decision behaviour of subsistence farmers in the Eastern Highlands of Ethiopia: a case study of the Hunde-Lafto area. *Ecological Economics*, **46**(3), p. 437-451.
- Berger, T., Birner, R., Diaz, McCarthy, N., Wittmer, H., (2006). Capturing the complexity of water uses and water users within a multi-agent framework. *Water Resource Management*, **27**, p. 129-148.

- Bergman, M.M., Coxon, A.P.M. (2005). The Quality in Qualitative Methods [54 paragraphs]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 6(2), Art. 34. <http://www.qualitative-research.net/fqstexte/2-05/05-2-34-e.htm> (accessed 11/06/08).
- Berkes, F. (1994). Co-management: bridging the two solitudes. *Northern Perspectives*, 22(2-3), p.18-20.
- Berkes, F., George, P., and Preston, R.J. (1991). Co-management, the evolution in theory and practice of joint administration of living resources. *Alternatives*, 18(2), p. 12-18.
- Biswas, A.K. (2001). Water policies in the developing world. *Water Resources Development*, 17 (4), p. 489-499.
- Blaikie, N. (2007). *Approach to Social Enquiry*. 2nd Edition, Polity Press.
- Borrini-Feyerabend, G. (1997). *Beyond Fences: Seeking Social Sustainability in Conservation*. IUCN, Gland (Switzerland). (accessed 01 05 08). www.iucn.org/themes/spg/Files/beyond_fences/beyond_fences.html.
- Borrini-Feyerabend, G., Farvar, M. T., Nguinguiri, J. C. & Ndangang V. (2000). *Co-management of Natural Resources: Organizing Negotiation and Learning by Doing*. Heidelberg, Ge: Kasperek Verlag.
- Briant, A. (2003). A constructive/ist response to Glaser. *Forum Qualitative Social Research*, 4(1). <http://www.qualitative-research.net/fqs-texte/1-03/1-03bryant-e.htm> (accessed 11 06 08).
- BSA (2002). Statement of Ethical Practice for the British Sociological Association. www.sociology.org.uk/as4bsoce.pdf (accessed 31 01 2008)
- Butler J. (2004). *Le pouvoir des mots, Politique du performatif*. Editions Amsterdam, Paris.
- Calloway, L. J., Ariav, G. (1995). Designing with Dialog Charts: A qualitative content analysis of enduser designers' with a software engineering design tool. *Journal of Information Systems*, 5 (2), p. 75–103.
- Calloway, L. J. (1995). Using Grounded Theory to Interpret Interviews. conference paper presented at America conference in Information Systems. (accessed 20 06 06). <http://csis.pace.edu/~knapp/AIS95.htm>.
- Carifio, J. and Perla, R.J. (2007). Ten common misunderstandings, misconceptions, persistent Myths and urban legends about Likert scales and likert response formats and their antidotes. *Journal of Social Sciences*, 3(3), p. 106-116.
- CEC (2000). Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, council of the European community; *Official Journal L 327*, 22/12/2000 P. 0001 – 0073.
- CEC (2001) European Governance – A White Paper, Commission of the European Community, COM 428, Brussels, 25.7.2001. http://ec.europa.eu/governance/white_paper/en.pdf (accessed 7/05/08)
- Chalmers, A.F. (1999). *What is this thing called Science?* Hackett Publishing Company (Third Eds) Indianapolis.

- Charmaz, K. (1994). Identity dilemmas of chronically ill men. *The Sociological Quarterly*, **35**(2), p. 269-288.
- Charmaz, K., (2000). Grounded theory- Objectivist and constructivist Methods. p. 509-535. In N.K. Denzin & Y.S. Lincoln (Second Eds.). *The Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.
- Charmaz, K. (2005). Grounded theory in the 21st century- Application for advancing social justices studies. In Denzin, N.K. & Lincoln, Y.S. (Third Eds.), *The Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.
- Charmaz, K. (2006). *Constructing Grounded theory- A practical guide through qualitative analysis*. Sage.
- Chebaane, M., El-Naser, H., Fitch, J., Hijazi, A., Jabbarin, A. (2004). Participatory groundwater management in Jordan: Development and analysis of options. *Hydrogeology Journal*, **12**, p. 14-32.
- Chilvers, J. (2007). Environmental risk, uncertainty, and participation: mapping an emergent epistemic community. *Environment and Planning A*, advance online publication, doi:10.1068/a39279.
- CIS (2003). Common Implementation Strategy for the Water Frameworks Directive (2000/60/EC) Guidance document No. 8, Public Participation in relation to the Water Framework Directive; Luxembourg, Office for Official Publication of the European Communities, 2003.
- Clarke, A.E. (1990). A social world research adventure, the case of reproductive science. In *Grounded theory in practices* edited by Strauss A. & Cordin J. (1997), Sage.
- Clarke A.E. (2003). Situational analysis: grounded theory mapping after the postmodern turn. *Symbolic Interaction*, **26**(4), p.553-576.
- Clason, D.L. and Dormody, T.J. (1994). Analysing data measured by individual Likert-type items. *Journal of Agricultural Education*, **35**(4), p. 31-35.
- Collins, K., Ison, R.L. (2006). Dare we jump off Arnstein's ladder? Social learning as a new policy paradigm, Proceedings PATH Conf 4-7 June 2006 Edinburgh. http://oro.open.ac.uk/8589/01/Path_paper_Collins_Ison.pdf (19 November 2007).
- Collins, K., Blackmore, C., Morris, D. and Watson, D. (2007). A Systemic Approach to Managing Multiple Perspectives and Stakeholding in Water Catchments: Some Findings From Three UK Study areas. *Environmental Science Policy*, **10**, p. 564-574.
- Conklin, J. (2005). *Dialogue Mapping: building Shared Understanding for Wicked Problems*. Wiley, London.
- Corbin, J., Strauss, A., (1990). Grounded Theory research: procedures, canons and evaluative criteria. *Qualitative Sociology*, **13** (1) p. 3-21.
- Cuff, J. (2001). Participatory Processes: A tool to assist the wise use of catchements, A guide based on experience. Wise Use of Floodplains EU life-environment Project. <http://www.floodplains.org/technical.htm> accessed 11th 05 08.
- Dahl, R.A., (1989). *Democracy and its critics*. Yale University.

- Darier E., Gough C., De Marchi B., Funtowicz S., Grove-White R., Kitchener D., Guimaraes Pereira A., Shackley S., Wynne B. (1999). Between democracy and expertise? Citizens' participation and environmental integrated assessment in Venice and St. Helens (UK). *Journal of Environmental Policy & Planning*, **1**, p.103-120.
- Deleon, P. (1995). Democratic Values and the Policy Sciences. *American Journal of Political Science*, **39** (4), p. 886-905.
- De Marchi, B. (2003). Public participation and risk Governance. *Science and Public Policy*, **30** (2), p. 171-176.
- De Marchi, B.; Ravetz, J. (1999). Risk Management and governance: a post normal science approach. *Futures*, **31**, p. 743-757.
- Denzin, N.K., Lincoln, Y.S. (Eds.) (1994) *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Denzin, N.K., Lincoln, Y.S. (Eds.) (1998). Introduction: Entering the Field of Qualitative Research. In Norman Denzin & Yvonna Lincoln (Eds.), *The Landscape of Qualitative Research. Theories and Issues* (p. 1-34). Thousand Oaks: Sage.
- Denzin, N.K., Lincoln, Y.S. (Eds.) (2000) *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Denzin, N.K., Lincoln, Y.S. (Eds.) (2005) *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Dey, I. (1999). *Grounding Grounded Theory*. San Diego: Academic Press.
- Dick, Bob (2005). Grounded theory: a thumbnail sketch. (accessed 22 06 06) <http://www.scu.edu.au/schools/gcm/ar/arp/grounded.html>
- Dietz, T. (1995). What should I do? Human ecology and collective Decision Making. *Human Ecology Review*, **1**, p. 301-309.
- Diez, T., Agnantopoulos, A., Kalier, A. (2005). File: Turkey, Europeanization and civil society : introduction. *South European Society & Politics*, **10** (1), p. 1-15.
- Dobson, A.(2003). *Citizenship and the environment*. Oxford University Press.
- Dobuzinskis, L.(2004). Where is Morin's road to complexity going? *World Future*, **60**, p. 433-455.
- Dorcey, A., Doney, L. & Rueggeberg , H. (1994). *Public Involvement in Government Decision-making : choosing the right model*. Round Table on the Environment and the Economy, Victoria, British Columbia.
- DOS (2004). Census 2004. Department of Statistics, Amman, Jordan. www.dos.gov.jo (accessed 22 11 07).
- Dryzek, J.S. (2000). *Deliberative democracy and beyond- liberals, critics, contestations*, Oxford University Press.
- DSI, (2003). *The status of water resources development in Turkey, Country report prepared for Third world water forum in Kyoto*. General Directorate of State Hydraulic Works, Ministry of Energy and Natural resources. Ankara, Turkey.

- Dunn, W.N. (1988). Methods of the second type: Coping with the wilderness of conventional policy analysis. *Policy Studies Review*, **7**, p. 720-737.
- EBRD (1995) *Manual on public participation*. European Bank for Reconstruction and Development. Environmental Resource Management, London
- Edmont, P. (1975). Participation and the environment: A strategy for democratising Canada's environmental protection laws; *Osgood hall Law Journal*, **13**(3), p. 783-837.
- EEB-WWF (2004). 'Tips and Tricks' for water framework directive implementation. A resource document for environmental NGOs on the EU guidance for the implementation of the Water Framework Directive. (accessed 11/06/08) <http://assets.panda.org/downloads/wfdtipstricksmarch2004.pdf>
- EEB-WWF (2005). EU water policy: Making the water framework directive work- the quality of national transposition and implementation of the water framework directive at the end of 2004. (accessed 11 06 08) <http://assets.panda.org/downloads/waterframeworkdirectivesnapshotiifebruary2005.pdf>
- EIB (2007). *Environmental and Social Practices Handbook*. European Investment Bank, Luxembourg.
- Eidsvik, H., K. (1978). Involving the Public in Park planning: Canada. *Parks*, **3**(1), p. 3-5.
- English, M.R., Gibson, A.K. Feldman, D.L. and Tonn. B.E. (1993). *Stakeholder Involvement: Open Processes for Reaching Decisions about the Future Uses of Contaminated Sites*. Waste Management Research and Education Institute. University of Tennessee, Knoxville, TN.
- Enserink, B., Patel, M., Kranz, N., Maestu, J. (2007). Cultural Factors as Co-Determinants of Participation in River Basin Management. *Ecology and Society*, **12** (2), 24. (accessed 11 06 08). <http://www.ecologyandsociety.org/vol12/iss2/art24/>
- Eriksen, E.O., Weigård, J. (2004). *Understanding Habermas: Communicative action and Deliberative Democracy*. Continuum, London.
- European Union (EU). (2004) Introduction to the new EU Water Framework Directive. <http://europa.eu.int/comm/environment/water/water-framework/overview>. (accessed 24 September 2005).
- Falkenmar, M., Lundquist, J., Widstrand, C. (1989). Micro-scale Water Scarcity requires Micro-scale approaches: Aspects of vulnerability in semi-arid development. *Natural Resources Forum*, **13** (4), p. 258-267.
- FAO-AQUASTAT (2005). http://www.fao.org/nr/water/aquastat/water_res/waterres_tab.htm (accessed 11 06 08).
- Feeny D., Berkes F., McCay B.J., Acheson J.M. (1990). The Tragedy of the commons: twenty-two years latter. *Human Ecology*, **18**(1), p. 1-19.
- Feindt, P.H. Oels, A. (2005). Does discourse Matter? Discourse Analysis in environmental policy making. *Journal of Environmental Policy& Planning*, **7**(3), p. 161-173.

- Fiorino, D.J. (1990). Citizen Participation and environmental risk: a survey of institutional Mechanisms. *Science, Technology & Human Values*, **15**(2), p. 223-246.
- Fischer, F. (1993). Citizen participation and the democratisation of policy expertise: from theoretical inquiry to practical cases. *Policy Sciences*, **26**, p. 165-187.
- Fischhoff, B. (1998). Risk perception and communication unplugged: twenty years of process. In: *Risk and Modern Society*, Lofstedt, R. Frewers, L. (Eds). Earthscan: London, p. 133-149.
- Flyvbjerg, B. (2001). *Making social science Matter – Why social inquiry fails and how it can succeed again*. Cambridge University Press.
- Flyvberg, B. (2006). Five Misunderstandings about case-study Research. *Qualitative Inquiry*, **12**(2), p. 219-245.
- Foddy, W. (1993). *Constructing questions for interviews and questionnaires: theory and practice in social research*. Cambridge; Cambridge University Press.
- Forrester, J. (1999a). The logistics of public participation in environmental assessment. *International Journal of Environment and Pollution*, **11**, p. 316-330.
- Forrester, J. (1999b). *The deliberative practitioner: Encouraging Participative Planning Processes*. The MIT Press, London, England.
- Foucault, M. (1984). *The Foucault reader – an introduction to Foucault’s thought*. Paul Rabinow (Eds), Penguin Books.
- Foucault, M. (1991). *The Foucault reader: an introduction to Foucault’s thought. Truth and Power*. p. 51-75. Paul Rabinow Eds, Pinguin books.
- Foucault, M. (1994). Michel Foucault – Power, essential works of Foucault 1954-1954 Volume (Third Eds) James D. Faubion, Penguin books.
- Fowler, F. J. Jr. (2002). *Survey Research Methods*. Sage, Thousand Oaks, California.
- Francis, G. (2006). “Models” for sustainability emerge in a open system Context. *The Integrated Assessment Journal*, **6**(4), p. 59-77.
- Freeman, D.M. (2000). Wicked Water Problem: Sociology and Local Water Organisations in Addressing Water Resources Policy. *Journal of American Water Resource Association*, **36** (3), p. 483–491.
- Fujimura, J.H. (1988). The molecular biological bandwagon in cancer research- where social worlds meet. *Social Problems*, **35**(3), p. 261-283.
- Funtowicz, S.O., Ravetz, J.R. (1993). Science for the post-normal age. *Futures*, **25**, p. 739-755.
- Geary, M (2005). The role of legitimacy in the relationships between water users and governance bodies under conditions of increasing water stress. PhD Thesis, School of Industryial and Manufacturing Sciences, Cranfield University, Uk.
- Geldof, G.D. (1997). Coping with uncertainties in Integrated Urban Water management. *Water Science & Technology*, **36** (8-9), p. 265-269.

- Gerlach, E., (2007). Regulating for the Poor – Economic regulation of water supply services for low-income urban populations. PhD Dissertation School of Applied Science, Cranfield University, UK.
- Giammusso, M. (1999). Civil society initiatives and prospects of economic development: The Euro-Mediterranean decentralized co-operation networks. *Mediterranean Politics*, **4**(1), p. 25-52.
- Giddens, A. (1984). *The Constitution of Society – Outline of the Theory of Structuration*. University of California Press.
- Giddens, A. (2006). *Sociology*. Fith Eds. Polity Press, Cambridge, UK.
- Gilg, A., & Barr, S. (2006). Behavioural attitudes towards water saving? Evidence from a study of environmental actions. *Ecological Economics*, **57**(3), p. 400-414.
- Gill, J. (2008). *Bayesian Methods: a social and Behavioural science approach*. 2nd Eds., Chapman & Hall/CRC, London.
- Glaser, B.G. & Strauss, A.L. (1967). *The Discovery of Grounded Theory*. New York, Aldine.
- Glaser, B.G. (1978). *Theoretical Sensitivity: Advances in the Methodology of Grounded Theory*. Mill Valley, Ca.: Sociology Press.
- Glaser, B.G. (1992). *Basics of grounded theory analysis*. Mill Valley, Ca.: Sociology Press.
- Glaser, B.G. (2001). *The Grounded Theory perspective: Conceptualisation contrasted with description*. Mill Valley, Ca.: Sociology Press.
- Glaser, B.G. (2002). Constructivist Grounded Theory? *Forum Qualitative Social Research*. 3(3). <http://www.qualitative-research.net/fqs-texte/3-02/3-02glaser-e.htm>
- Glaser, B.G. (2004). Remodelling Grounded Theory. *Forum Qualitative Social Research*. 5(2). <http://www.qualitative-research.net/fqs-texte/2-04/2-04glaser-e.pdf>. (Accessed on 22 11 07)
- Glass, J. J. (1979). Citizen participation in planning: the relationship between objectives and techniques. *Journal of the American Planning Association*, **45**(2), p. 180-189.
- Göb, R., McCollin, C. and Ramalhoto, M.F. (2007). Ordinal Methodology in the Analysis of Likert Scales. *Quality & Quantity*, **41**, p. 601-626.
- Goulding, C. (2002). *Grounded Theory A practical guide for management, Business and Market researchers*. SAGE Publication London.
- Graffy, E.A. (2006). Expert forecast and the emergence of water scarcity on public agendas. *Society and Natural Resources*, **19**, p. 465-472.
- Green, A.O. Hunton-Clarke, L. (2003). A typology of stakeholder participation for company environmental decision-making. *Business Strategy and the Environment*. **12**, p. 292-299.
- GTZ-MoI (2004). Initial assessment study of water sector management in the Syrian Arab Republic. Federal Ministry for Economic Cooperation and Development, Bonn.

- GTZ -MWI (2002). *Water Resources Management for Irrigated Agriculture: Annual progress report - June 2001- May 2002*. GTZ-MWI, Amman, Jordan.
- GTZ-MWI (2004). *Water Resources Management for Irrigated Agriculture: Second and final progress report of phase 1 June 2002-November 2003*. GTZ- MWI, Amman, Jordan.
- GWP (2000). *Integrated Water resource Management*. Global Water Partnership TAC 04, Stockholm.
- GWP (2004). *Integrated Water Resources Management and water efficiency plans by 2005- why, what and How?* Global Water Partnership TAC10, Stockholm.
- Habermas, J. (1989). *The structural transformation of the public sphere: An inquiry into a Category of Bourgeois Society*. Polity Press, Cambridge.
- Haddadin, M.J. (2006). *Water resources in Jordan, Evolving Policies for development, the environment, and conflict resolution*. Haddadin Eds. RFF Press Book, Washington D.C.
- Haig, B.D., (1995). Grounded theory as Scientific method. Lecture-University of Canterbury UK. http://www.ed.uiuc.edu/EPS/PES-yearbook/95_docs/haig.html. (accessed 22 11 07)
- Hajer, M. A. (1995). *The politics of environmental discourse – Ecological Modernisation and the Policy Process*. Clarendon Press, Oxford.
- Hajer, M.A., & Zonneveld, W. (2000). Spatial planning in the Network Society – Rethinking the principles of planning in the Netherlands. *European Planning Studies*, **8**(3), p. 337-355.
- Hajer, M. (2005). Setting the stage: a dramaturgy of policy Deliberation. *Administration & Society*, **36** (6) p. 624-647.
- Hajer, M., Versteeg, W., (2005). A decade of discourse Analysis of environmental Politics: Achievements, Challenges, Perspectives. *Journal of Environmental Policy & planning*, **7**(3), p. 175-184.
- Hall, D., Katko, T., Sanz Mulas, A., Lobina, E., de la Motte. R. (2007). Decision-making and participation: the Watertime results. *Utilities Policy*, **15**, p. 151-159.
- Hamilton, L.C. (1983). SAVING: A Causal Model of Household Conservation. *Sociological Perspectives*, **26**(4), p. 355-374.
- Hamlet, P.W. (2003). *Technology Theory and Deliberative Democracy*. *Science Technology & Human Values*, **28**(10), p. 112-140.
- Hartley, N., Wood, C. (2005). Public participation in environmental impact assessment-implementing the Aarhus convention. *Environmental impact Assessment Review*, **25**, p. 319-340.
- Hermans, L. (2005). *Actor analysis for water resource management: putting the promise into practice*. Eburon, Delft.
- Hisschemoller, M., Hoppe, R. (1996). Coping with Intractable Controversies: the case for problem structuring in Policy design and Analysis. *Knowledge & Policy: The International Journal of Knowledge Transfer and Utilisation*, **8**(4), p. 40-60.

- Horowitz, R., (2001) Inequalities, Democracy, and fieldwork in the Chicago Schools of yesterday and today. *Symbolic Interaction*, **24**(4), p. 481-504.
- House, A.H. (1999). Citizen participation in water management. *Water Sciences & Technology*, **40**(10), p. 125-130.
- ICEA-CORAIL (2004a). *Projet d'Appui à la Réforme Institutionnelle du Secteur de l'Eau au Liban. Rapport N°1: Revue Juridique et Etat des Lieux*. Beyrouth, République Libanaise - Ministère de l'Energie et de l'Eau; Ambassade de France au Liban - Service de Coopération et d'Action Culturelle.
- ICEA-CORAIL (2004b). *Les Libanais et l'eau potable. Enquêtes socio-économiques*. Beyrouth, République Libanaise - Ministère de l'Energie et de l'Eau; Ambassade de France au Liban - Service de Coopération et d'Action Culturelle.
- ICWE (1992). The Dublin Statement on water and Sustainable development. International Conference on Water and the Environment, Dublin, 29-31 January. <http://unesco.org/science/waterday2000/dublin.htm> (accessed 22 11 07).
- IISD, (2004). *Investment and sustainable development- a guide to the use and potential of international investment agreements*. International Institute for Sustainable Development.
- Innes J. E., Booher. D.E. (2004). Reframing Public Participation: Strategy for the 21st century. *Planning Theory & Practices*, **5**(4), p. 419-436.
- Jeffrey, P. (2006). The human dimensions of IWRM: Interfaces between knowledges and ambitions, in Hlavinek, P.; Kukharchyk, T.; Marsalek, J.; Mahrikova, I. Eds, *Integrated Urban Water Resources Management*, Springer, Dordrecht, p. 11-18.
- JICA (2001). *The Study on Water Resources Management in the Hashemite Kingdom of Jordan*. Draft Report Vol. I & II Prepared for the Ministry of Water and Irrigation, Amman, Jordan by Yachiyo Engineering Co. Ltd., Tokyo, Japan.
- Jick, T.D. (1979). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, **24**, p. 602-611.
- Kähkönen, S. (1999). *Does social capital matter in water and sanitation delivery? A review of literature*. Social Capital Initiative, Working paper No.9, The World Bank.
- Kaplan, B., Duchon D. (1988), Combining qualitative and quantitative Methods in information systems research, a case study. *MIS Quarterly*, **12** (4), p. 571-586.
- Karousalis K., Koundouri P. (2006). *Water management in arid and semi-arid regions: interdisciplinary perspectives*. Edward Elgar Publishing Ltd.
- Kasemir, B., Jäger, J., Jaeger, C.C., Gardner, M.T. (2003). *Public participation in sustainability Science: A Handbook*. Cambridge University Press.
- Kelle, U. (2005). "Emergence" vs. "Forcing" of Empirical Data? A Crucial Problem of "Grounded Theory" Reconsidered [52 paragraphs]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, **6**(2), Art. 27. <http://www.qualitativerecherche.net/fqs-texte/2-05/05-2-27-e.htm> (access 25 01 2008).

- Kendall, J. (1999). Axial coding and the grounded theory controversy. *Western Journal of Nursing Research*, **21**(6), p. 743-757.
- Kessler, B., L. (2004). *Stakeholders Participation: A Synthesis of current Literature*. National Marine Protected Area Center. Silver Spring, Maryland, USA.
- Keshavarzi, A.R., Sharifzadeh, M., Kamgar Haghighi, A.A., Amin, S., Keshtkar, Sh., and Bamdad, A. (2006). Rural domestic water consumption behavior: A case study in Ramjerd area, Fars province, I.R. Iran. *Water Research*, **40**(6), p. 1173-1178.
- Kolkman, M.J., Kok, K., van der Veen, A. (2005). Mental model mapping as a new tool to analyse the use of information in decision-making in integrated water management. *Physics & Chemistry of the Earth*, **30**, p. 317-332.
- Konecki K. (1997). Time in the recruiting search process by headhunting companies. In *Grounded theory in practices*. Strauss A. & Cordin J. Eds (1997), Sage.
- Kravencho, S. (2003). *Public Participation in Strategic environmental Decisions: Guide for Environmental Citizens Organisations*. European Eco Forum, European Environmental Bureau, Brussels. (accessed 10 05 08).
www.unece.org/env/pp/Media/PP_Strategic_Decisions_e.pdf
- Laird, F.N. (1993). Participatory Analysis, Democracy and Technological decision making. *Science Technology & Human Values*, **18**(3), p. 341-361.
- Lambert, L. (1997). The line in the sand- Definitional dialogues in abusive relationships. In *Grounded theory in practices*. Strauss A. & Cordin J. Eds (1997), Sage.
- Lancaster, W., Lancaster, F. (1999). *People land and water in the Arab Middle East: environments and Landscapes in the Bilad ash-Sham*. Harwood Academic Publisher.
- LAS (2002). The Arab Declaration to the World Summit on Sustainable Development (WSSD), The league of Arab States, Johannesburg, South Africa, 2-11/9/2002.
http://www.johannesburgsummit.org/html/prep_process/cairo_declaration_ws_sd2_english.doc (11 05 2008).
- Lee, S., Roth, W. (2006). Community-level controversy over a Natural resource: toward a more democratic science in society. *Society and Natural Resources*, **19**, p. 429-445.
- Lévi-Strauss, C. (1963). *La "pensée sauvage" et le structuralisme*. Paris: Esprit. In Mottier (2007).
- Loucks, D.P. (2000). Sustainable water resources management. *Water International*, **21**(1), p. 1-10.
- Maxim, L., & van der Sluijs J. P. (2007). Uncertainty: cause or effect of stakeholders' debates? Analysis of a case study: the risk for honeybees of the insecticide Gaucho. *Science of the Total Environment*, **376**, p. 1-17.
- MEDITATE D10-15 (2005). Deliverable 10&15: Collated report on case study sociopolitical and governance circumstances. Jordan . MEDITATE EU Research Project. Cranfield, UK, Centre for Water Science, Cranfield University, p. 146, (accessed 11/06/08).
<http://www.meditate.hacettepe.edu.tr/publication/reports.htm>

- MEDITATE D33 (2007). Deliverable 33: Report on Cost Effectiveness Analysis in the four MEDITATE case studies (Lebanon Jordan, Turkey and Syria). BRGM, France, p. 165, (accessed 11/06/08).
<http://www.meditate.hacettepe.edu.tr/publication/reports.htm>
- Mehanna, W. (2006). Using mixed methods in the evaluation of online discussions. Networked learning conference 2006 Proceedings. The University of Lancaster.
- Mehmetoglu, M., Altinay, L. (2006). Examination of grounded theory analysis with an application to hospitality research. *Hopitality Management*, **25**. p. 12-33.
- Mingers, J. (2001). Combining IS research Methods: towards a pluralist Methodology. *Information Systems Research*, **12** (3), p. 240-259.
- Mitleton-Kelly, E. (2003). *Ten Principles of Complexity & Enabling Infrastructures*. In Mitleton-Kelly, E. (Ed). *Complex Systems & Evolutionary Perspectives of Organisations: The Application of Complexity Theory to Organisations*. Elsevier, Amsterdam.
- MoA (2004). Stratégie de développement agricole du Liban. Beyrouth, Ministère Libanais de l'Agriculture - Direction des Etudes et de la Coordination, p. 60.
- MoE (2001). State of the Environment Report 2001. Beirut, Lebanon Ministry of Environment, 246 pages.
- MoI (2004). Initial assessment study of water sector management in the Syrian Arab Republic, compiled by kfW, gtz and BGR for the Ministry of irrigation. Damascus September 2004, 124 pages.
- Monnikhof, R.A.H. (2006). Policy analysis for participatory policy making. Ph.D. thesis, TU Delft.
- Morin E. (1997). *La Methode -1. La Nature de la Nature*. Editions du Seuil.
- Morin (2005a) Restricted complexity, general complexity. Proceeding paper intelligence de la complexité: épistémologie et pragmatique, Cerisy-la-Salle, France June 26th 2005.
- Morin, E. (2005b), *Introduction à la Pensée Complexe*, Edition du Seuil, Paris.
- Morse, J. M. & Chung, S. E. (2003). Toward holism: The significance of methodological pluralism. *International Journal of Qualitative Methods*, **2**(3).
http://www.ualberta.ca/~iiqm/backissues/2_3final/pdf/morsechung.pdf. (26/06/2006)
- Mostert, E., Pahl-Wostl C., Rees, Y., Searle, B., Tàbara, D. Tippett, J. (2007). Social learning in European river Basin management: barriers and fostering mechanisms from 10 river basins. *Ecology and Society*, **12**(1).
<http://www.ecologyandsociety.org/vol12/iss1/art19/> (accessed 11 06 08).
- Mottier, V. (2005). The Interpretive Turn: History, Memory, and Storage in Qualitative Research [21 paragraphs]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, **6**(2), Art. 33. Available at:
<http://www.qualitative-research.net/fqs-texte/2-05/05-2-33-e.htm> (11/06/08).
- Motion, J. (2005). Participative public relations: Power to the people or legitimacy for government discourse? *Public Relations Review*, **31**, p. 505-512.

- Mouffe, C. (1999). Deliberative democracy or agonistic pluralism? *Social research*, **66**(3), p. 745–758.
- Muro, M. Jeffrey, P. (2008) A critical review of the theory and application of social learning in participatory natural resource management processes. *Journal of Environmental Planning and Management*, **51** (3), p. 325-344.
- MWI-GTZ (2005). *National Water Master Plan*. Ministry of Water and Irrigation, Hashemite Kingdom of Jordan.
- Myers, M. D. (1997). Qualitative Research in Information Systems, *MIS Quarterly*, **21**(2), p. 241-242.
<http://www.qual.auckland.ac.nz/#Modes%20of%20Analysis> (accessed 11 05 08).
- Nelkin, D., Pollak, M. (1979). Participation in technological Decision: Reality or grand illusion? *Technology Review*, **81**, p.55-64.
- NOAA. (2000). *Navigating in Rough Seas: Public Issues and Conflict Management. Training manual*. National Oceanic and Atmospheric Administration, Coastal Services Center. L. Hinkey and K. Ellenberg, editors. Charleston, SC. Cited in: Kessler, B.L. (2004). *Stakeholders Participation: A Synthesis of current Literature*. National Marine Protected Area Centre. Silver Spring, Maryland, USA.
- Norman, W., MacDonald, C. (2004). Getting to the Bottom of the “Triple Bottom Line”. *Business Ethics Quarterly*, **14**(2), 243-262.
- Nowotny, H. (1999). The Need for Socially Robust Knowledge. *TA-Datenbank-Nachrichten*, **3-4**(8). www.itas.fzk.de/deu/tadn/tadn993/nowo99a.htm (accessed 11 05 08).
- Nowotny, H., Scott, P., Gibbons, M. (2006). *Re-thinking science- Knowledge and the public in an age of uncertainty*. Polity Press- Blackwell.
- NRC (1996). *Understanding Risk: Informing Decisions in a Democratic Society*. National Research Council, Committee on Risk Characterization, National Academy Press, Washington, D.C.
- Olsen, W., (2004). Triangulation in social research: qualitative and quantitative Methods can really be mixed. In *Development in Sociology*, Eds. M. Holborn, Ormskirk: Causeway Press.
- Page, B., Kaika, M.(2003). The EU Water Framework Directive: Part 2. Policy innovation and the shifting choreography of governance. *European Environment*, **13**, p. 328-343.
- Pahl-Wostl, C. (2002). Towards sustainability in the water sector – the importance of human actors and processes of social learning. *Aquatic Sciences*, **64**, p.394-411.
- Pahl-Wostl, C., Craps, M., Dewulf, A., Mostert, E., Tàbara, D., Taillieu, T. (2007). Social learning and water resources management. *Ecology and Society*, **12**(2), 5. <http://www.ecologyandsociety.org/vol12/iss2/art5/> (accessed 10 05 2008).
- Pandit, N.R. (1996). The Creation of Theory: A Recent Application of the Grounded Theory Method. *The Qualitative Report*, **2**(4). (accessed 11 05 08)
<http://www.nova.edu/ssss/QR/QR2-4/pandit.html>

- Parenteau, R. (1988). *Public Participation in Environmental Decision-making*. Environmental Assessment Review Office (FEARO), Ottawa, Canada.
- Pateman, C. (1970). *Participation and democratic theory*. Cambridge, Cambridge University Press.
- Partington, D. (2000). Building Grounded theory of action Management. *British Journal of Management*, **11**, p. 91-102.
- Patterson, M.E., & Williams, D.R. (1998). Paradigms and problems: The practice of Social Science in Natural Resource Management. *Society and Natural Resources*, **11**, p. 279-295.
- Pender, J.L. & Kerr, J.M. (1998). Determinants of farmers' indigenous soil and water conservation investments in semi-arid India. *Agricultural Economics*, **19**(1-2), p. 113-125.
- Petts, J. (2005). Public Engagement to build trust: false hope?. *Journal of Risk Research*, **11**(6), p.821-835.
- Pirk, S. (2002). Expanding Public Participation in Environmental Justice: Methods, Legislation, Litigation and Beyond. *Journal of Environmental Law and Litigation*, **17**, p. 207-240.
- Pomeroy R.S. (1995). Community-based and co-management institutions for sustainable coastal fisheries management in Southeast Asia. *Ocean & Coastal Management*, **27**(3), p. 143-162.
- Pretty, J., & Shah, P. (1994). *Soil and water conservation in the twentieth Century: a History of Coercion and control*, Rural History Centre Research series 1. University of Reading, Reading.
- Pröpper, I.M., & Steenbeek D.A. (1998). Interactieve beleidsvoering: typering, ervaringen en dilemma's. *Bestuurskunde*, **7**(7), p. 292-301.
- Pröpper, I.M., & Steenbeek D.A. (1999). The approach of Interactive Policy Making: Each situation is Different. Coutinho Bussum. In: van Ast J. Boot, S. (2003). Participation in European water policy. *Physics and Chemistry of the earth*, **28**, p. 555-562.
- Quevauviller, Ph., Panagiotis Balabanis, P., Fragakis, C., Weydert M., Oliver M., Kaschl, A., Arnold G., Kroll A., Galbiati, L., Zaldivar, J.M., Bidoglio G. (2005). Science-policy integration needs in support of the implementation of the EU Water Framework Directive. *Environmental Science & Policy*, **8**, p. 203-211.
- Racevskis, L.A. & Lupi, F. (2006). Comparing Urban and Rural Perceptions of and Familiarity with the Management of Forest Ecosystems. *Society and Natural Resources*, **19**(6), p. 479-495.
- Reich, R.B. (1985). Public administration and public deliberation: an interpretative essay. *Yale Law Journal*, **94**(7), p. 1617-1641.
- Renn, O., Webler, T., Rakel, H., Dienel, P., Johnson, B. (1993). Public participation in decision making : A three-step procedure. *Policy Sciences*, **26**, p. 189-214.
- Ridder, D., Mostert, E., and Wolters, H.A. editors. (2005). *Learning together to manage together: improving participation in water management*. University of Osnabrück, Osnabrück.

- Rittle, L., Webber, M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, **4**, p. 155-169.
- Robert, R. (1995). *Public involvement from consultation to participation*. In Environmental and Social impact assessment, Eds Vanclay. F., Bronstein. D.A., John Wiley & Son.
- Robert, N. (2003). Direct Citizen Participation: Building a Theory. Proceeding paper presented to the 7th National Public management Research Conference, October 9-11, Georgetown University, Washington D.C.
- Robson, C. (2002). *Real World Research – A Resource for Social Scientists and Practitioner-Researchers*. 2nd Eds., Blackwell Publishing, Oxford.
- Roudi-Fahimi, F., Creel, L., De Souza, R. (2002). *Finding the Balance: Population and Water Scarcity in the Middle East and North Africa*. Population Reference Bureau, Washington D.C.
- Rowe, G. Frewer L. (2000). Public participation Methods: A framework for evaluation. *Science, technology & Human Values*, **25**(1), p. 3-29.
- Rowe, G. Frewer, L.J. (2004). Evaluating Public Participation Exercises: A Research agenda. *Science Technology, & Human Values*, **29**(4), p. 512-556.
- Rowe, G. Frewer, L. J. (2005). A typology of public engagement mechanisms *Science Technology and Human Values*, **30**(2), p. 251-290.
- Rowe, G. March, R. Frewer, J. (2004). Evaluation of a deliberative conference. *Science, technology & Human Values*, **29**(1), p. 88-121.
- Saarikoski, H. (2007). Objectivity and the Environment - Epistemic Value of Biases. *Environmental Politics*, **16** (3), p. 488-498.
- Salman, M., & Mualla, W. (2002). Water Demand Management in Syria: Centralized and decentralized views. Fiuggi Forum on Water Demand Management in the Mediterranean Region. Fiuggi, Italy, October 2002.
- Salman, A., Al-Karablieh, E., Regner, H-J., Woolff, H-P., Haddadin, M. (2008). Participatory irrigation water management in the Jordan Valley. *Water Policy*, **10**, p. 305-322.
- Selby, J. (2003). *Water, Power and Politics in the Middle East – the other Israeli-Palestinian Conflict*. I.B. Tauris, London.
- Shrader-Frechette, K.S. (1985). Risk analysis and scientific method: Methodological and ethical problems with evaluating societal risks. Boston: D. Reidel
- Shrader-Frechette, K.(1998) The social construction of risk: Scientific method, anti-foundationalism and public decision. In Lofstedt R. E. & Frewer L. Risk and Modern society. Lofstedt & Frewer Eds, Earthscan Publications Ltd.
- Sidaway R. (2005). *Resolving environmental disputes- from conflict to consensus*. Earthscan, London.
- Simon, H.A.(1973). The structure off ill-structured problems. *Artificial Intelligence*, **4**, p. 181-201.
- Schindler, B., & Cramer, L.A. (1999). Shifting Public Values for forest management: making sense of Wicked Problems. *Western journal of Applied Forestry*, **14**(1), p. 28-34.

- Sewell, W.R.D. & O’Riordan, T. (1976). The culture of participation in environmental decision making. *Natural Resource Journal*, **16**, p. 1-22.
- Söderberg, H., & Kärrman, E., (2003). *Methodologies for Integration of knowledge Areas: The case of sustainable Urban Water Mangement*. Chamers University of Technology, Göteborg.
- Stacey R. (1996). emerging strategies for a chaotic environment. *Long Range Planning*, **29**(2), p. 182-189.
- Strauss, A.L. (1987). *Qualitative Analysis*. N.Y. Cambridge University Press.
- Strauss, A.L., & Corbin, J. (1994). *Grounded theory methodology: An overview*. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.
- Strauss, A.L., & Corbin, J. (1998). *Basic of Qualitative Research: techniques and procedures for developing Grounded theory*. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.
- Tåbara, D. & Pahl-Wostl C. (2007). Sustainability learning in natural resource use and management. *Ecology and Society*, **12**(2): 3. (accessed 11 06 08) <http://www.ecologyandsociety.org/vol12/iss2/art3/>.
- Thomas, G., & James, D. (2006). Reinventing grounded theory: some questions about theory, ground and discovery. *British educational Research Journal*, **32**(6), p. 767-795.
- Transparency International (2005). *Corruption Index*. Berlin Germany. www.transparency.org (accessed 11 06 08)
- Tewdwr-Jones M., Allmendinger, P. (1998). Deconstructing communicative rationality: a critique of Habermasian collaborative planning. *Environment and Planning A*, **30**, p. 1975-1989.
- UNCED (1992). *United Nations Conference on Environment & Development, Conférence des Nations Unies sur l’Environnement et le Développement, Agenda 21*, Switzerland.
- UNDP. (1993), *Human Development Report*, New York, Oxford University Press.
- UNDP. (1997), *Empowering People: a guide to participation*. (accessed 11 05 08) <http://www.undp.org/cso/resource/toolkits/empowering/intro.html>
- UNDP. (2000), *Human Development Report – Human right and Human Development*, New York, Oxford University Press.
- UNDP. (2002), *Human Development Report – Deepening democracy in a fragmented world*, New York, Oxford University Press.
- UNDP. (2003), *Arab Human Development report 2003- Building a knowledge society*, UNDP, New York.
- UNDP. (2006), *Human Development Report - Beyond scarcity: Power, poverty and the global water crisis*, New York. Palgrave Macmillan.
- UNDP (2003). *Arab Human Development Report 2003- Building a knowledge society*. UNDP, New York.

- UNECE (1998) UN Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. 25th June 1998, Aarhus, Denmark.
- UNECE (2000) Convention on access to Information, Public Participation in decision-making and Access to Justice in environmental Matters, The Aarhus Convention: an implementation guide. ECE/CEP/72, United Nations New York and Geneva, 2000.
- UNEP (1972) The United Nations Conference on Human Environment, Stockholm declaration 5-16 June 1972.
- UNEP (1992). The Rio de Janeiro Declaration on Environment and Development. United Nations Conference on Environment and Development. 3-14 June 1992, Rio de Janeiro, Brazil.
- UNESCO (2002). *Coping with water scarcity. IHP-VI Technical Documents in Hydrology, No.58*. UNESCO, Paris.
- UNESCO (2003). The United Nation *World Water Development Report 1: Water for people-Wwater for life*. UNESCO, Berghahn Books, Paris.
- UNESCO (2006). The United Nation *World Water Development Report 2: Water a shared responsibility*. UNESCO- Berghahn Books, Paris.
- Van Asselt, M., Mellors, J., Rijkens-Klomp, N., Greeuw, S., Molendijk, K., Beers, P., and van Notten, P. (2001). *Building Blocks for Participation in integrated assessment: a review of participatory methods*. International Centre for Integrative Studies, Maastricht.
- van Ast, J. A., & Boot, S.P. (2003). Participation in European water policy. *Physics and Chemistry of the Earth*, **28**, p. 555-562.
- Walker, W.E., Harremoës, P., Rotmans, J., Van Der Sluijs, J.P., Van Asselt, M.B.A., Janssen, P., Kraye Van Krauss. (2003). Defining Uncertainty - A Conceptual Basis for Uncertainty Management in Model-Based Decision Support. *Integrated Assessment*, **4**(1), p. 5-18.
- WCED, (World Commission on Environmental and Development) (1987) Our Common Future. Oxford: Oxford University Press.
- Webler, J. (1999). The Craft and theory of public participation: a dialectical process. *Journal of Risk Research*, **2**(1), p. 55-71.
- Webler, T., Tuler. S., Kruger. R. (2001). What is good public participation process? Five perspectives from the public, *Environmental Management*, **27**(3), p. 435-450.
- Webler T., Tuler. S., Shockey. I., Stern. P., Beattie. R. (2003). Participation by local governmental officials in watershed management planning. *Society and Natural Resources*, **16**(2), p. 105-121.
- White, S. C. (1996). Depoliticising development: the use and abuse of participation. *Development in Practice*, **6**(1), p. 6-15.
- Wiedemann, P., Fremers, S. (1993). Public participation in waste management decision making: analysis and management of conflicts. *Journal of Hazardous Materials*, **33**, p. 355-368.

- Wilcox, D. (1994). *The guide to effective participation*. Delta Press, Brighton.
- WMO (1992). The Dublin Statement on Water and Sustainable Development. International Conference on water and the Environment, 31st January 1992, Dublin, World Meteorological Organisation.
- World Bank (1993). *Participatory Evaluation: Tools for Managing Change in Water and Sanitation*. World Bank Technical Paper 207. The World Bank, Washington D.C.
- World Bank (1996a). *Towards Participatory research*. World Bank Technical Paper 307. The World Bank Washington D.C.
- World Bank (1996b). *The World Bank Participation Sourcebook*. The World Bank, Washington, D.C.
- World Bank (1998). *Participation and social assessment: tools and techniques*. The World Bank, Washington D.C.
- World Bank (2003). *Better governance for development in the Middle East and North Africa. Enhancing Inclusiveness and Accountability*. MENA Development Report, The World Bank, Washington D.C.
- World Bank (2004a). *Water resources sector strategy, strategic decisions for World Bank engagement*. The World Bank, Washington D.C.
- World Bank (2004b). *Republic of Lebanon Policy note on irrigation sector sustainability*. Report No. 28766 – LE. The World Bank, Washington D.C.
- World Bank (2007). *Making the most of water scarcity, Accountability for better water management in the middle east and North Africa*. MENA Development Report, The World Bank, Washington D.C.
- World Bank Institute. (2007), World governance index for 2006.
<http://www.worldbank.org/wbi/governance/>
- Worldwide Press Freedom Index (2005) Reporters without Borders. 20 October 2005.
www.rsf.org (accessed 25 01 08).
- WWF (2004). Public Participation in the Water Framework Directive Common Implementation Strategy Pilot River Basin testing exercise and in the implementation of the Water Framework Directive: An environmental NGO perspective. (Accessed 11/08/08)
<http://assets.panda.org/downloads/wwfparticprbwfdjun04.pdf>
- Yammout, G., Jamali, D. (2007), A critical assessment of a proposed public private partnership (PPP) for the management of water services in Lebanon. *Water Resources Management*, **21**, p. 611-634.

Which type of participation for which type of water management challenges?

11 Appendices Appendices

A. Scoping interview format, Beirut Lebanon, March 2005

Interview's Objectives

This primary Questionnaire is designed to assess the understanding of Participative planning and the different role of stakeholders. The key outputs of this questionnaire will be to assess the motivation of key stakeholders in PP and to understand the current governance practices in water management policy.

- **What is the process of participative planning?**
- **What is the process of planning a project, and the links with participative planning?**
- **Who is consulted at which point? What is the nature of the consultation?**
- **What is the opinion/perception of Participative planning for the interviewees in their respective country?**

Who are the interviewees?

The questionnaire is aimed at senior academics and/or leaders of the MEDiate (EU INCO project) local partners and people involved in decision making process.

Introduction and Interview ethical policy

Can I have your permission to record this interview?

Why am I interviewing you? Because you are a specialist of water sector in your country. I am interviewing you within the context of my PhD research which is about stakeholder engagement in the water sector. The interview will take 50 minutes to one hour. I wish to cover 5 topics spending on average 10 minutes per topics. The interview is about your opinion and information about the water sector in you country. The record will be a transcript. The transcript and the record will be destroyed after the PhD. Your name and identity with not be mentioned in the interview. However can you give me your job title without giving the institution you are working for? If an anytime during the interview you wish to stop, please let me know.

For the purpose of this interview and to make the discussion easier, participative planning process and consultation process are considered as having the same meaning, and can be used equally.

1- Using a virtual European project to describe PP process and to get them to explain the PP process in their country.

Background and primary questions

Let's assume there is a need for a reservoir in your country, can you describe how would the consultation process take place?

What is the planning process for big project, and the PP process?

Who is involved? How does it take place? Who initiate the consultation process?

Secondary questions

Who decides on the project? Who describes the needs for this project? Who give construction permission? Who is involved? Who need to know? Who decide what's need to be done? Who validate the design?

Is it subject to public consultation? Who initiate the consultation? Who would be consulted? Who is eligible to be consulted? Who decide who to consult?

Which type of participation for which type of water management challenges?

Who lead the consultation process?

How people and the public are informed about the project, and about the consultation process? Is people opinion about their needs or the design taken into account?

Who study, describe, look at the consequences for the stakeholders?

Information validation

Having said all that can you draw me a process flow or a diagram to summarise the Planning process in the hypothetical event chosen here?

2- Understanding the interviewees attitude toward the participative planning process

Primary questions

How is the model they have described Strong? What is good about it?

How is the model they have described Weak? What is bad about it?

How can it be improved?

Is it something that is likely to happen regularly? And why?

Information validation

Can you make a SWOT analysis for the Participative planning process?

3- The difference of perception about the strategic objectives.

Looking for difference in perceived benefits of wider consultation

Primary Questions

What are for you, the reasons for doing Participative Planning?

Secondary questions

What aspect do you consider to be positive about wider consultation?

Give me examples of why PP is used?

Information validation

Can you rank the objectives of PP?

4- Formal guideline/ requirement / legislation for consultation in your country

Primary Question

Are there a formal guideline/ requirement / legislation for consultation in your country?

Is the legislation requiring consultation to take place in your country?

Secondary question and hypothetical background

When compulsory purchase of land for motor way construction, or for land planning, is there a legal requirement to consult public and stakeholder?

Information validation

If not, do you think there should be one? In your opinion, what would be the benefits of PP?

Which type of participation for which type of water management challenges?

B. Stakeholder questionnaire

WaterVision Workshop Damascus
Syria 20-21th June 2005
Feedback questionnaire

Profession, responsibilities:

الاختصاص، المنصب:

Perception of participative planning

استيعاب التخطيط التشاركي

Q1: Have you ever been involved in a citizen participation (stakeholder engagement) workshop?
هل سبق وشاركت بورشة عمل مدنية (كنت من أصحاب العلاقة بموضوع عمل الورشة)؟

Q2: Have you ever organised a citizen participation (stakeholder engagement) workshop?
هل سبق ونظمت ورشة عمل مدنية؟

Q3: What are in your opinion the reasons for organising citizen participation?
ما هي أسباب تنظيم مشاركة مدنية برأيك؟

Q4: What are the most important reasons for taking part in a citizen participation workshop?
ما هي أهم الأسباب التي دعتك للمشاركة بورشة عمل وطنية؟

Q5: Which of these definitions is most representative participative planning in your opinion?
Rank it according to your opinion.

أي من هذه التعاريف يمثل برأيك التخطيط التشاركي؟ رتبها حسب وجهة نظرك.

Rank

1. A Public relation exercise organised by authority to gain people support
ندوة حول العلاقات العامة تنظم من أجل كسب دعم الناس؟
2. A meeting where people express and share their problem, but there is no intention from the organiser of solving them
لقاء حيث يعبر فيه الناس عن آراءهم ويتشاركون في المشاكل المطروحة، مع عدم وجود نية للمنظم لحل هذه المشاكل.
3. Giving to the citizen information about a project that has been done or that will be done.
إعطاء المواطنين معلومات حول المشروع الذي أنجز أو الذي سينجز.
4. Gathering information and opinion of the citizen on a project or a problem that concern them: make a survey about their reactions/opinion.
جمع معلومات وآراء المواطنين حول مشروع أو حول مشكلة تهمهم، تنفيذ مسح حول ردود فعلهم.. آراءهم.
5. Citizen are allowed to advise and to propose solution to local authority, but no power to implement it
يسمح للمواطنين بتقديم النصائح واقتراح الحلول للسلطة المحلية ولكن لا يوجد سلطة لتنفيذ هذه الحلول.
6. Citizens and power holder agree to share planning and decision-making responsibilities through structures like joint policy board, planning committees...
يتفق المواطنون وأصحاب السلطة على المشاركة في التخطيط ومسؤولية اتخاذ القرار عبر هيئات معينة مثل لجنة سياسية مشتركة، هيئات تخطيط.....
7. Negotiation between citizen and public officials can also result in citizen having a dominant decision-making authority over a specific plan or programme
مفاوضات بين المواطنين ومسؤولي العلاقات العامة يمكن أن ينتج عنها حصول المواطنين على دور رئيسي في صنع القرار حول مخطط معين أو برنامج محدد.
8. Citizens have a degree of power and control which guarantees that participants or residents can govern a program or an institution (school, natural park, transport), and they are in full charge of policy and managerial aspect.
يملك المواطنون درجة معينة من السلطة والتحكم التي تضمن للمشاركين أو المقيمين إمكانية التحكم ببرنامج أو مؤسسة (مدرسة، منتزه - وسيلة نقل)، ولديهم تحكم كامل بتحديد سياساتها وإدارتها.

Which type of participation for which type of water management challenges?

Q6: Do you consider the water resource as been sometimes at risk in the area you living in? give example

هل تعتبر أن مصادر المياه الموجودة في منطقتك قد تعرضت للخطر في بعض الأحيان؟ أعط مثال.

Q7: Do you consider the water resources is been properly managed in the area you are living in? give example

هل تعتبر أن إدارة الموارد المائية تتم بشكل مناسب في منطقتك؟

Q8: In your opinion, do you think participative planning can improve water resource management in your area?

من وجهة نظرك.... هل تعتقد أن التخطيط التشاركي يمكن أن يحسن من إدارة الموارد المائية في منطقتك؟

Feedback on the workshop

Q9: Was the workshop globally a good use of your time?

مراجعة:
هل تعتبر ورشة العمل هذه استثماراً لوقتك؟

Q10: Which aspects of the workshop did you like the most?

أي من المفاهيم المطروحة أعجبتك أكثر؟

Q11: Which aspects of the workshop didn't you like?

أي من المفاهيم المطروحة لم يعجبك؟

Q12: Would like to see this type of workshop being organised in your area again?

هل ترغب برؤية هذا النوع من ورشات العمل ينظم في بلدك مرة أخرى؟

Q13: What did you learn during the workshop?

ماذا تريد أن تتعلم خلال ورشة العمل؟

Q14: How was the workshop for you?

Very interesting

Interesting

Not interesting

Why?

كيف كانت ورشة العمل بالنسبة لك؟

ممتعة جداً

ممتعة

غير ممتعة

لماذا؟

Which type of participation for which type of water management challenges?

C. Survey questionnaire

MEDITATE ARAŞTIRMASI MEDITATE SURVEY

Yanıt numarası

Response number

KOTA KONTROLLERİ:

Cinsiyet (gender):

Erkek 1
Kadın 2

Kullanılan su (supply):

Şebeke suyu (Public supply) 1
Özel kuyu suyu (Private Well) 2

Yaş (age):

18- 25 1
26-35 2
36-45 3
46-55 4
56-65 5
65+ 6

Şebekeye gelen su (aquifer):

Yeraltısuyu (kuyu-kaynak) 1
Yeraltısuyu (kuyu-kaynak) değil 2

Yaşanan alan (location):

Kentsel (Urban) 1
Kırsal (Rural) 2

Kota X:

ANKETÖRÜN BİLDİRİMİ:

Interviewer Declaration

Bu anketin bana verilen talimatlara uygun olarak tamamlandığını; anketi dikkatlice gözden geçirdiğimi; anketin kalite kontrol işlemlerinden geçirileceği bilgisine sahip olduğumu bildiririm.

I hereby declare that this questionnaire has been completed in accordance with the instructions supplied to me. I have carefully checked the questionnaire and am aware that it is subject to quality control procedures.

Anketörün Adı (name) _____

İmza (signature): _____

Anket Tarihi (date of interview): _____

Which type of participation for which type of water management challenges?

GİRİŞ

Günaydın/iyi günler/iyi akşamlar. Adım;..... 'dan geliyorum. Su kullanımı ve yönetimi üzerine bir araştırma yürütüyoruz ve bu konuda bir kaç sorumuzu cevaplayarak katkıda bulunmanız bizim için büyük bir önem taşıyor. Anket 15-20 dakika sürecektir.

Good morning/afternoon/evening. My name is from We are carrying out a survey on water use and management and we would appreciate it if you could just answer a few questions. The survey should take about 15-20 minutes to complete

A. İÇME SUYU DÖNGÜSÜ İLE İLGİLİ KİŞİSEL BİLGİLER

A. INDIVIDUAL KNOWLEDGE OF THE DRINKING WATER

S1 *Sizce bölgenizde suyun daha etkin yönetimi için daha çok çaba gösterilmesi ne kadar acil bir ihtiyaçtır?*

Q1 How urgent is the need to make more effort to manage water efficiently in your region ?

Çok Acil
Very urgent

1

2

3

4

Hiç Acil Değil
Not very Urgent

5

(OKUYUNUZ)

Aşağıdaki bölüm, evinizde su kullanımı ile ilgilidir. Halen su kullanımınıza ilişkin alışkanlıklarınızla ilgili düşüncelerinizi öğrenmek istiyoruz. Bu konuda “doğru” veya “yanlış” cevap aramıyoruz. Sorularımızda “evsel” dediğimiz zaman genel olarak “ev içi” su kullanımınızı kast ediyoruz. Yine sorularımızda “siz” dediğimizde ise, evdeki diğer fertlerden çok sizin düşüncenizi istiyoruz demektir.

This next section of the questionnaire is looking at water use in the home. We are looking for your opinion and current water using practises – there are no right or wrong answers. When we say ‘household’ we refer to your household use generally. When we say ‘you’ we would like to know your response, rather than any other member of your household.

S2 *Bölgenizdeki su kaynakları yönetimine daha yakından bakacak olursak; suyunuzu hangi kurum sağlamaktadır? Ve farklıysa, kanalizasyon hizmetlerini kim yapıyor?*

(LÜTFEN YAZINIZ ... GEREKİYORSA “BİLMİYORUM” YAZINIZ)

a *Suyu Sağlayan* _____

b *Kanalizasyon Hizmetleri* _____

Q2: Looking more closely at water resource management in your area, who is your water supplier and, if different, who provides your sewerage services? (PLEASE WRITE IN BELOW ... WRITE IN ‘DON’T KNOW’ IF APPROPRIATE)

a *Water Supplier* _____

b *Sewerage Service Supplier* _____

Which type of participation for which type of water management challenges?

S3 Evde kullandığınız suyun nereden geldiğini biliyor musunuz?

(SADECE BİR TANESİNİ SEÇİNİZ)

Evet 1 S4'E GİDİNİZ
Hayır 2 S5'E GİDİNİZ

Q3 Do you know where the water you use in your household is extracted from?
(CODE ONE ONLY)

Yes 1 GO TO Q4
No 2 GO TO Q5

A KARTINI GÖSTERİNİZ

SHOWCARD A

S4 Lütfen, karttaki listeden evinizde kullandığınız suyun geldiği kaynağı seçiniz.

(SADECE BİR TANESİNİ SEÇİNİZ)

Yüzey suyu (nehir, göl, ırmak, gölet) 1
Deniz suyu 2
Atık su arıtma tesisi 3
Yeraltısuyu (akifer, kaynak, derin kuyu, sığ kuyu) 4
Yağmur suyunun toplanmasıyla 5
Diğer (LÜTFEN BELİRTİNİZ)

Q4 Please select from the list on the card the water resource from which your household water is extracted?
(CODE ONE ONLY)

Surface water (rivers, lakes, streams, reservoirs) 1
Sea water 2
Waste water treatment plant 3
Underground water (aquifer, springs, boreholes, wells) 4
Rainwater harvesting 5
Other (PLEASE SPECIFY)

S5 Evinizden çıkan atıksuya daha sonra ne olduğunu biliyor musunuz?

(SADECE BİR TANESİNİ SEÇİNİZ)

Evet 1 S6'YA GİDİNİZ
Hayır 2 S7'YE GİDİNİZ

Q5 Do you know what happens to your wastewater once it leaves your home?
(CODE ONE ONLY)

Yes 1 GO TO Q6
No 2 GO TO Q7

Which type of participation for which type of water management challenges?

B KARTINI GÖSTERİNİZ

SHOWCARD B

S6 *Lütfen, karttaki listeden, atık suyunuzun gittiğini yeri seçiniz.*
(SADECE BİR TANESİNİ SEÇİNİZ)

Foseptik çukuruna	1
Doğrudan çevreye (kanal, hendek, nehir, gölet, çöplük)	2
Atık su arıtma tesisine: nehre verilmeden arıtılıyor	3
Atık su arıtma tesisine: içme suyu sistemine verilmek üzere arıtılıyor	4
Atık su arıtma tesisine: sulamada kullanılmak üzere arıtılıyor	5
Diğer (LÜTFEN BELİRTİNİZ)	
Bilmiyorum	6

Q6 *Please select from the list on the card where your wastewater goes once it leaves your home?*
(CODE ONE ONLY)

Into a septic tank	1
Directly into the environment (canals, ditch, rivers, reservoirs, land fills)	2
Into a waste water treatment plant: treated in "purification" systems before returning to the river system	3
Into a waste water treatment plant: treated in "purification" systems before putting back in to the drinkable water system	4
Into a waste water treatment plant: treated in "purification" systems before being used in irrigation	5
Other (PLEASE SPECIFY)	
Don't know	6

B. KATILIMA İLİŞKİN YAKLAŞIM

ATTITUDES TO PARTICIPATION

S7 *Bu bölgedeki su yönetimine ilişkin görüşleriniz hiç soruldu mu veya su ile ilgili konuların tartışıldığı bir toplantıya katıldınız mı?*
(SADECE BİR TANESİNİ SEÇİNİZ)

Evet	1	S8'E GİDİNİZ
Hayır	2	S9'A GİDİNİZ
Bilmiyorum	3	S9'A GİDİNİZ

Q7 *Have you ever been asked for your views on water management in this region or attended a meeting where water issues were discussed?*
(CODE ONE ONLY)

Yes	1	GO TO Q8
No	2	GO TO Q9
Don't know	3	GO TO Q9

Which type of participation for which type of water management challenges?

S8 *Size görüşlerinizi kimin sorduğunu ve bunun ne zaman olduğunu söyleyebilir misiniz?*
(CEVAPLARI AŞAĞIYA YAZINIZ)

Bana görüşlerimi-----sordu..... 1
Bu-----da oldu 2
Bilmiyorum 3

Q8 *Can you tell me who asked you and when this happened.*
(WRITE ANSWERS IN BELOW)

I was asked by 1
When this happened 2
Don't know 3

S9 *Eğer bu bölgedeki su yönetiminde etkili olmak isteseydiniz bunu nasıl yapardınız?*
(YAZINIZ)

Q9 *If you wanted to influence the way that water is managed in this region, how might you do this ?*
WRITE IN

S10 *Su kaynaklarının mevcut ve gelecekteki yönetimi konularında görüşmelere ve tartışmalara katılma fırsatını elde etmek ister miydiniz?*
(SADECE BİR TANESİNİ SEÇİNİZ)

Evet1 S11'E GİDİNİZ
Hayır2 S12'YE GİDİNİZ
Bilmiyorum3 S12'YE GİDİNİZ

Q10 *Would you like the opportunity to be involved in discussions and debates on the present and future management of water resources?*
(CODE ONE ONLY)

Yes 1 GO TO Q11
No 2 GO TO Q12
Don't know 3 GO TO Q12

Which type of participation for which type of water management challenges?

I KARTINI GÖSTERİNİZ

SHOWCARD I

S11A *Görüşmelere ve tartışmalara katılmak istediğinizi söylediniz. Bunu hangi yolla yapmak isterdiniz? Size dört farklı yöntem okuyacağım. Bunlardan hangisi veya hangileri size uygun geliyor?*

(TÜM CEVAPLARI ÖNEM SIRASINA GÖRE 1'DEN 4'E KADAR SIRALAYINIZ)

1-**en fazla** tercih ettiğim yöntem; 4-**en son** tercih ettiğim yöntem)

- a Görüşlerinizi temsil eden sözcüler seçerek
- b Kendiniz tartışma ve danışma toplantılarına doğrudan katılarak
- c Öneriler üzerine görüşüm sorularak ve bana danışılarak
- d Seçenekler konusunda oy kullanarak

Q11A *You have stated that you would like to be involved in discussions and debates, through which type of method would like to participate? I will read out four different options and you tell me which one or ones appeal to you most.*

(RANK ALL ANSWERS BY PRIORITY FROM 1 TO 4:

1-the method I prefer the **most**; 4- the method I prefer the **least**)

- a Electing spokespersons to represent your opinion
- b Through participating yourself in public debates and public consultation
- c By being consulted and being asked to give an opinion about suggested propositions
- d By voting on options

J KARTINI GÖSTERİNİZ

SHOWCARD J

S11B *Su ve çevre kaynaklarının yönetimi ile ilgili halk tartışmalarında neden yer almak istiyorsunuz?*

(TÜM CEVAPLARI ÖNEM SIRASINA GÖRE 1'DEN 6'YA KADAR SIRALAYINIZ)

1-benim için en önemli neden; 6-benim için en az öneme sahip olan neden)

- a Kamu idarecilerinin gelecek için planları hakkında bilgi edinmek için
 - b Gelecek planları hakkında kamu idarecilerine kendi fikrimi bildirmek için.
 - c Tarım, turizm ve sanayi alanlarında çalışanlar ile görüşlerimi paylaşmak ve kamu idaresine ortak bir çözüm önerisi götürmek için
 - d Su kullanımı ile ilgili çatışmaları çözmek ya da önlemek için
 - e Tüm yurttaş ve sektörler ile demokratik olarak uygulanacak ortak bir çözüm önerisi tanımlamak için
 - f Karar verme sürecinde söz sahibi olmak için
- Diğer Nedenler.....

Q11B *Why would do like to be involved in a public debate over environmental and water resources management?*

RANK ALL ANSWERS BY PRIORITY FROM 1 TO 6:

1-the most important reason for me; 6- the least important reason for me)

- a To receive some information about future plans the public authority will implement
- b To give my opinion to the public authority, about future plans
- c To exchange my views with other citizens, and people working in agriculture, tourism and industry and to propose a common solution to the public authority
- d To avoid or to resolve conflict over the use of water
- e To define a common solution with all citizens and sectors that will be implemented democratically
- f To have some power over the decision making process

Other reasons....

C. SU KULLANIMI VE MİKTARI

WATER USES & WATER QUANTITY

C KARTINI GÖSTERİNİZ

SHOWCARD C

S12 *Bu kartta gösterilen beş sektörü, kullandıkları su miktarına göre sıralayınız. En çok su harcayana "1", ikinciye "2", vb. şekilde numaralar veriniz. (UYGUN ŞEKİLDE KUTULARA "1", "2" VB. YAZINIZ)*

- | | | |
|---|---|--------------------------|
| Tarım | 1 | <input type="checkbox"/> |
| Turizm (otel, apart otel, villa ve yazlıklarda su kullanımı) | 2 | <input type="checkbox"/> |
| Sanayi..... | 3 | <input type="checkbox"/> |
| Evsel kullanım..... | 4 | <input type="checkbox"/> |
| Eğlence yerleri (golf alanları, belediyenin park ve bahçeleri, yüzme havuzlarında kullanılan su)..... | 5 | <input type="checkbox"/> |

Q12 *Please rank the five categories of water user shown on this card according to the volume of water they use each year. Use "1" for the highest consumer and "2" for the second highest consumer etc. (WRITE IN "1", "2" ETC IN THE APPROPRIATE BOXES)*

- | | | |
|---|---|--------------------------|
| Agriculture | 1 | <input type="checkbox"/> |
| Tourism (water use in hotels, self-catering apartments and villas and also second homes which are seasonally occupied)..... | 2 | <input type="checkbox"/> |
| Industry..... | 3 | <input type="checkbox"/> |
| Households (domestic use) | 4 | <input type="checkbox"/> |
| Leisure (water used to maintain golf courses, municipal gardens, parks and swimming pools) | 5 | <input type="checkbox"/> |

Which type of participation for which type of water management challenges?

S13 *Kendi ihtiyacınızı karşılamak amacıyla sebze, meyve veya hayvan yetiştirir misiniz?*
(SADECE BİR TANESİNİ SEÇİNİZ)

Evet	1	<u>S14'E GİDİNİZ</u>
Hayır	2	<u>S15'E GİDİNİZ</u>
Bilmiyorum	3	<u>S15'E GİDİNİZ</u>

Q13 *Do you grow vegetables or fruits or raise animals for your own household consumption?*
(CODE ONE ONLY)

Yes	1	GO TO Q14
No	2	GO TO Q15
Don't know	3	GO TO Q15

S14 *Bu tür faaliyetler için kullandığınız suyu nereden alırsınız?*
(OKUYUNUZ, SADECE BİR TANESİNİ SEÇİNİZ)

Şebeke suyu	1
Özel kuyu.....	2
Her ikisi de.....	3

Q14 *What type of water supply do you use to support these activities ...?*
(READ OUT & CODE ONE ONLY)

A public water supply.....	1
A private water supply	2
Both	3

S15 *Size göre evinizde tüketilen su miktarı...?*
(OKUYUNUZ, SADECE BİR TANESİNİ SEÇİNİZ)

...az..	1
...ne az ne de çok sayılır	2
...çok	3
Bilmiyorum	4

Q15 *In your opinion, do you think that your household consumes...?*
(READ OUT & CODE ONE ONLY)

...little water	1
...neither too much nor too little water	2
...a lot of water	3
Don't know	4

Which type of participation for which type of water management challenges?

S16 *Günlük evsel su tüketiminiz ne kadardır?*

a	50 litreden az	1
b	50-100 litre arası	2
c	100-150 litre arası	3
d	150-200 litre arası	4
e	200 litreden çok	5
f	Bilmiyorum	6

Q16 *What is your daily household water consumption?*

a	<50 litres/day	1
b	50-100 litres/day	2
c	100-150 litres/day	3
d	150-200 litres/day	4
e	>200litres/day	5
f	do not know	6

WATER USES, PERCEPTIONS OF WATER QUALITY

**D. SU KULLANIMI,
SU KALİTESİNE
İLİŞKİN
ALGILAMA**

S17 *Evinizdeki musluk suyunun kalitesine güvenir misiniz?*
(SADECE BİR TANESİNİ SEÇİNİZ)

Evet	1
Hayır	2
Bilmiyorum	3

Q17 *Day to day, do you trust the quality of tap water supplied to your home?*
(CODE ONE ONLY)

Yes	1
No	2
Don't know	3

D KARTINI GÖSTERİNİZ

SHOWCARD D

S18 *Kartta listelenen hangi ifade sizin evinizde kullandığınız musluk suyunun kalitesi konusunda bilgilendirme düzeyini en iyi anlatmaktadır?*
(SADECE BİR TANESİNİ SEÇİNİZ)

- ...çok iyi bilgilendirildim 1
...iyi bilgilendirildim 2
...bilgilendirme ne iyi ne de kötü idi 3
...kötü bilgilendirildim 4
...hiç bilgilendirilmedim 5
Bilmiyorum 6

Q18 *Which of the statements on this card describes how well informed you are about the quality of the tap water supplied to your household ...?*
(CODE ONE ONLY)

- ...very well informed 1
...well informed 2
...neither well informed nor badly informed 3
...badly informed 4
...not kept informed at all 5
Don't know 6

E KARTINI GÖSTERİNİZ

SHOWCARD E

S19 *Karttakilerden hangisi musluk suyunuzun kalitesini en iyi tanımlıyor ...?*
(SADECE BİR TANESİNİ SEÇİNİZ)

- ...çok iyi kaliteli 1 S21'E GİDİNİZ
...iyi kaliteli 2 S21'E GİDİNİZ
...ne iyi ne de kötü sayılır 3 S21'E GİDİNİZ
...kötü kaliteli 4 S20'YE GİDİNİZ
...çok kötü kaliteli 5 S20'YE GİDİNİZ
Bilmiyorum 6 S21'E GİDİNİZ

Q19 *Which of the statements on this card best describes the quality of your tap water ...?*
(CODE ONE ONLY)

- ...very good quality 1 GO TO Q21
...good quality 2 GO TO Q21
...neither good quality nor poor quality 3 GO TO Q21
...poor quality 4 GO TO Q20
...very poor quality 5 GO TO Q20
Don't know 6 GO TO Q21

Which type of participation for which type of water management challenges?

S20 Musluk suyunuzun kötü kaliteli olduğunu size düşündüren nedir?
(OKUMAYINIZ, SADECE UYGUN OLANLARI SEÇİNİZ)

Kalkerli/sert ve kireç çökeltiyor.....	1
Kötü tadı var.....	2
Kötü kokuyor	3
Kirli olduğuna inanıyorum.....	4
Berrak değil.....	5
Tuzlu/acı bir tadı var	6
Bilmiyorum	7

Q20 For what reasons do you consider your tap water as poor quality?
(DO NOT READ OUT & CODE ALL THAT APPLY)

It is calcareous/hard and creates limescale	1
It has a bad taste	2
It has a bad smell	3
I believe it is polluted	4
It is coloured	5
It has a salty/ bitter taste	6
Don't know	7

F KARTINI GÖSTERİNİZ

SHOWCARD F

S21 Evde olduğunuz zaman genellikle ne tür su içersiniz?
(SEÇİLENİN HEPSİNİ KODLAYINIZ)

Evet Hayır Bilmiyorum

a	Musluk suyu.....	1	2	3	<u>S24'E GİDİNİZ</u>
b	Filtrelenmiş musluk suyu.....	1	2	3	<u>S24'E GİDİNİZ</u>
c	Normal şişe suyu.....	1	2	3	<u>S22 ve S23'E GİDİNİZ</u>
d	Gazlı içecek (Maden suyu)	1	2	3	<u>S22 ve S23'E GİDİNİZ</u>
e	Diğer (LÜTFEN BELİRTİNİZ)				

Q21 When you are at home, what type or types of water do you usually drink?
(CODE ALL THAT APPLY)

	Yes	No	Don't Know
a Tap water on its own	1	2	3 .. GO TO Q24
b Filtered tap water	1	2	3 .. GO TO Q24
c Bottled water (still)	1	2	<u>3.. GO TO Q22 & 23</u>
d Bottled water (fizzy)	1	2	<u>3.. GO TO Q22 & 23</u>
e Other (PLEASE SPECIFY)			

Which type of participation for which type of water management challenges?

S22 *Evde içmek için maden suyu veya şişe suyu almanızı sağlayan iki neden söyleyiniz?*

(LÜTFEN YAZINIZ)

a Neden 1 _____

b Neden 2 _____

Q22 *Can you list two reasons why you consume bottled water or mineral water at home?*
(PLEASE WRITE IN)

a Reason 1 _____

b Reason 2 _____

S23 *Aşağıdakiler, evde şişe suyu içmenizin diğer olası nedenlerinden olabilir mi?*
(OKUYUNUZ & HERBİRİNDEN BİR TANESİNİ SEÇİNİZ)

Evet Hayır Bilmiyorum

- a) Bir nedenim yok, sadece bir alışkanlık 1 2 3
- b) Musluk suyu çok kötü kaliteli 1 2 3
- c) Şişe suyu musluk suyuna alternatif bir
içecek – farklı bir içecek 1 2 3
- d) Şişe suyu sağlığa yararlı 1 2 3
- e) Çok sevdiğim bir marka var 1 2 3

Q23 *Are the following explanations other possible reasons you consume bottled water at home?*
(READ OUT & CODE ONE FROM EACH)

- | | <i>Yes</i> | <i>No</i> | <i>Don't Know</i> |
|--|-------------------|-------------------|-------------------|
| a) I have no reason, it's just a habit of mine | 1 2 3 | 1 2 3 | 1 2 3 |
| b) Tap water is too poor in quality | 1 2 3 | 1 2 3 | 1 2 3 |
| c) Bottled water is an alternative drink to tap
water – a different drink | 1 2 3 | 1 2 3 | 1 2 3 |
| d) Bottled water is good for health | 1 2 3 | 1 2 3 | 1 2 3 |
| e) I have a favourite brand of water | 1 2 3 | 1 2 3 | 1 2 3 |

E. SU POLİTİKASI SİSTEMİNE TEPKİLER

RESPONSES TO WATER POLICY MECHANISMS

S24 *Aylık suyunu ödediğiniz fiyat size*
(OKUYUP, SADECE BİR TANESİNİ SEÇİNİZ)

- ...*ucuz* 1
...*ne ucuz ne de pahalı sayılır* 2
...*pahalı* 3
Bilmiyorum 4

Q24 *On the whole, do you think that the tap water supplied to your household is...?*
(READ OUT & CODE ONE ONLY)

- ...*cheap* 1
...*neither cheap nor expensive* 2
...*expensive* 3
Don't know 4

S25 *Aylık/yıllık su masrafınız nedir?*
(LÜTFEN YILLIK YA DA AYLIK MIKTARI YTL OLARAK YAZINIZ)

Q25 *What is your monthly/yearly expenses for water?*
(PLEASE WRITE IN YTL (TURKISH CURRENCY))

S26 *Evinizde kullandığınız suyun ücretlendirilmesi için su saatiniz var mı?*
(SADECE BİR TANESİNİ SEÇİNİZ)

- Evet 1 S27'YE GİDİNİZ
Hayır 2 S28'E GİDİNİZ
Bilmiyorum 3 S28'E GİDİNİZ

Q26 *Is your household currently charged for water by a water meter installed in your home, or in your household block?*
(CODE ONE ONLY)

- Yes 1 GO TO Q27
No 2 GO TO Q28
Don't know 3 GO TO Q28

G KARTINI GÖSTERİNİZ

SHOWCARD G

S27 *Suya talebin en fazla olduğu saatlerde kullandığınız suya en yüksek fiyat vermeniz istenirse; bu saatlerdeki su kullanımınızı kısıtlar mısınız? Veya su faturanızın dörtte bir oranında düşeceğini bilerseniz, genelde su tüketiminizi (bahçe sulama, bulaşık-çamaşır yıkama, banyo gibi) bu saatlerin dışına ve hatta gece saatlerine kaydırır mısınız?*
(SADECE BİR TANESİNİ SEÇİNİZ)

Evet 1
Hayır 2
Bilmiyorum 3

Q27 *If a pricing system based on peak use were to be introduced, would you be willing to consider using smaller amounts of water during peak hours and instead switch most of your water use (i.e. garden watering, dishwasher, washing machine and baths) to off-peak times during the day and later at night if it saved you a quarter of your normal household water bill?*
(CODE ONE ONLY)

Yes 1
No 2
Don't know 3

S28 *Su faturanızın dörtte bir oranda artacağını bilerseniz, tüketiminizi azaltmaya yönelik önlemler alır mıydınız?*
(SADECE BİR TANESİNİ SEÇİNİZ)

Evet 1 S29' A GİDİNİZ
Hayır 2 S30' A GİDİNİZ
Bilmiyorum 3 S30' A GİDİNİZ

Q28 *If your normal water bill was projected to increase by a quarter, do you think you would take measures to reduce your consumption?*
(CODE ONE ONLY)

Yes 1
No 2
Don't know 3

S29 *Son soruda faturanızdaki artışı önlemek amacıyla su tüketiminizi azaltmayı kabul ettiğinizi belirttiniz. Eysel su tüketiminizi azaltacak iki yöntem ne olurdu?*
(LÜTFEN AŞAĞIYA YAZINIZ)

a Yöntem 1 _____
b Yöntem 2 _____

Which type of participation for which type of water management challenges?

Q29 *In the last question you agreed that you would reduce your household consumption to forestall a possible rise in your water bill. If you are prepared to help reduce your household consumption which two ways would you do this?*

(PLEASE WRITE IN BELOW)

a Method 1

b Method 2

S30 *Aşağıdakilerden hangisi sizi suyu tasarruflu kullanmanıza iterdi?*
(HER BİRİ İÇİN CEVABI DAİRE İÇİNE ALINIZ)

	Evet	Hayır
a. Bütçeme katkıda bulunduğu için	1	2
b. Köy/Kasabama para tasarrufu sağladığı için	1	2
c. Ülke ekonomisine tasarruf sağladığı için	1	2
d. Tarıma daha çok su sağlamaya olanak verdiği için	1	2
e. Yeni evlere su götürülebilmesini sağladığı için	1	2
f. Nehir ve derelerdeki su kalitesinin yükselmesine neden olduğu için	1	2
g. Nehir ve derelerdeki su akışının devamını sağladığı için	1	2

Q30 *Would you make more effort to save water if your actions*
(CIRCLE ONE RESPONSE FOR EACH)

	Yes	No
a. Saved you money	1	2
b. Saved your village / town money	1	2
c. Saved the country money	1	2
d. Provided more water for agriculture	1	2
e. Provided water for new houses	1	2
f. Improved the quality of water in streams and rivers	1	2
g. Preserved water flows in streams and rivers	1	2

S31 *Eğer bölgenizde, su yönetiminin daha etkin olması için seçilecek önlemler üzerinde etkili olsaydınız aşağıdakilerden hangilerini desteklerdiniz?*
(CEVAPLARI DAİRE İÇİNE ALINIZ)

	Evet	Hayır
a. Tarımda salma sulamanın sınırlandırılması	1	2
b. Her eve bir su saati zorunluluğu	1	2
c. Suyu kirleten sanayicilere daha ağır ceza konması	1	2
d. Daha etkin sulama sistemlerinin yaygınlaştırılması	1	2
e. Bölgede yeni ev inşasının sınırlandırılması	1	2
f. Şebekeden kaçak su kullananlara daha ağır cezalar getirilmesi	1	2

Which type of participation for which type of water management challenges?

Q31 *If you were able to influence the choice of measures to manage water more efficiently in your region, would you support the following actions ?*

(CIRCLE RESPONSE)

	Yes	No
a. Limit the use of flood irrigation for agriculture	1	2
b. Force every household to have a water meter	1	2
c. Impose heavier fines for industries which pollute The water environment	1	2
d. Increase the use of more efficient irrigation systems	1	2
e. Limit new house building in the region	1	2
f. Impose heavier fines for illegal access to the Public water supply network	1	2

Which type of participation for which type of water management challenges?

H KARTINI GÖSTERİNİZ

SHOWCARD H

Bu şekil size “Gri Su Geri Dönüşümü” olarak adlandırılan bir işlemi göstermektedir. Bu sistem, banyo ve lavabolardan akan ve “Gri Su” olarak adlandırılan suların filtrelenerek belirli bir oranda temizlenmesini ve daha sonra tuvaletlerde veya bahçenizde kullanılabilecek hale getirilmesini sağlamaktadır. Sistem her evde ayrı ayrı olabildiği gibi bir site için de kurulabilir. Sistemi ev içinde, dışında veya yeraltında kurmak mümkündür. Bu yolla elde edilen daha düşük kaliteli su, musluk suyu kalitesine ulaşmasa da kesinlikle güvenlidir.

This illustration shows a process called ‘grey water reuse’. This system filters, treats and reuses bath and sink water (known as grey water) to flush your toilet and water your garden. This system can be installed into individual homes and into blocks of homes and can be located inside or outside beneath the ground. This lower quality water is perfectly safe but does not reach the very high standards needed for tap water.

S32 Eğer hükümet tarafından masrafları ödenirse bu sistemi evinizde kurmak ister miydiniz? (SADECE BİR TANESİNİ SEÇİNİZ)

Evet	1	<u>S33’E GİDİNİZ</u>
Hayır	2	<u>S34’E GİDİNİZ</u>
Emin değilim.....	3	<u>S35’E GİDİNİZ</u>
Bilmiyorum.....	4	<u>S35’E GİDİNİZ</u>

Q32 Would you be willing to install such a system in your house if the government paid for it ? (CODE ONE ONLY)

Yes	1
No	2
Not sure.....	3
Don’t know	4

S33 “Evet” şeklindeki cevabınıza asıl neden nedir? (SADECE BİR TANESİNİ SEÇİNİZ)

Evdeki su kullanımımı azaltır	1	<u>S35’E GİDİNİZ</u>
Su faturamı düşürür / bütçeme katkı sağlar.....	2	<u>S35’E GİDİNİZ</u>
Su kaynaklarını korur.....	3	<u>S35’E GİDİNİZ</u>
Suyun daha etkin kullanımını sağlar	4	<u>S35’E GİDİNİZ</u>

Q33 What is the main reason for you answering yes ? (CODE ONE ONLY)

It would reduce my household water use.....	1	GO TO Q35
It would reduce my household water bill / save me money.....	2	GO TO Q35
It would save water resources	3	GO TO Q35
It is a more efficient use of water	4	GO TO Q35

Which type of participation for which type of water management challenges?

S34 *Sistemin evinizde kurulmasını neden istemezsiniz?*

(SADECE BİR TANESİNİ SEÇİNİZ)

- İhtiyacım yok 1
“Gri-su”yu kullanmak istemem 2
Bakım ve işletimi pahalı olurdu 3

Q34 *Why would you not agree to have a greywater system installed in your house ?*
(CODE ONE ONLY)

- I don't need it 1
I don't want to use greywater 2
It would be expensive to fix / operate 3
It is not a safe system 4
Güvenli bir sistem değil..... 4

Which type of participation for which type of water management challenges?

F. SOSYODEMOGRAFİK VERİLER

SOCIODEMOGRAPHIC DATA

Araştırmayı tamamlamam için size evinizle ilgili bazı sorular soracağım..

To complete the survey I now need to ask you some questions regarding the occupancy of your household.

S35 *Ev halkının üyeleri kimlerden oluşur ?*
(SADECE SÜREKLİ VE YILDA EN AZ 10 AY OTURANLAR)

Q35 *What is the household composition ?*
(PERMANENT RESIDENCE ONLY AND ONLY THOSE HOUSEHOLD MEMBERS WHO RESIDE PERMANENTLY I.E. 10-MONTHS OF THE YEAR)

	Yaş (Age)	Cinsiyet (Sex)	Meslek (Occupation)
Anket Yapılan Kişi (Interviewed Person)			
Diğer ev halkı üyesi #1 (Other household member #1)			
Diğer ev halkı üyesi #2			
Diğer ev halkı üyesi #3			
Diğer ev halkı üyesi #4			
Diğer ev halkı üyesi #5			
Diğer ev halkı üyesi #6			
Diğer ev halkı üyesi #7			
Diğer ev halkı üyesi #8			
Diğer ev halkı üyesi #9			

S36 *Oturduğunuz ev?*
(SADECE BİR TANESİNİ SEÇİNİZ)

Apartman katı..... 1
Yarı-müstakil ev..... 2
Müstakil ev..... 3
Sıra evler (kooperatif evi-site) 4
Maisonette..... 5
Gecekondu (this was adapted to another Turkish style of housing) 6
Diğer (LÜTFEN BELİRTİNİZ)

Q36 *What is the type of living accommodation of the respondent's household?*
(CODE ONE ONLY)

Apartment/Flat..... 1
Semi-detached house..... 2
Detached house..... 3
Terraced house..... 4
Maisonette 5
Bungalow 6
Other (PLEASE SPECIFY)

Which type of participation for which type of water management challenges?

S37 Oturduğunuz evden yararlanma biçiminiz?

(SADECE BİR TANESİNİ SEÇİNİZ)

Kendimize ait	1
Kiracıyız.....	2
Diğer (LÜTFEN BELİRTİNİZ)	

Q37 What is the type of ownership of the property?
(CODE ONE ONLY)

Owner occupiers.....	1
Tenants.....	2
Other (PLEASE SPECIFY)	

S38 İş durumunuz

(SADECE BİR TANESİNİ SEÇİNİZ)

a. Kendime ait iş yerim var	1
b. Özel şirkette çalışıyorum	2
c. Memurum.....	3
d. İşsizim	4

Q38 Employment status
(CODE ONE ONLY)

a. Self-employed	1
b. Employed by private business/company.....	2
c. Civil servant	3
d. Unemployed	4

Q39 Hangi sektörde çalışıyorsunuz?

(SADECE BİR TANESİNİ SEÇİNİZ)

a. Çiftçilik	1
b. Sanayi	2
c. Turizm.....	3
d. Hizmet sektörü	4
e. İdari (merkezi veya yerel yönetim)	5
f. Diğer (LÜTFEN BELİRTİNİZ).....	6

Q39 Employment sector
(CODE ONE ONLY)

a. Farming sector	1
b. Industry sector	2
c. Tourism sector	3
d. Services sector	4
e. Administration (central or local authority)	5
f. Other (PLEASE SPECIFY).....	6

A KARTI

- 1. Yüzey suyu (nehir, göl, ırmak, gölet)**
- 2. Deniz suyu**
- 3. Atık su arıtma tesisi**
- 4. Yeraltısuyu (akifer, kaynak, derin kuyu, sığ kuyu)**
- 5. Yağmur suyunun toplanmasıyla**

Diğer (LÜTFEN BELİRTİNİZ)

- | |
|---|
| <ol style="list-style-type: none">1. Surface water (rivers, lakes, streams, reservoirs)2. Sea water3. Waste water treatment plant4. Underground water (aquifer, springs, boreholes, wells)5. Rainwater harvesting <p>Other (PLEASE SPECIFY)</p> |
|---|

B KARTI

- 1. Foseptik çukuruna**
- 2. Doğrudan çevreye (kanal, hendek, nehir, gölet, çöplük)**
- 3. Atık su arıtma tesisine: nehire verilmeden arıtılıyor**
- 4. Atık su arıtma tesisine: içme suyu sistemine verilmek üzere arıtılıyor**
- 5. Atık su arıtma tesisine: sulamada kullanılmak üzere arıtılıyor**

Diğer (LÜTFEN BELİRTİNİZ)

- 1. Into a septic tank**
- 2. Directly into the environment (rivers, reservoirs, land fills)**
- 3. Into a waste water treatment plant: treated in “purification” systems before returning to the river system**
- 4. Into a waste water treatment plant: treated in “purification” systems before putting back in to the drinkable water system**
- 5. Into a waste water treatment plant: treated in “purification” systems before being used in irrigation**

Other (PLEASE SPECIFY)

C KARTI

- 1. Tarım**
- 2. Turizm (otel, apart otel, villa ve yazlıklarda su kullanımı)**
- 3. Sanayi**
- 4. Evsel kullanım**
- 5. Eğlence yerleri (golf alanları, belediyenin park ve bahçeleri, yüzme havuzlarında kullanılan su)**

- | |
|--|
| <ol style="list-style-type: none">1. Agriculture2. Tourism (water use in hotels, self-catering apartments and villas and also second homes which are seasonally occupied)3. Industry4. Households (domestic use)5. Leisure (water used to maintain golf courses, municipal gardens, parks and swimming pools) |
|--|

D KARTI

- 1. Çok iyi bilgilendirildim**
- 2. İyi bilgilendirildim**
- 3. Bilgilendirme ne iyi ne de kötü idi**
- 4. Kötü bilgilendirildim**
- 5. Hiç bilgilendirilmedim**
- 6. Bilmiyorum**

- | |
|--|
| <ol style="list-style-type: none">1. Very well informed2. Well informed3. Neither well informed nor badly informed4. Badly informed5. Not kept informed at all6. Don't know |
|--|

E KARTI

- 1. Çok iyi kaliteli**
- 2. İyi kaliteli**
- 3. Ne iyi ne de kötü**
- 4. Kötü kaliteli**
- 5. Çok kötü kaliteli**
- 6. Bilmiyorum**

- | |
|--|
| <ol style="list-style-type: none">1. Very good quality2. Good quality3. Neither good quality nor poor quality4. Poor quality5. Very poor quality6. Don't know |
|--|

Which type of participation for which type of water management challenges?

F KARTI

- a) Musluk suyu**
- b) Filtrelenmiş musluk suyu**
- c) Normal şişe suyu**
- d) Maden suyu**

Diğer (LÜTFEN BELİRTİNİZ)

- a) Tap water on its own**
- b) Filtered tap water**
- c) Bottled water (still)**
- d) Bottled water (fizzy)**

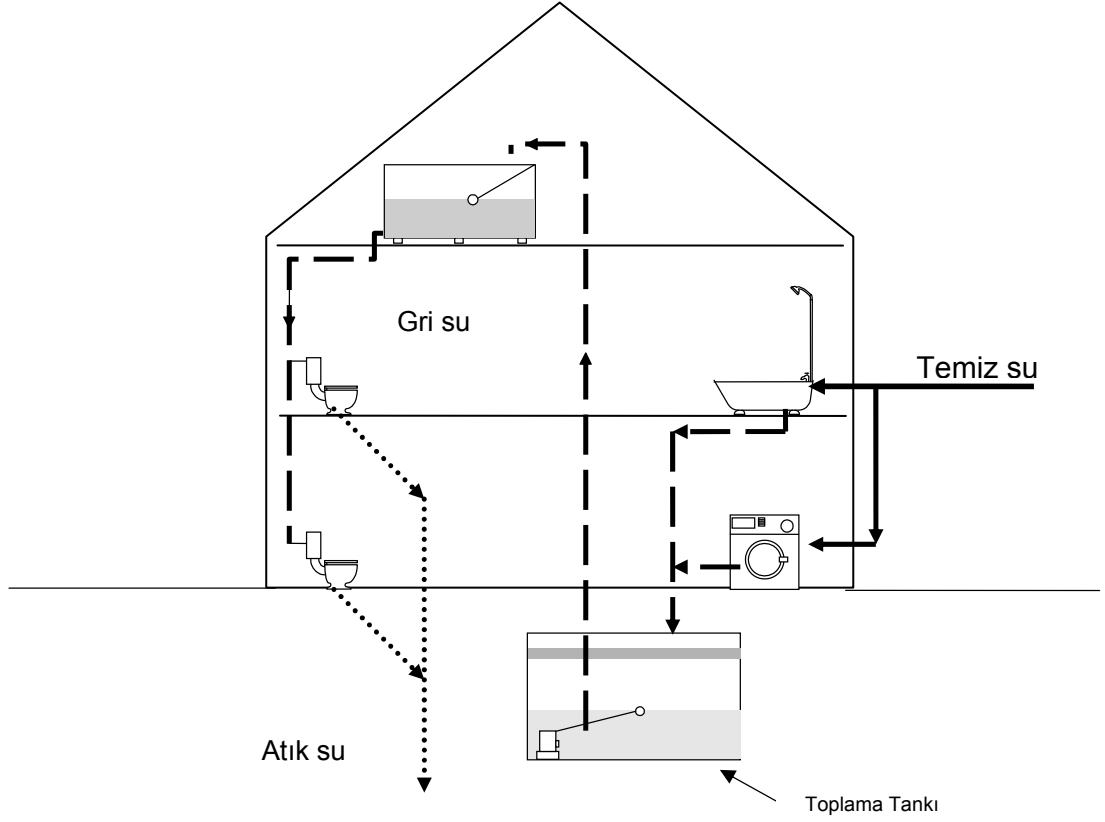
Other (PLEASE SPECIFY)

G KARTI

Suya talebin en fazla olduđu saatlerde kullandığınız suya en yüksek fiyat verilirse; bu saatlerdeki su kullanımınızı kısıtlar mısınız? Veya su faturanızın dörtden bir oranında düşeceğini bilerseniz, genelde su tüketiminizi (bahçe sulama, bulaşık-çamaşır yıkama, banyo gibi) bu saatlerin dışına ve hatta gece saatlerine kaydırır mısınız?

If a pricing system based on peak use were to be introduced, would you be willing to consider using smaller amounts of water during peak hours and instead switch most of your water use to off-peak times during the day and later at night if it saved you a quarter of your normal household water bill?

H KARTI



Açıklama: 3 tip su arasındaki farkı gösteren çizgiler:	
Temiz su	—————
Tuvaletlerde kullanılan gri su	- - - - -
Lağıma boşalan atık su
Key What is important in this drawing is to make the difference between 3 types of water:	
Clean water	—————
Grey water recycled to flush toilet	- - - - -
Waste water going down the sewage

I KARTI

Soru 11A

Tüm cevapları önem sırasına göre 1'den 4'e kadar sıralayınız.

1- En fazla tercih ettiğim yöntem

4- En son tercih ettiğim yöntem

- a Görüşlerinizi temsil eden sözcüler seçerek**
- b Kendiniz tartışma ve danışma toplantılarına doğrudan katılarak**
- c Öneriler üzerine görüşüm sorularak ve bana danışılarak**
- d Seçenekler konusunda oy kullanarak**

SHOWCARD I

Question 11A

Rank all answers by priority from 1 to 4

1- The method I prefer the most

4- The method I prefer the least

- a Electing spokespersons to represent your opinion**
- b Through participating yourself in public debates and public consultation**
- c By being consulted and being asked to give an opinion about suggested propositions**
- d By voting on options**

J KARTI

Soru 11B

- a** Kamu idarecilerinin gelecek için planları hakkında bilgi edinmek için
 - b** Gelecek planları hakkında kamu idarecilerine kendi fikrimi bildirmek için
 - c** Tarım, turizm ve sanayi alanlarında çalışanlar ile görüşlerimi paylaşmak ve kamu idaresine ortak bir çözüm önerisi götürmek için
 - d** Su kullanımı ile ilgili çatışmaları çözmek ya da önlemek için
 - e** Tüm yurttaş ve sektörler ile demokratik olarak uygulanacak ortak bir çözüm önerisi tanımlamak için
 - f** Karar verme sürecinde söz sahibi olmak için
- Diğer Nedenler**

SHOWCARD J

Question 11B

- a To receive some information about future plans the public authority will implement.
- b To give my opinion to the public authority, about future plans
- c To exchange my views with other citizens, and people working in agriculture, tourism and industry and to propose a common solution to the public authority
- d To avoid or to resolve conflict over the use of water
- e To define a common solution with all citizens and sectors that will be implemented democratically
- f To have some power over the decision making process

Other reasons....

D. Survey: Statistical results

Appendix D1 Results from Amman Zarqa Basin, Jordan

Table D1.1: Count and percentage of perception of urgency to improve water management, per gender age group and level of education, in AZB.

Q1 - Public Awareness of Urgency							
		Very Urgent	Urgent	Neutral	Not Urgent	Not at all Urgent	Total
Gender							
Male	count	58	53	36	56	48	251
	%	34	42	46	40	56	42
Female	count	112	73	42	83	37	347
	%	66	58	54	60	44	58
Total	count	170	126	78	139	85	598
	%	28	21	13	23	14	100
Age Group							
18-25	count	12	13	5	11	8	49
	%	24	27	10	22	16	8
26-35	count	39	32	13	26	13	123
	%	32	26	11	21	11	21
36-45	count	61	32	24	38	25	180
	%	34	18	13	21	14	30
46-55	count	32	22	20	28	17	119
	%	27	18	17	24	14	20
56-65	count	15	19	6	21	11	72
	%	21	26	8	29	15	12
66+	count	11	8	10	15	11	55
	%	20	15	18	27	20	9
Total	count	170	126	78	139	85	598
	%	28	21	13	23	14	100
Level of Education							
Illiterate	count	22	15	15	23	6	81
	%	27	19	19	28	7	14
Basic Education	count	96	76	36	85	54	347
	%	28	22	10	24	16	58
A-Level	count	51	31	25	28	21	156
	%	33	20	16	18	13	26
Higher Degree	count	1	4	2	2	4	13
	%	8	31	15	15	31	2
Total	count	170	126	78	138	85	597
	%	28	21	13	23	14	100

Table D1.2: Count and percentage of respondents that gave or not suggestion to influence water resources management per age group, in AZB

Q2 - Suggestions to influence water management				
		Suggestions	No Suggestion	Total
Gender				
Male	count	223	28	251
	%	89	11	42
Female	count	296	50	346
	%	86	14	58
Total	count	519	78	597
	%	87	13	100
Age Group				
18-25	count	42	7	49
	%	86	14	8
26-35	count	112	10	122
	%	92	8	20
36-45	count	160	21	181
	%	88	12	30
46-55	count	100	18	118
	%	85	15	20
56-65	count	64	8	72
	%	89	11	12
66+	count	41	14	55
	%	75	25	9
Total	count	519	78	597
	%	87	13	100
Level of Education				
Illiterate	count	62	20	82
	%	76	24	16
Basic Education	count	302	45	347
	%	87	13	58
A-Level	count	141	13	154
	%	92	8	26
Higher Degree	count	13	0	13
	%	100	0	2
Total	count	518	78	596
	%	87	13	100
Public awareness				
Very Urgent	Count	167	3	170
	%	98	2	29
Urgent	Count	119	6	125
	%	95	5	21
Neutral	Count	68	8	76
	%	89	11	13
Not Urgent	Count	102	37	139
	%	73	27	23
Not at all Urgent	Count	61	24	85
	%	72	28	14
Total	Count	517	78	595
	%	87	13	100

Table D1.3: Count and percentage of respondents that gave very rich answers or not to influence water resources management per gender, in AZB.

Q2 - Suggestions to influence water management Very Rich Answers				
		Suggestions	No Suggestion	Total
Gender				
Male	count	64	188	252
	%	25	75	42
Female	count	78	270	348
	%	22	78	58
Total	count	142	458	600
	%	24	76	100
Age Group				
18-25	count	4	45	49
	%	8	92	8
26-35	count	43	80	123
	%	35	65	21
36-45	count	52	129	181
	%	29	71	30
46-55	count	23	97	120
	%	19	81	20
56-65	count	13	59	72
	%	18	82	12
66+	count	7	48	55
	%	13	87	9
Total	count	142	458	600
	%	24	76	100
Level of Education				
Illiterate	count	14	68	82
	%	17	83	14
Basic Education	count	81	267	348
	%	23	77	58
A-Level	count	44	112	156
	%	28	72	26
Higher Degree	count	3	10	13
	%	23	77	2
Total	count	142	457	599
	%	24	76	100
Public awareness				
Very Urgent	Count	55	115	170
	%	32	68	28
Urgent	Count	34	92	126
	%	27	73	21
Neutral	Count	17	61	78
	%	22	78	13
Not Urgent	Count	23	116	139
	%	17	83	23
Not at all Urgent	Count	13	72	85
	%	15	85	14
Total	Count	142	456	598
	%	24	76	100

Table: D1.4: Count and percentage of respondents that gave at least a suggestion to reduce household water consumption, in AZB.

Q3 - Suggestions to reduce household water consumption				
		Suggestions	No suggestion	Total
Gender				
Male	count	184	68	252
	%	73	27	42
Female	count	274	74	348
	%	79	21	58
Total	count	458	142	600
	%	76	24	100
Age Group				
18-25	count	36	13	49
	%	73	27	8
26-35	count	95	28	123
	%	77	23	21
36-45	count	146	35	181
	%	81	19	30
46-55	count	92	28	120
	%	77	23	20
56-65	count	48	24	72
	%	67	33	12
66+	count	38	17	55
	%	69	31	9
Total	count	455	145	600
	%	76	24	100
Level of Education				
Illiterate	count	33	22	55
	%	60	40	100
Basic Education	count	273	75	348
	%	78	22	100
A-Level	count	114	42	156
	%	73	27	100
Higher Degree	count	7	6	13
	%	54	46	100
Total	count	427	145	572
	%	75	25	100
Public Awareness				
Very Urgent	count	110	60	170
	%	65	35	28
Urgent	count	78	48	126
	%	62	38	21
Neutral	count	47	31	78
	%	60	40	13
No Urgent	count	96	42	138
	%	70	30	23
Not at all Urgent	count	55	30	85
	%	65	35	14
Total	count	386	212	598
	%	65	35	100

Which type of participation for which type of water management challenges?

Table D1.5: Count and percentage of respondents that willing to participate in water debate, in AZB.

Q7 - Willingness to be involved in discussion and debates on water management					
		Yes	No	Don't know	Total
Gender					
Male	count	154	54	44	252
	%	61	21	17	42
Female	count	228	79	41	348
	%	66	23	12	58
Total	count	382	133	85	600
	%	64	22	14	100
Age Group					
18-25	count	31	11	7	49
	%	63	22	14	8
26-35	count	89	14	20	123
	%	72	11	16	21
36-45	count	115	40	26	181
	%	64	22	14	30
46-55	count	75	28	17	120
	%	63	23	14	20
56-65	count	45	16	11	72
	%	63	22	15	12
66+	count	27	24	4	55
	%	49	44	7	9
Total	count	382	133	85	600
	%	64	22	14	100
Level of education					
Illiterate	count	47	29	6	82
	%	57	35	7	14
Basic Education	count	230	65	53	348
	%	66	19	15	58
A-Level	count	98	39	19	156
	%	63	25	12	26
Higher Education	count	6	0	7	13
	%	46	0	54	2
Total	count	381	133	85	599
	%	64	22	14	100
Perception of urgency					
Very Urgent	count	133	23	14	170
	%	78	14	8	28
Urgent	count	77	29	20	126
	%	61	23	16	21
Neutral	count	42	22	14	78
	%	54	28	18	13
No Urgent	count	82	36	21	139
	%	59	26	15	23
Not at all Urgent	count	46	23	16	85
	%	54	27	19	14
Total	count	380	133	85	598
	%	64	22	14	100

Appendix D2: Results from Chekka Bay, Lebanon

Table D2.1: Count and percentage of perception of urgency to improve water management, per gender age group and level of education, in Chekka bay.

		Q1 - Public Awareness					Total
		Very Urgent	Urgent	Neutral	Not Urgent	Not at all Urgent	
Gender							
Male	count	125	27	18	11	14	195
	%	64	14	9	6	7	49
Female	count	144	24	10	15	11	204
	%	71	12	5	7	5	51
Total	count	144	24	10	15	11	399
	%	36	6	3	4	3	100
Age Group							
18-25	count	40	13	8	6	4	71
	%	56	18	11	8	6	18
26-35	count	60	13	7	3	7	90
	%	67	14	8	3	8	22
36-45	count	90	10	7	8	10	125
	%	72	8	6	6	8	31
46-55	count	48	9	2	4	0	63
	%	76	14	3	6	0	16
56-65	count	19	3	2	2	2	28
	%	68	11	7	7	7	7
66+	count	13	3	2	3	3	24
	%	54	13	8	13	13	6
Total	count	270	51	28	26	26	401
	%	67	13	7	6	6	100
Level of Education							
Illiterate	count	14	4	2	2	1	23
	%	61	17	9	9	4	6
Basic Education	count	91	9	6	11	12	129
	%	71	7	5	9	9	32
A-level	count	102	24	15	9	12	162
	%	63	15	9	6	7	40
Higher Degree	count	63	14	5	4	1	87
	%	72	16	6	5	1	22
Total	count	270	51	28	26	26	401
	%	67	13	7	6	6	100

Which type of participation for which type of water management challenges?

Table D2.2: Count and percentage of respondent providing suggestion to influence water management per gender age group, level of education and perception of urgency in Chekka bay.

Q2 - Suggestions to influence water management				
		Suggestions	No Suggestion	Total
Gender				
Male	count	183	12	195
	%	94	6	49
Female	count	181	24	205
	%	88	12	51
Total	count	364	36	400
	%	91	9	100
Age Group				
18-25	count	66	5	71
	%	93	7	18
26-35	count	84	6	90
	%	93	7	22
36-45	count	114	12	126
	%	90	10	31
46-55	count	57	6	63
	%	90	10	16
56-65	count	26	2	28
	%	93	7	7
66+	count	19	5	24
	%	79	21	6
Total	count	366	36	402
	%	91	9	100
Level of Education				
Illiterate	count	17	6	23
	%	74	26	6
Basic Education	count	103	26	129
	%	80	20	32
A-Level	count	122	40	162
	%	75	25	40
Higher degree	count	63	25	88
	%	72	28	22
Total	count	305	97	402
	%	76	24	100
Public awareness				
Very Urgent	Count	259	11	270
	%	96	4	67
Urgent	Count	49	2	51
	%	96	4	13
Neutral	Count	28	0	28
	%	100	0	7
Not Urgent	Count	16	10	26
	%	62	39	7
Not at all Urgent	Count	13	13	26
	%	50	50	7
Total	Count	365	36	401
	%	91	9	100

Table D2.3: Count and percentage of respondent providing VRA per gender age group, level of education and perception of urgency in Chekka bay.

Q2 - Suggestions to influence water management - Very Rich Answers				
		VRA	No VRA	Total
Gender				
Male	count	48	147	195
	%	25	75	49
Female	count	49	156	205
	%	24	76	51
Total	count	97	303	400
	%	24	76	100
Age Group				
18-25	count	21	50	71
	%	30	70	18
26-35	count	23	67	90
	%	26	74	22
36-45	count	32	94	126
	%	25	75	31
46-55	count	11	52	63
	%	17	83	16
56-65	count	6	22	28
	%	21	79	7
66+	count	4	20	24
	%	17	83	6
Total	count	97	305	402
	%	24	76	100
Level of Education				
Illiterate	count	6	17	23
	%	26	74	6
Basic Education	count	26	103	129
	%	20	80	32
A-Level	count	40	122	162
	%	25	75	40
Higher Degree	count	25	63	88
	%	28	72	22
Total	count	97	305	402
	%	24	76	100
Public Awareness of Urgency				
Very Urgent	Count	82	188	270
	%	30	70	67
Urgent	Count	7	44	51
	%	14	86	13
Neutral	Count	5	23	28
	%	18	82	7
Not Urgent	Count	2	25	27
	%	7	93	7
Not at all Urgent	Count	1	25	26
	%	4	96	6
Total	Count	97	305	402
	%	24	76	100

Table D2.4: Count and percentage of respondent providing suggestion to reduce household water consumption per gender age group, level of education and perception of urgency in Chekka bay.

Q3 - Suggestions to reduce household water consumption				
		Suggestions	No suggestion	Total
Gender				
Male	count	123	73	196
	%	63	37	49
Female	count	110	96	206
	%	53	47	51
Total	count	233	169	402
	%	58	42	100
Age Group				
18-25	count	41	30	71
	%	58	42	18
26-35	count	44	46	90
	%	49	51	22
36-45	count	80	46	126
	%	63	37	31
46-55	count	40	23	63
	%	63	37	16
56-65	count	17	11	28
	%	61	39	7
66+	count	12	12	24
	%	50	50	6
Total	count	234	168	402
	%	58	42	100
Level of Education				
Illiterate	count	15	8	23
	%	65	35	6
Basic Education	count	75	54	129
	%	58	42	32
A-Level	count	94	68	162
	%	58	42	40
Higher Degree	count	50	38	88
	%	57	43	22
Total	count	234	168	402
	%	58	42	100
Public Awareness of Urgency				
Very Urgent	count	166	104	270
	%	61	39	67
Urgent	count	24	27	51
	%	47	53	13
Neutral	count	17	11	28
	%	61	39	7
No Urgent	count	16	11	27
	%	59	41	7
Not at all Urgent	count	11	15	26
	%	42	58	6
Total	count	234	168	402
	%	58	42	100

Which type of participation for which type of water management challenges?

Table D2.5: Count and percentage of respondents willing to participate in water debate per gender age group, level of education and perception of urgency in Chekka bay.

Q7 - Willingness to be involved in discussion and debates on water management					
		Yes	No	Don't know	Total
Gender					
Male	count	69	116	10	195
	%	35	59	5	49
Female	count	78	125	2	205
	%	38	61	1	51
Total	count	147	241	12	400
	%	37	60	3	100
Age Group					
18-25	count	29	41	1	71
	%	41	58	1	18
26-35	count	26	63	1	90
	%	29	70	1	22
36-45	count	55	67	4	126
	%	44	53	3	31
46-55	count	21	36	6	63
	%	33	57	10	16
56-65	count	11	17	0	28
	%	39	61	0	7
66+	count	7	17	0	24
	%	29	71	0	6
Total	count	149	241	12	402
	%	37	60	3	100
Level of Education					
Illiterate	count	8	13	2	23
	%	35	57	9	6
Basic Education	count	57	69	3	129
	%	44	53	2	32
A-Level	count	40	117	5	162
	%	25	72	3	40
Higher Education	count	44	42	2	88
	%	50	48	2	22
Total	count	149	241	12	402
	%	37	60	3	100
Public awareness of Urgency					
Very Urgent	count	100	160	10	270
	%	37	59	4	67
Urgent	count	18	33	0	51
	%	35	65	0	13
Neutral	count	10	17	1	28
	%	36	61	4	7
No Urgent	count	11	14	1	26
	%	42	54	4	6
Not at all Urgent	count	9	17	0	26
	%	35	65	0	6
Total	count	148	241	12	401
	%	37	60	3	100

Appendix D3: Results from the Mohafazat of Tartous, Syria

Table D3.1: Count and percentage of perception of urgency to improve water management, per gender age group and level of education, in Tartous Mohafaza, Syria.

Q1 Perception of urgency							
		Very urgent	Urgent	Neutral	Not urgent	Not at all urgent	Total
Gender							
Male	Count	210	49	12	2	2	275
	%	76	18	4	1	1	69
Female	Count	92	20	8	2	1	123
	%	75	16	7	2	1	31
Total	Count	302	69	20	4	3	398
	%	76	17	5	1	1	100
Age group							
18-25	Count	40	3	0	1	0	44
	%	13	4	0	25	0	11
26-35	Count	103	32	4	0	0	139
	%	34	46	20	0	0	35
36-45	Count	72	13	4	2	1	92
	%	24	19	20	50	33	23
46-55	Count	56	16	9	1	2	84
	%	19	23	45	25	67	21
56-65	Count	23	2	2	0	0	27
	%	8	3	10	0	0	7
66+	Count	8	3	1	0	0	12
	%	3	4	5	0	0	3
Total	Count	302	69	20	4	3	398
	%	76	17	5	1	1	100
Level of education							
Illiterate	Count	12	2	1	0	0	15
	%	80	13	7	0	0	4
Basic Education	Count	58	6	6	0	0	70
	%	83	9	9	0	0	18
A-level	Count	108	20	1	1	1	131
	%	82	15	1	1	1	33
Higher Degree	Count	124	41	12	3	2	182
	%	68	23	7	2	1	46
Total	Count	302	69	20	4	3	398
	%	76	17	5	1	1	100

Table D3.2: Count and percentage of respondent providing suggestion to influence water management per gender age group, level of education and perception of urgency in Tartous Mohafaza.

Q2 – Suggestions to influence water management				
		Suggestions	No suggestion	Total
Gender				
Male	count	238	38	276
	%	86	14	69
Female	count	105	19	124
	%	85	15	31
Total	count	343	57	400
	%	86	14	100
Age group				
18-25	count	38	6	44
	%	86	14	11
26-35	count	119	20	139
	%	86	14	35
36-45	count	79	14	93
	%	85	15	23
46-55	count	72	13	85
	%	85	15	21
56-65	count	24	3	27
	%	89	11	7
66+	count	11	1	12
	%	92	8	3
Total	count	343	57	400
	%	86	14	100
Level of Education				
Illiterate	count	13	2	15
	%	87	13	4
Basic Education	count	58	12	70
	%	83	17	18
A-Level	count	110	22	132
	%	83	17	33
Higher Degree	count	162	21	183
	%	89	11	46
Total	count	343	57	400
	%	86	14	100
Perception of Urgency				
Very urgent	count	259	43	302
	%	86	14	76
Urgent	count	61	8	62
	%	98	13	16
Neutral	count	15	5	20
	%	75	25	5
Not Urgent	count	3	1	4
	%	75	25	1
Not at all Urgent	count	3	0	3
	%	100	0	1
Total	count	341	57	398
	%	86	14	100

Which type of participation for which type of water management challenges?

Table D3.3: Count and percentage of respondent providing VRA per gender age group, level of education and perception of urgency in Tartous Mohafaza.

Q2 – Suggestions to influence water management - Very Rich Answers				
		VRA	No VRA	Total
Gender				
Male	Count	20	256	276
	%	7	93	69
Female	Count	30	94	124
	%	24	76	31
Total	Count	50	350	400
	%	13	88	100
Age group				
18-25	count	9	35	44
	%	20	80	11
26-35	count	18	121	139
	%	13	87	35
36-45	count	14	79	93
	%	15	85	23
46-55	count	7	78	85
	%	8	92	21
56-65	count	2	25	27
	%	7	93	7
66+	count	0	12	12
	%	0	100	3
Total	count	50	350	400
	%	13	88	100
Level of education				
Illiterate	count	1	14	15
	%	7	93	4
Basic Education	count	3	63	66
	%	5	95	17
A-Level	count	17	115	132
	%	13	87	33
Higher Degree	count	29	154	183
	%	16	84	46
Total	count	50	346	396
	%	13	87	100
Perception of Urgency				
Very Urgent	count	32	270	302
	%	11	89	76
Urgent	count	14	55	69
	%	20	80	17
Neutral	count	3	17	20
	%	15	85	5
No Urgent	count	0	4	4
	%	0	100	1
Not at all Urgent	count	1	2	3
	%	33	67	1
Total	count	50	348	398
	%	13	87	100

Which type of participation for which type of water management challenges?

Table D3.4: Count and percentage of respondent providing suggestion to reduce household water consumption per gender age group, level of education and perception of urgency in Tartous Mohafaza.

Q3 – Suggestions to reduce household water consumption				
		Suggestions	No suggestion	Total
Gender				
Male	count	88	187	275
	%	32	68	69
Female	count	38	87	125
	%	30	70	31
Total	count	126	274	400
	%	32	69	100
Age group				
18-25	count	14	30	44
	%	32	68	11
26-35	count	44	95	139
	%	32	68	35
36-45	count	29	64	93
	%	31	69	23
46-55	count	26	59	85
	%	31	69	21
56-65	count	9	18	27
	%	33	67	7
66+	count	4	8	12
	%	33	67	3
Total	count	126	274	400
	%	32	69	100
Level of Education				
Illiterate	count	3	12	15
	%	20	80	4
Basic Education	count	21	49	70
	%	30	70	18
A-Level	count	39	93	132
	%	30	70	33
Higher Degree	count	63	120	183
	%	34	66	46
Total	count	126	274	400
	%	32	69	100
Public Awareness of Urgency				
Very Urgent	count	107	195	302
	%	35	65	1
Urgent	count	15	54	69
	%	22	78	0
Neutral	count	4	0	4
	%	100	0	0
No Urgent	count	0	4	4
	%	0	100	0
Not at all Urgent	count	0	3	3
	%	0	100	0
Total	count	126	272	398
	%	32	68	100

Table D3.5: Count and percentage of respondents willing to participate in water debate per gender age group, level of education and perception of urgency in Tartous Mohafaza, Syria.

Q7 - Willingness to participate in water debate					
		Yes	No	Don't know	Total
Gender					
Male	count	177	88	10	275
	%	64	32	4	69
Female	count	80	34	9	123
	%	65	28	7	31
Total	count	257	122	19	398
	%	65	31	5	100
Age Group					
18-25	count	34	9	1	44
	%	77	20	2	11
26-35	count	90	43	6	139
	%	65	31	4	35
36-45	count	60	30	2	92
	%	65	33	2	23
46-55	count	47	32	6	85
	%	55	38	7	21
56-65	count	17	6	3	26
	%	65	23	12	7
66+	count	9	2	1	12
	%	75	17	8	3
Total	count	257	122	19	398
	%	65	31	5	100
Level of Education					
Illiterate	count	6	6	2	14
	%	43	43	14	4
Basic Education	count	39	27	4	70
	%	56	39	6	18
A-Level	count	85	43	3	131
	%	65	33	2	33
Higher Education	count	127	46	10	183
	%	69	25	5	46
Total	count	257	122	19	398
	%	65	31	5	100
Public Awareness					
Very Urgent	count	197	90	13	300
	%	66	30	4	76
Urgent	count	46	22	1	69
	%	67	32	1	17
Neutral	count	12	3	5	20
	%	60	15	25	5
No Urgent	count	1	3	0	4
	%	25	75	0	1
Not at all Urgent	count	0	3	0	3
	%	0	100	0	1
Total	count	256	121	19	396
	%	65	31	5	100

Which type of participation for which type of water management challenges?

Appendix D4: Results from Gökova Bay, Turkey

Table D4.1: Count and percentage of perception of urgency to improve water management, per gender age group and level of education, in Gökova bay, Turkey.

		Q1 - Public Awareness					
		Very Urgent	Urgent	Neutral	Not Urgent	Not at all Urgent	Total
Gender							
Male	count	72	80	50	47	70	319
	%	23	25	16	15	22	81
Female	count	16	17	11	10	20	74
	%	22	23	15	14	27	19
Total	count	88	97	61	57	90	393
	%	22	25	16	15	23	100
Age Group							
18-25	count	12	4	6	7	9	38
	%	32	11	16	18	24	10
26-35	count	10	12	8	7	16	53
	%	19	23	15	13	30	14
36-45	count	9	19	15	14	14	71
	%	13	27	21	20	20	18
46-55	count	18	14	10	7	19	68
	%	27	21	15	10	28	18
56-65	count	22	22	11	12	17	84
	%	26	26	13	14	20	22
66+	count	15	26	11	10	12	74
	%	20	35	15	14	16	20
Total	count	86	97	61	57	87	388
	%	22	25	16	15	22	100
Level of Education							
Illiterate	count	5	4	3	5	5	22
	%	23	18	14	23	23	6
Basic education	count	47	69	38	34	54	242
	%	19	29	16	14	22	63
A-level	count	20	14	11	15	24	84
	%	24	17	14	18	29	22
Higher Degree	count	12	7	7	2	6	34
	%	35	21	21	6	18	9
Total	count	84	94	59	56	89	382
	%	22	25	15	15	23	100

Which type of participation for which type of water management challenges?

Table D4.2: Count and percentage of respondent providing suggestion to influence water management per gender age group, level of education and perception of urgency in Gökova Bay.

Q2 - Suggestions to influence water management				
		Suggestions	No Suggestion	Total
Gender				
Male	count	159	163	322
	%	49	51	81
Female	count	41	36	77
	%	53	47	20
Total	count	200	235	399
	%	50	59	100
Age Group				
18-25	count	18	19	37
	%	49	51	10
26-35	count	29	19	48
	%	60	40	13
36-45	count	33	34	67
	%	49	51	18
46-55	count	41	26	67
	%	61	39	18
56-65	count	44	38	82
	%	54	46	22
66+	count	31	41	72
	%	43	57	19
Total	count	196	177	373
	%	53	47	100
Level of Education				
Illiterate	count	6	16	22
	%	27	73	6
Basic education	count	126	109	235
	%	54	46	64
A-level	count	38	40	78
	%	49	51	21
Higher degree	count	21	10	31
	%	68	32	8
Total	count	193	175	368
	%	52	48	100
Public Awareness				
Very Urgent	Count	68	17	85
	%	80	20	23
Urgent	Count	42	47	89
	%	47	53	24
Neutral	Count	35	21	56
	%	63	38	15
Not Urgent	Count	19	37	56
	%	34	66	15
Not at all Urgent	Count	33	55	88
	%	38	63	24
Total	Count	197	177	374
	%	53	47	100

Table D4.3: Count and percentage of respondent providing suggestion to reduce household water consumption per gender age group, level of education and perception of urgency in Gökova bay, Turkey

Q3 - Suggestions to reduce household water consumption				
		Suggestions	No suggestion	Total
Gender				
Male	count	59	263	322
	%	18	82	81
Female	count	10	67	77
	%	13	87	19
Total	count	69	330	399
	%	17	83	100
Age Group				
18-25	count	6	31	37
	%	16	84	10
26-35	count	12	36	48
	%	25	75	13
36-45	count	14	53	67
	%	21	79	18
46-55	count	11	56	67
	%	16	84	18
56-65	count	17	65	82
	%	21	79	22
66+	count	9	63	72
	%	13	88	19
Total	count	69	304	373
	%	18	82	100
Level of Education				
Illiterate	count	2	20	22
	%	9	91	6
Basic education	count	40	207	247
	%	16	84	64
A-level	count	18	67	85
	%	21	79	22
Higher degree	count	8	26	34
	%	24	76	9
Total	count	68	320	388
	%	18	82	100
Public Awareness				
Very Urgent	count	14	70	84
	%	17	83	22
Urgent	count	21	73	94
	%	22	78	25
Neutral	count	16	43	59
	%	27	73	15
No Urgent	count	8	48	56
	%	14	86	15
Not at all Urgent	count	10	79	89
	%	11	89	23
Total	count	69	313	382
	%	18	82	100

Which type of participation for which type of water management challenges?

Table D4.4: Count and percentage of respondents willing to participate in water debate per gender age group, level of education and perception of urgency in Gökova bay, Turkey.

Q7 - Willingness to be involved in discussion and debates on water management					
		Yes	No	Don't know	Total
Gender					
Male	count	92	166	58	316
	%	29	53	18	81
Female	count	14	46	15	75
	%	19	61	20	24
Total	count	106	212	73	391
	%	27	54	19	100
Age Group					
18-25	count	12	17	7	36
	%	33	47	19	9
26-35	count	14	26	12	52
	%	27	50	23	13
36-45	count	24	36	12	72
	%	33	50	17	19
46-55	count	20	36	13	69
	%	29	52	19	18
56-65	count	21	53	10	84
	%	25	63	12	22
66+	count	13	42	18	73
	%	18	58	25	19
Total	count	104	210	72	386
	%	27	54	19	100
Level of education					
Illiterate	count	1	14	7	22
	%	5	64	32	6
Basic Education	count	53	142	49	244
	%	22	58	20	64
A-Level	count	34	40	7	81
	%	42	49	9	21
Higher Education	count	17	9	7	33
	%	52	27	21	9
Total	count	105	205	70	380
	%	28	54	18	100
Public Awareness					
Very Urgent	count	38	43	6	87
	%	44	49	7	22
Urgent	count	20	64	11	95
	%	21	67	12	25
Neutral	count	24	21	15	60
	%	40	35	25	15
No Urgent	count	8	22	26	56
	%	14	39	46	14
Not at all Urgent	count	17	60	12	89
	%	19	67	14	23
Total	count	107	210	70	387
	%	28	54	18	100

E. Stakeholder questionnaire II

MEDITATE

Water Vision Workshop II

II الاستبيان

Restitution to stakeholders and assessment of routes to sustainable water management

Feedback questionnaire

الجنس Gender

رجل Man	1
امرأة Woman	2

العمر Age :

25-18	1
35-26	2
45-36	3
55-46	4
65-56	5
65<	6

أين تقيم Where do you live?:

المدينة Urban (town)	1
الريف Rural (country side)	2
الضواحي (قرب المدين) Suburban area (small town close to city but not in country side)	3

المهنة Profession

المهنة Job title: _____
المسؤولية Responsibility: _____
Institution or employer: _____ المؤسسة التي يعمل بها

المهنة Profession

نطاق عام ادارة Public institution/administration	1
مؤسسة خاصة Private company or business	2
المكان الذي تعمل لصالحه NGO	3

قطاع العمل Sector

الزراعة Farming	1
الصناعة Industry	2
السياحة Tourism	3
الخدمات Services	4
الإدارة Administration	5
قطاعات أخرى Other	6

Which type of participation for which type of water management challenges?

1. هل تعتبر أن مصادر المياه في منطقتك تتعرض للخطر في بعض الأحيان؟

Do you consider that water resources are sometimes at risk in your area? - Circle the answer

نعم

لا

لماذا؟
Why?

2. هل تعتقد أن إدارة مصادر المياه والخدمات المتعلقة بها تتم بشكل متكامل في منطقتك؟

Do you consider the water resource and services are competently managed in your area?

نعم

لا

لماذا؟
Why?

3. الرجاء ترتيب هذه البنود المتعلقة بمسألة المياه وذلك بحسب الأولوية بحيث تعطى الأولوية الأولى رقم

Rank the following water related issues according to their priority: 1 the highest priority- 11 the lowest priority

1 والثانية 2 وهكذا....

الترتيب	المسألة
	زيادة مصادر المياه " سدود-خزانات-قنوات-ينابيع ". Increasing water supply: dams, reservoirs, canal, new spring catchments
	زيادة جودة المياه Increasing water quality الاهتمام أكثر بنوعية المياه.
	تقليل التلوث من العمليات المسببة لتلوث مجاري المياه. Reducing pollution of water courses
	بناء محطات لمعالجة المياه ومحطات لمعالجة المياه العادمة. Building water treatment works waste water treatment works
	تجديد شبكة المياه والصرف. Renewing the supply network
	تحسين استخدام المياه في الري. Improving the use of water for irrigation
	تطبيق القانون بحيث يتم دفع فواتير المياه وفرض غرامات في حال الاستعمال غير القانوني Enforcing the law: paying water bills- fine for illegal use of water لها.
	إلزام الأشخاص المسؤولين عن إدارة الموارد المائية ووضعهم في موقع المسؤولية. Making water managers accountable for their actions
	حملات توعية من أجل تقليل استعمال المياه في المنازل. Awareness campaign for using less water in the house
	تعديل السياسة المائية الحالية وأسلوب الإدارة الخاص بها. Adapt current water management and policy
	إشراك مستخدمي المياه ضمن مناقشات وندوات حول موضوع إدارتها. Involve water users in water debates

Which type of participation for which type of water management challenges?

4. صنف المسائل التالية تحت بنود (وطنية -مناطقية-محلية) وذلك وفق ما تراه (حسب
الجهة المخولة باتخاذ القرار برايك)، ضع إشارة x في المكان المناسب.

Do you consider the following issues to be of national, regional or local interest? Indicate your answer with "X" in the relevant box (you may select more than one scale for each issue).

	قرار وطني National Country	قرار تتخذه المحافظة Regional Governorate	قرار يتخذه المجلس البلدي Local Municipal
بناء محطة معالجة مياه ومحطة معالجة مياه عادمة. Building water or wastewater treatment works			
بناء سد كبير. Building a big dam			
بناء خزان صغير، قناة ري. Building a small reservoir canal for irrigation			
تجديد شبكة المياه والصرف (التسرب). Renewing water supply network (leakage)			
سياسة تسعير المياه Water pricing policy			
تطبيق قوانين صارمة فيما يتعلق بموضوع المياه. Law implementation and water police			
مسؤولية إدارة الموارد المائية. Responsibility for water management			
خصخصة قطاع المياه، عدم وجود عملية معالجة للمياه العامة. Privatisation of water or wastewater operation			
تقييم الخدمات المتعلقة بنوعية المياه. Evaluation of water services quality			
حصة المياه المستخدمة في الزراعة. Water allocation for agriculture			
حملات توعية من أجل الاستعمال الدائم للمياه Awareness campaign for sustainable usage			
معالجة المياه وإعادة استعمالها لأغراض أخرى. Recycling water			
حماية المنتزهات والحدائق. Protecting wetland-parks			

Which type of participation for which type of water management challenges?

5. أي من هذه الهيئات يجب إشراكها بالمسائل التالية المدرجة؟

(في المربع المناسب ويمكنك اختيار أكثر من قطاع. ضع إشارة)

Which of these actors must be involved in the listed issues: Indicate your answer with "X" in the relevant box (you may select more than one actor for each issue).

الهيئات المسائل	الإدارة المركزية Central admin	مجلس البلدية Municipality	الأعمال الصناعية Industries Business	المزارعين Farmers	NGOs Green	المواطنين Citizens
بناء محطات لمعالجة المياه. Building water or wastewater TW						
بناء سد كبير. Building a big dam						
بناء خزان صغير او قناة للري Building a small reservoir canal for irrigation						
تجديد شبكة المياه والصرف. Renewing water supply network (leakage)						
سياسة تسعير المياه. Water pricing policy						
تطبيق قوانين صارمة فيما يتعلق بموضوع المياه Law implementation and water police						
مسؤولية إدارة الموارد المائية. Responsibility for water management						
خصخصة قطاع المياه ، عدم وجود عملية معالجة للمياه العادمة Privatisation of water or wastewater operation						
تقييم الخدمات المتعلقة بنوعية المياه. Evaluation of water services quality						
حصة المياه المستخدمة في الزراعة. Water allocation for agriculture						
حملات توعية من أجل الاستعمال الدائم للمياه Awareness campaign for sustainable usage						
معالجة المياه وإعادة استعمالها لأغراض أخرى. Recycling water						
حماية المنتزهات والحدائق. Protecting wetland-parks						

Which type of participation for which type of water management challenges?

6. أي من هذه التعريفات "برأيك" هو الأكثر تمثيلاً للمشاركة في المسائل المتعلقة بعملية إدارة الموارد المائية في بلدك. الرقم (1) للتعريف الأكثر تمثيلاً و (2) للذي يليه.....(6) للأقل تمثيلاً.

In your opinion, which of these definitions is most representative of public participation on water management issues in your country currently? 1 - The most representative...6 - the least representative

التعريف Definition	الترتيب Rank
إعلام الأطراف المهتمة أو المتأثرة عن قرار تم إتخاذه مسبقاً. Informative participation informs interested or affected parties about a decision which has already been made	
جمع معلومات وآراء الأطراف المهتمة أو المتأثرة حول مشروع أو مسألة تهمهم: (ممكن إجراء مسح لمعرفة هذه الآراء). Indirect consultative participation gathers information and the opinion of interested or affected parties on a project or a problem that concerns them: possibly carries out a survey about their opinion.	
وذلك عبر اللقاءات جمع معلومات وآراء الأطراف المهتمة أو المتأثرة حول مشروع أو مسألة تهمهم المباشرة. Direct consultative participation gathers information and the opinions of interested or affected parties on a project or a problem that concerns them through face-to-face meetings.	
تشجيع الأطراف المهتمة والمتأثرة على إقتراح حلول والتوصية بوضع شخص يكون مسؤولاً عن تطوير هذه الحلول. Cooperative participation encourages interested or affected parties to propose solutions and to advise the body that is accountable for developing solutions.	
تتشارك الأطراف المهتمة والمتأثرة مع الإدارة العامة بمسؤولية التخطيط وصنع القرار . Partnership participation interested or affected parties and public administration agree to share planning and decision-making responsibilities	
الأطراف المهتمة والمتأثرة هي المسؤولة وتتم محاسبتها عن أي عملية إدارة أو مشروع أو برنامج. Decisional participation interested or affected parties are responsible and accountable for the decision and the management of a project or programme	

Which type of participation for which type of water management challenges?

7. أي من أنماط المشاركة هذه ستكون مناسبة برأيك فيما يتعلق بالمسائل المدرجة أدناه

في المربع المناسب (ضع إشارة واحدة من أجل كل سطر) (ضع إشارة

In your opinion, which of the following types of participation would be suitable for the listed water related issues? Indicate your answer with "X" in the relevant box (one X per row please)

المسألة	لا يكون مشاركة No participation	مشاركة تنتم من خلالها تقديم معلومات Informative	استشارة غير مباشرة Indirect Consultative	استشارة مباشرة Direct Consultative	تعاون Cooperative	مشاركة Partnership	صنع قرار Decisional
التخطيط لبناء محطات لمعالجة المياه. Planning a water or waste water treatment works							
التخطيط لبناء سد كبير. Planning a big dam							
بناء خزان صغير او بناء قناة للري Planning a small reservoir or a canal for irrigation							
تجديد شبكة المياه والصرف (التسرب). Renew network (leakage)							
سياسة تسعير المياه. Water pricing policy							
تطبيق قوانين صارمة فيما يتعلق بموضوع المياه Law implementation and water police							
مسؤولية إدارة الموارد المائية. Responsibility for water Mgt							
خصخصة قطاع المياه ، عدم وجود عملية معالجة للمياه العادمة Privatisation of water operation							
تقييم الخدمات المتعلقة بنوعية المياه. Evaluation of water services quality							
حصة المياه المستخدمة في الزراعة. Water allocation for agriculture							
حملات توعية من أجل الاستعمال الدائم للمياه Awareness campaign for sustainable usage							
معالجة المياه وإعادة استعمالها لأغراض أخرى. Recycling water							
حماية المنتزهات والحدائق. Protecting wetland-parks							

Which type of participation for which type of water management challenges?

8. "برأيك" ما هي الأسباب التي تدعو للمشاركة العامة في المسائل المتعلقة بالمياه يعطى الرقم (1) للسبب الأهم و(2) للذي يليه وهكذا وصولاً للرقم 6.

In your opinion, what are the reasons for taking part in public participation in water related issues?
1 - The most important 6 - the least important

الأسباب Reasons	الترتيب Rank
للحصول على معلومات حول الخطط المستقبلية التي ستنفذها الحكومة. To receive some information about future plans the public authority will implement	
للاستماع إلى آراء أصحاب العلاقة حول الخطط المستقبلية. To listen the opinions of other stakeholders, about future plans	
واقترح حل مشترك، لتبادل وجهات النظر مع جهات حكومية أخرى زراعية ، سياحية وصناعية To exchange views with other public or supra-national institutions agriculture, tourism and industry and to propose a common solution.	
لتجنب أو حل نزاع متعلق باستعمال المياه. To avoid or to resolve conflict over the use of water.	
للتوصل إلى حل مشترك مع المواطنين والقطاعات التي ستقوم بالتنفيذ ديمقراطياً. To define a common solution with all citizens and sectors that will be implemented democratically.	
للمشاركة أو الحصول على قدرة في عملية صنع القرار. To share or to delegate some power over the decision making process.	

أسباب أخرى-----Other reasons.

9. هل تعتقد أن السلطات الحالية تشجع على المشاركة في صناعة سياسة مائية؟

Do you think that the current administration encourages public participation in policy making?

نعم

لا

Why? لماذا؟

10. هل تعتقد أن السلطات الحالية المسؤولة عن إدارة الموارد المائية تشجع على مشاركة الأطراف المهتمة أو المتأثرة بموضوع المياه في عملية إدارة مستمرة للموارد المائية؟

Do you think that the current administration of water management encourages the involvement of interested or affected parties in sustainable management of water?

نعم

لا

Why? لماذا؟

Which type of participation for which type of water management challenges?

**11. كيف تنظر إلى دور السلطات في عملية إدارة الموارد المائية وذلك بحسب التعريفات التالية
(قم بوضع إشارة بجانب الإجابة التي تختارها.)**

How do you consider the role of the administration in water management according to the following definitions? Select all that you want with "X"

الأدوار	ما يحدث حالياً What is it currently	ما يجب أن يحدث. What I think It should be
السلطات تتخذ قرار وتقوم بإعلام الناس عنه. The authority makes a decision and informs the public about it.		
تقوم السلطة بتعريف المشكلة ثم تجمع الآراء حولها وردود الفعل تجاه الحل المقترح عبر استطلاعات للرأي. The authority defines the problem then gathers opinions about this problem and reaction to potential solution through surveys		
تقوم السلطة بتعريف المشكلة ثم تجمع الآراء حولها وردود الفعل تجاه الحل المقترح عبر لقاءات مباشرة. The authority defines the problem then gather opinion about a problem and reaction to potential solution through direct meetings		
تقوم السلطة بتنظيم لقاءات مع أصحاب العلاقة لتحديد المشكلة والحل في آن واحد. The authority organise meeting(s) with all concerned stakeholders to define the problem and potential solution together		
تقوم السلطة بوضع حدود وضمن هذه الحدود يقوم المواطنون بالمشاركة بمسؤولية صنع القرار وتطبيقه. The authority prescribes the limits and within these limits citizens or user associations share decision-making responsibility and implementation.		

**12. أي من هذه الطرق تراها مناسبة للمشاركة في عملية الإدارة المتكاملة للموارد المائية.
الخيار الأنسب للرقم 1 والذي يليه 2 وهكذا....**

Which of the following methods do you consider to be the most appropriate way to involve the public in integrated water resources management? Please rank the options from 1 - The most appropriate...to 6 - the least appropriate

	الترتيب Rank
نشر معلومات في الصحف المحلية عن مواضيع تتعلق بالمياه. Publishing information in local newspaper on water related issues	
إرسال نشرات تتضمن التحديات التي تواجه عملية إدارة الموارد المائية إلى المواطنين. Sending a leaflet on water management challenges to citizens	
بناء موقع إلكتروني لنشر المعلومات وجمع الآراء. Internet web-site to diffuse information and collect opinion	
حملات توعية عبر التلفزيون. TV awareness campaign	
تنظيم معارض عامة- منتديات حول موضوع المياه حيث تتبادل الأطراف المعنية وجهات النظر. Organising public exhibition- water forum where interested parties present their views	
تنظيم مؤتمرات عامة. Holding public meeting	
تشكيل لجنة استشارية في موضوع إدارة الموارد المائية. Creating advisory water management committee	

Which type of participation for which type of water management challenges?

13. Would you like to attend a public debate on water issues?
ترغب بحضور ندوات عامة تناقش موضوع المياه؟

لا نعم

لماذا؟

14. هل ترغب بأن تكون عضواً في لجنة استشارية تختص بموضوع إدارة المياه و استعمالها؟

Would you like to be involved in advisory water management committee or water user committee?

لا نعم

لماذا؟

15. إلى أي مدى ستلتزم نفسك بالحضور؟

بجانب الإجابة X ضع إشارة

How often would you commit yourself? Select your choice with "X"

ساعة في الاسبوع 1 hour a week	
2 ساعة في الشهر 2 hours a month	
2 ساعة كل 3 شهور 2 hours every 3 months	
اقتراحات أخرى	

16. ماهي المواضيع التي أعجبتك أكثر من غيرها خلال ورشة العمل؟

Which aspects of the workshop did you like the most?

17. ماذا تعلمت من خلال ورشة العمل؟

What did you learn during the workshop?

18. كيف كانت ورشة العمل؟

How was the workshop?

Very Interesting ممتعة جداً؟

Interesting ممتعة؟

Not Interesting غير ممتعة؟

Why? لماذا؟

هل لديك أية تعليقات أخرى؟

Do you have any other comments?

F. Decision influencer interview

A comparative analysis of public participation practices in Europe and the Middle East.'

Interview questionnaire aimed at Institutions

My working PHD title is: "a comparative analysis of public participation practices for water resource management in Europe and in the Middle East".

Defining a water resources management policy can become complex, especially when both the actual state of the resource and its usage are not fully understood. Traditional approaches to water management distinguishing between potable water production and supply, wastewater collection and treatment, water for industrial and agricultural purposes, is reaching the limit of its efficiency. To address water resources management is to address the interconnections between complex systems that are socially and economically anchored with technical and environmental challenges managed by local, national and international institutions. Integrated Water Resources Management (IWRM) is a complex problem i.e. the set of solution changes according to the understanding of what the problem is who is affected by the problem and/or the proposed solution. Moreover, public participation (PP) is an umbrella with little consensual meaning and implications. There is a lack of understanding of what IWRM is and what a participative approach for which management challenges is (type of issue, scale, for which stakeholders...).

When implementing IWRM, one might ask which type of participation for what type of water management issue?

In order to clarify the aims of public participation and to understand how the objectives might be implemented I investigate the forms PP can take for specific water management challenges.

The research attempts to understand how governance bodies and water users interface with each other. The following questionnaire has been designed following two project aimed at identified the challenges for water resources and service management in Jordan. The first project was a 2-day workshop on integrated water resources scenarios. The second project was a social survey (600 questionnaires) aiming at better understanding people attitude towards water resource management and water usage.

The themes of the interview are;

- A. The issues of water resource management in Jordan.
- B. The conception and understanding of public participation for the national and supra national institutions Jordan.
- C. The role of the public administration and attitude towards co-management
- D. The process to involve the actors in a participative exercise for water resource management- Mode of stakeholders representation

Name.....

Institution.....

Job title.....

Responsibility.....

Date.....

Which type of participation for which type of water management challenges?

A-The issues of water resource management in the study area.

**QA1: Do you consider the water resource as been sometimes at risk in the study area?
Please give some examples.**

**QA2: Do you consider the water resources is been properly managed in the study area?
Please give some examples.**

**QA3 - Rank the following water related issues according to their priority:
1 the highest priority- 11 the lowest priority**

Issue	Rank
Increasing water supply: dams, reservoirs, canal, new spring catchments	
Increasing water quality	
Reducing pollution of water courses	
Building water treatment works waste water treatment works	
Renewing the supply network	
Improving the use of water for irrigation	
Enforcing the law: paying water bills- fine for illegal use of water	
Making water managers accountable for their actions	
Awareness campaign for using less water in the house	
Adapt current water management and policy	
Involve water users in water debates	

Which type of participation for which type of water management challenges?

**QA3B - Do you consider the following issues: national, regional or local interest?
Select all that you want with "X"**

Issue	National State	Regional Governorate	Local Municipal
Building water or wastewater treatment works			
Building a big dam			
Building a small reservoir or a canal for irrigation			
Renewing network (leakage)			
Water pricing policy			
Law implementation and water police			
Responsibility for water management			
Outsourcing of water or wastewater operation			
Evaluation of water services			
Water allocation for agriculture			
Awareness campaign for sustainable usage			
Recycling water			
Protecting wetland-parks			

Comments: _____

Which type of participation for which type of water management challenges?

**QA4 - Which of the following actors must be involved about the following issues:
Select all that you want with "X"**

Issue	Central Admin	Municipality	Industries Business	Farmers	NGOs' Green	Citizens
Planning a water or waste water treatment works						
Planning a dam						
Planning a canal for irrigation						
Renew network (leakage)						
Water pricing policy						
Law implementation and water police						
Responsibility for water management						
Outsourcing water operation						
Evaluation of water services						
Water allocation for agriculture						
Awareness campaign for sustainable usage						
Recycling water						
Protecting wetland-parks						

QA5: Does your Institution believe public participation can improve water resource management in *your country*?

Which type of participation for which type of water management challenges?

B-The conception and understanding of “public participation” or “participative planning” for *your institution in your country*.

QB1 - What is “public participation” or “participative planning” for *your institution*?

QB2 - What are the objectives/reasons for engaging public participation on water related issues?

QB3 - Why would *your institution* engage a public participation exercise or debate over environmental and water resources management?

Rank all answers by priority from 1 to 6:

1-the most important reason; 6- the least important reason

	Rank
To give some information about future plans the public authority will implement.	
To listen the opinions of the stakeholders, about future plans.	
To exchange views with other public institutions and agriculture, tourism & industry sectors, and to propose a common solution.	
To avoid or to resolve conflict over the use of water.	
To define a common solution with all citizens and sectors that will be implemented democratically.	
To share or to delegate some power over the decision making process.	

Other reasons.-----

Which type of participation for which type of water management challenges?

QB4 - Which of these definitions is most representative of public participation in *your country* about water management currently?

1 - The most representative...6 - the least representative

Definition	rank
Informative participation aims at informing interested or affected parties about a decision already made.	
Indirect consultative participation aims at gathering information and opinion of interested or affected parties on a project or a problem that concerns them: make a survey about their reactions/opinion.	
Direct consultative participation aims at gathering information and opinion of interested or affected parties on a project or a problem that concerns them through meetings.	
Cooperative participation encourages interested or affected parties to propose solutions and to advise the public administration that is accountable for taking the solution into account or no.	
Partnership participation: interested or affected parties and public administration agree to share planning and decision-making responsibilities through structures like joint-policy board, planning committees.	
Decisional participation: interested or affected parties are responsible and accountable for the decision and the management of a project or programme.	

BQ5 - Which of the following type of participation would be suitable for the water related issues? Indicate your answer with “X” in the relevant box (one X per row please)

Issue	No participation	Informative	Indirect Consultative	Direct Consultative	Cooperative	Partnership	Decisional
Planning a water or waste water treatment works							
Planning a Dam							
Planning canal for irrigation							
Renew network (leakage)							
Water pricing policy							
Law implementation and water police							
Responsibility for water management							
Outsourcing of water operation							
Evaluation of water services							
WR allocation for agriculture							
Awareness campaign for sustainable usage							
Recycling water							
Protecting wetland-parks							

QB6: Do you consider the following argument as being relevant objectives to initiate public participation?

Circle the answers you agree with

- a- To incorporate public values into decision.
- b- All citizens have the right to express their concerns.
- c- To promote empowerment of the public and power sharing.
- d- To build trust in institutions and central administration.
- e- To resolve conflict among competing interest.
- f- To educate and to inform the public.
- g- To develop environmental responsibility & citizenship.
- h- To define sustainable solutions collectively.
- i- To recognise local cultures, practices and values.
- j- To give some legitimacy to a public decision.
- k- To demonstrate a fair procedure for a public decision.
- l- To ensure accountability of decision maker.
- m- To promote good- democratic governance.
- n- Public participation gains in fairness when the public is involved in defining the procedure.
- o- Formal equity: all stakeholders including experts have the same right to intervene in the process and to challenge anybody else presentation of facts.
- p- Some kind of public participation must be done because it is required by law, or because it is a necessary condition to gain international funds.

QB7: What are the minimum requirements in the society in general (institutions and actors) for public participation to be successful?

Which type of participation for which type of water management challenges?

C- The role of the public administration and attitude towards public participation.

QC1: What is the role of JAV in a public participation exercise?

QC2: Which of these objectives for *your institution* are the most relevant in public participation approach? 1 - The most representative...5 - the least representative

Objectives	Rank
To promote representation of all interests: <u>my institution</u> identifies the views of the entire community on particular issues in order to create the possibility that following projects will reflect the needs of the community.	
To promote decision-making input: <u>my institution</u> provides the public with an increased opportunity for input into the planning process.	
To promote support building: <u>my institution</u> creates a favourable setting for the implementation of proposed plans and/or the resolution of conflicts between groups and the authority.	
To promote education: <u>my institution</u> facilitates the dissemination of detailed information about a project or the proposed solutions.	
To promote information: <u>my institution</u> informs the public about public decisions	

QC3- How do you consider the role of the administration in water management according to the following definitions? Select all that you want with "X"

Roles	What is it currently	What I think It should be ideally
The authority makes a decision and informs the public about it.		
The authority defines the problem then gathers opinions about this problem and reaction to potential solution through surveys.		
The authority defines the problem then gather opinion about a problem and reaction to potential solution through direct meetings		
The authority organise meeting(s) with all concerned stakeholders to define the problem and potential solution together		
The authority prescribes the limits and within these limits citizens or user associations share decision-making responsibility and implementation.		

Which type of participation for which type of water management challenges?

D- The processes to involve the actors in a participative exercise for water resource management- Mode of stakeholder's representation.

QD1: How do you as an Institution involve stakeholder?

QD2: What are the challenges you have faced or you can foresee in engaging different stakeholders?

QD3: Which of the following methods are used or are the most relevant to involve interested or affected parties in participatory exercises, discussions and debates?

Rank all answers by priority from 1 to 4:

1-the method the most appropriate; 4- the method the least appropriate

	rank
Dealing with spokespersons or elected representatives of interested or affected parties	
Through the organisation of public debates and public consultation	
By consulting and asking stakeholders to give an opinion about suggested propositions	
By organising votes on proposed options	

Do you have other suggestions?

QD4 - Which of the following methods do you consider to be the most appropriate to involve the public in integrated water resources management?

1 - The most representative...6 - the least representative

	Rank
Publishing information in local newspaper on water related issues	
Sending a leaflet on water management challenges to citizens	
Internet web-site to diffuse information and collect opinion	
TV awareness campaign	
Organising public exhibition- water forum where interested parties present their views	
Holding public meeting	
Creating advisory water management committee	

G. Thesis summary in Arabic

يخضع مهني كل من عملية إدارة الموارد المائية IWRM والمشاركة العامة PP للتفسير (أي أنه يحتمل عدة أوجه) من قبل المعنيين بكل منهما وذلك لأن مبادئ الشك، الاحتمالية وبناء مشروع إجتماعي تتعارض مع الخبرات العلمية، السلطة السياسية والقرارات الديمقراطية المتعلقة بإدارة الرأي العام.

لن أدرس المشاركة العامة وإدارة الموارد المائية بغرض تحديد المشاكل الحقيقية، لكن من أجل تحري حقيقة التحديات المتعلقة بعملية إدارة المياه وحقيقة عملية المشاركة العامة وإلك من مناظير مختلفة.

فما هي أنماط التحديات المرافقة لعملية إدارة الموارد المائية وما هو نمط المشاركة المتوافق مع نمط التحدي. (بمعنى ان لكل تحدي من تحديات عملية إدارة الموارد المائية نمط مشاركة خاص فيها ويجب تحديده).

ستكون مناطق الدراسة واقعة في: الأردن، لبنان، سوريا وتركيا.

إن التوصيات الصادرة عن الغتحد الأوروبي تعرض إطاراً تحليلياً لدراسة معنى المشاركة العامة ضمن خطة إدارة الحوض المائي.

تستعمل المنهجية النظرية الأساسية لخلق فهم لكل من المشاركة العامة والتحديات التي تواجه عملية إدارة الموارد المائية وذلك من خلال معطيات كمية ونوعية (استبيانات، مقابلات، مسوحات بمقاييس متوسطة).

تقدم هذه الأطروحة مجموعة من الاهداف الأساسية لعملية المشاركة العامة، انماط المشاركة العامة، أنماط تحديات عملية إدارة الموارد المائية، أدوار السلطات المؤهلة والعقبات في وجه إطلاق عملية المشاركة العامة. حتى في البلدان التي تقيم فيها تجربة الديمقراطية على انها ضعيفة إلى حد ما، يوجد نوع من التعزيز للمشاركة العامة في عملية إدارة الموارد المائية.

على الرغم من ان الجمهور الذي يعتبر على معرفة قليلة بنتائج سوء غدارة الموارد المائية يعتبر عقبة في عملية إطلاق المشاركة العامة، فإن النتائج أظهرت العكس:

رغبة عامة، جاهزية وإرادة للتعبير عن وجهة النظر.

تتطلب عملية إنشاء المشاركة العامة استقراراً سياسياً ومجتمعاً مفتوحاً حيث يمكن تشكيل الآراء وتبادلها، لكن في نفس الوقت فإن الطلب المتزايد على المصادر والخدمات يؤدي أيضاً إلى اهتمام ورغبة للعب دور في عملية إدارة الموارد المائية، وكذلك أيضاً بالنسبة للسلطات المؤهلة الراغبة بالإنضمام إلى المعنيين بموضوع إدارة الموارد المائية والناس من أجل مكاملة تجربة فهم المشاكل الإجتماعية المعقدة.

إن المشاركة العامة هي ليست فقط مطالبة السلطة بصنع قرار نهائي، ل تشمل أيضاً تحديد ماهية المشاكل الواقعية المعاشة.

إن التطوير الحديث لأهداف المشاركة العامة وأنماطها يساعد على تحديد صيغ مناسبة للممارسات التشاركية مع أخذ قرائن الازمة المائية بعين الاعتبار.

Translated by Manal Wannous

H. Thesis summary in Turkish

Özet

Belirsizlik, risk yönetimi ve toplumsal projelerin yapılandırılması kavramlarının kamu malları yönetimi konusundaki bilimsel uzmanlık, politik güç ve demokratik kararları zorlaması sebebiyle Bütünleşik Su Yönetimi (BSY) ve Halk Katılımı (HK) kavramlarının ikisi de paydaşlar için yoruma açıktır. Amacım HK ve BSY konularını ‘gerçek’ problemin ve katılımın ne olduğunu saptamak gibi normatif bir gayeden farklı olarak, su yönetimi sorunları (SYS) ve katılım gerçekliklerinin farklı bakış açıları ile oluşturulmuş kurgularını incelemektir; hangi su yönetimi sorunları için hangi tür katılım uygun olarak algılanmaktadır? Vaka analizleri Ürdün, Lübnan, Suriye ve Türkiye’deki nehir havzalarında yürütüldü. AB Su Çerçeve Direktifi, HK ve nehir havza yönetim planı (NHYP)’nin anlamlarını çalışmak için analitik bir çerçeve sağlamaktadır.

Bu çalışmada, halk katılımı (HK) ve su yönetimi kurulu (SYK) algılarını nitel ve nicel veriler (anketler, mülakatlar, orta ölçekli fikir taramaları) yardımıyla açığa çıkarmak için Temellendirilmiş Kuram Yöntemi kullanılmıştır. Bu tez, HK amaçları, HK türleri, SYK’lar, yetkili otoritelerin rolleri ve HK başlatmadaki zorlukların temellendirilmiş tipolojilerini sunmaktadır.

Demokratik toplumu karakterize eden kriterlerin tam olarak yerine getirilmediği ülkelerde dahi, HK ve BSY’nin teşvik edilmesi söz konusudur. Her ne kadar SYK’nın uzun vadeli sonuçları hakkında bilgisi zayıf olan eğitimsiz bir halk HK başlatmak için bir engel olarak görülse de, kanıtlar aksini göstermektedir; halk arasında sesini duyurmaya yönelik bir özlem, hazır olma durumu ve istek. HK’yi teşvik etmek için koşullar hem politik istikrar, hem de fikirlerin oluşturulup paylaşılabilirdiği açık bir toplum gerektirir, fakat aynı zamanda halkın su yönetimde rol almaya ilgili ve istekli hale gelmesi ve de yetkili otoritenin uzmanların karmaşık toplumsal sorunlar hakkındaki fikirlerini tamamlamak üzere paydaşlar ve halk ile angaje olmaya istekli hale gelmesi için kaynaklar ve hizmetler üzerinde baskı da gereklidir.

HK sadece nihai karar üzerinde güç sahibi olma arayışında olmakla ilgili olmayıp, farklı gerçeklik kurgularına göre problemlerin neler hakkında olduğunun tanımlanması ile ilgilidir. Yeni geliştirilmiş temellendirilmiş HK amaçları ve HK türleri tipolojileri bağlamsal su yönetimi krizi ile bağlantılı olarak uygun katılımcı uygulamaların belirlenmesine yardımcı olacaktır.

Kısaltmalar (Abbreviations):

HK: halkın katılımı (public participation)

BSY: bütünleşik su yönetimi (integrated water management)

SYK: su yönetimi kurulu (water management council)

NHYP: Nehir havza yönetim planı (river basin management plan)

Translated by Prof Mehmet Ekmekçi and Gönenç Yücel

I. Thesis summary in French

Résumé

Les significations de la gestion intégrée de l'eau et de la participation du public sont sujettes à interprétation par les acteurs car les concepts d'incertitude, de gestion des risques et la construction d'un projet sociétal défient l'expertise scientifique, le pouvoir politique et les décisions démocratiques concernant la gestion de la chose publique. Cette thèse ne vise pas à étudier pas la participation du public et la gestion intégrée de l'eau avec une aspiration normative afin d'identifier le « vrai » problème ou « véritable » participation, mais pour examiner les constructions des réalités liées aux enjeux de la gestion de l'eau et à la participation sous différentes perspectives : quel type de participation est perçue comme appropriée pour quel type d'enjeux de gestion de l'eau ? Les cas d'étude sont des bassins versant en Jordanie, Liban, Syrie et Turquie. La Directive Cadre Européenne sur l'Eau offre un cadre analytique pour étudier les significations de la participation dans les Schéma Directeur d'Aménagement et de Gestion des Eaux.

La méthodologie ancrée est utilisée pour éliciter les compréhensions à la fois de la participation publique et des enjeux de gestion de l'eau à travers des données qualitatives et quantitatives (questionnaires, entretiens, enquête sociale à échelle moyenne). Cette thèse présente des typologies ancrées sur les objectifs de participation, les types de participation, des enjeux de gestion de l'eau, des rôles de l'autorité compétente et des obstacles pour initier une démarche de participation publique.

Même dans des pays où les critères caractérisant une société démocratique ne sont pas tous entièrement satisfaits, il existe une justification pour promouvoir la participation publique dans la gestion intégrée de l'eau. Bien qu'un public non éduqué, avec une connaissance limitée des conséquences des enjeux de gestion de l'eau soit perçu comme un obstacle pour initier une démarche de participation du public, les résultats présentés montrent le contraire : une aspiration publique, une maturité et une volonté d'exprimer son point de vue. Les conditions pour promouvoir une participation publique requièrent d'une part une stabilité politique et une société ouverte où les opinions peuvent se former et être échangées, et d'autre part une certaine pression sur les ressources et les services pour que le public soit intéressé et veuille prendre part à la gestion de l'eau, que l'autorité compétente veuille engager le débat avec les acteurs et que le public afin de compléter la compréhension que les experts ont des problèmes sociétaux complexes.

La participation publique n'a pas pour seul but la recherche du pouvoir sur la décision finale, mais plutôt de définir la nature des enjeux en fonction de différents construits de la réalité. Les typologies ancrées nouvellement développées dans cette thèse sur les objectifs de la participation publique et sur les types de participation facilitent l'identification de formes appropriées de pratiques participatives vis-à-vis du contexte de crises de gestion de l'eau.

Traduit par Julie Bordères et Franck Ballesta