





# PUBLIC PARTICIPATION AND THE ROLE OF SOCIAL NETWORKS IN THE IMPLEMENTATION OF THE WATER FRAMEWORK DIRECTIVE IN SPAIN

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## Abstract

The Water Framework Directive establishes a common framework for EU water policy. One of its guiding principles is the promotion of public participation in water planning and management. In response to this requirement, River Basin Authorities are undertaking public participation and consultation processes as part of the elaboration of the Draft Basin Management Plans. This article describes and analyzes these processes, placing them in the context of wider public discussions and debates over water policy that have taken place in Spain over the past two decades.

The paper argues that some of the strengths of Spanish WFD-related public participation processes derive from the significant improvement in the amount of information made available to the public, and from the relationships that are established between different stakeholder groups and between these and the water administration. On the other hand, the lack of credibility and legitimacy of some processes is related to the lack of political leadership and commitment to public participation, to insufficient inter-administrative cooperation, and to the persistence of parallel channels of communication between traditional water users and water managers. The paper also points to some potential areas of improvement such as the methodological design of public participation processes, a clarification of their impact on specific plans and proposals, and a search for tools to adequately inform and incorporate the wider public in water policy debates. Finally, the paper discusses the role that social networks, built around the ideas and goals of the New Water Culture, are playing in water policy debates by demanding more transparent and sustainable water policy decision making.

**Keywords**: River basin management plans, public participation, water management, Water Framework Directive, New Water Culture.

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## 1. INTRODUCTION

The Water Framework Directive (WFD) (Directive 2000/60/CE) introduces new requirements in transparency, public information and participation, in an effort to tackle the growing complexity and uncertainty of the challenges we face in the natural resources management arena in general, and in the water resources field in particular. As many authors rightly point out (Espluga and Subirats, 2008, Pahl-Wostl et al. 2007, Lauber et al. 2008), proposed solutions to these problems can no longer be exclusively technical, they require collaboration and participation from interested parties. Pahl-Wostl et al. (2007) argue that "complex issues and integrated management approaches cannot be tackled without taking into account stakeholders' information perspectives and without their collaboration." It is no longer possible to reach technical and scientific consensus on every question, nor is it possible to impose these solutions on a society that is increasingly critical, active and diverse. In this context, "incorporating public participation (...) implies delaying the decision making process in order to obtain results that are socially feasible, responding more adequately to the problems of modern society" (Subirats, 1997).

International treaties, such as the 1998 Aarhus Convention, and EU and Spanish legislation have acknowledged the need for public participation (PP) to legitimize and improve decision making processes in the public policy arena. In the context of the EU it is the WFD that most explicitly incorporates these principles when it states in section 14 of the Preamble that: "success of this Directive relies on (...) information, consultation and involvement of the public, including users". Article 14 of the WFD introduces information, consultation and participation

requirements throughout the river basin planning process and expands the concept of PP to all stakeholders and the general public, in addition to water users.

The WFD was transposed into Spanish law in December 2003, as part of a broader law on fiscal, administrative and social measures (Article 129 of the Law 62/2003), thus making changes to the existing water act but avoiding a more comprehensive reform of existing legislation. The implementation process has brought about significant changes in the content, process and goals of water policy, planning and management. Spain has a long tradition of user participation in water planning and management. However, the public information and participation requirements introduced by the WFD are opening the water decision-making arena to other interested parties beyond users, and are helping to drive a transformation whose turning point can be traced back to the scientific debates and public demonstrations surrounding the 1998 Basin Management Plans (BMPs) and the 2001 National Hydrologic Plan (NHP). Essentially what is taking place in Spain is a "change in governance structure and underlying values and paradigms" (Pahl-Wostl et al. 2007) that, in order to be properly understood, needs to incorporate an analysis of the social context in which it is embedded. This transformation has three driving forces:

- a) the WFD information and PP requirements;
- b) the growing role of social networks in coordinating the work of individuals and organizations toward a common goal of aquatic ecosystem conservation and defense of the patrimonial and cultural values of water; and



 c) the fruitful collaboration between different sectors and actors with different knowledge bases and capabilities.

This paper focuses primarily on a description and preliminary analysis of the first two components. The paper is organized into six sections. Following this introduction is a brief description of the research methodology used to gather the information presented in the paper. In order to understand the institutional context in which the WFD-related PP processes have taken place, third section describes administrative organization for water resources management in Spain and the role users have traditionally played. It also offers a brief historical overview of the public debates that surrounded the publication of the Draft NHP and the BMPs in the 1990s and the actors and arguments that emerged then and that have consolidated over time. The fourth section includes a description of the PP and consultation processes that are being undertaken by the River Basin Authorities (RBA) in the process of the elaboration of the current BMPs, and of the social networks that have arisen throughout Spain over the past decade in defense of the values embodied by the New Water Culture<sup>1</sup>. The fifth section includes an effort to identify strengths and weaknesses of these processes as well as potential best practices and future opportunities. It also suggests possible ways in which emerging social networks for water ecosystem conservation are becoming alternative and potentially powerful PP arenas. The final section reflects on some unanswered questions regarding the outcome of the PP processes and the need to capitalize on the possibilities that have

emerged through the WFD planning process for improved public-private collaboration in water policy making.

## 2. RESEARCH METHODOLOGY

In order to track and evaluate the changes that are taking place in the context of the implementation of the WFD, the Foundation for a New Water Culture (Fundación Nueva Cultura del *Agua* or FNCA<sup>2</sup>) launched in 2006 Observatory for the Evaluation the Implementation of the WFD in Spain. The WFD Observatory is made up of experts, scientists and stakeholders from different disciplines and geographic regions. One of the lines of work of the Observatory has focused on the tracking and evaluation of the PP processes that have been carried out in the context of the WFD river basin management planning process.

This article presents the results of the work of the WFD Observatory on PP between 2006 and 2009 and builds on the experience of the authors with existing social networks involved in the WFD debates. Five primary sources of data have been used:

- Review of RBAs' websites to obtain information on the PP processes undertaken in the context of the elaboration of the BMPs.
- Periodic meetings with members of the WFD
   Observatory between 2007 and 2009 in
   which progress reports of the situation in the
   different river basins were discussed;
- Observation of and participation in PP processes in some river basins (specifically Ebro, Catalan Internal River Basins, Guadiana and Tajo, see Figure 1).

Culture.

<sup>&</sup>lt;sup>1</sup> The New Water Culture (*Nueva Cultura del Agua*) is a concept coined in the 1990s in Spain (Martínez Gil, 1997). It defends an ecosystemic and patrimonial understanding of water resources, and promotes an approach to water management based on integration, transparency and social equity, ecosystem protection and economic rationality

<sup>&</sup>lt;sup>2</sup> The FNCA is a not-for-profit organization made up of a network of scientists, experts and stakeholders in Spain and Portugal that work to promote the values of the New Water



- Follow-up of information exchanges and participation in existing social networks for a New Water Culture.
- Organization of two workshops to evaluate formal and informal PP processes. The first one was held in Madrid in June 2008 with facilitators and participants in formal PP processes organized by RBAs (Ballester, 2008a). The second was held in December 2008 in the context of the FNCA's VI Iberian Congress on Water **Planning** Management under the title "The role of citizen networks and social movements in water management", with participation of over 60 representatives of existing networks as well as of other organizations and interested parties.

# 3. PUBLIC PARTICIPATION IN WATER MANAGEMENT PRIOR TO THE WFD

# Institutional framework for water resources management in Spain

The origins of Spain's institutional framework for water resources management can be traced back to the 1920s, when the first river basin management districts were created. With the advent of democracy in the late 1970s, this framework was gradually modernized and adapted to the decentralized regionally-based territorial organization that was created. Spain today is divided into 17 Autonomous Regions (Comunidades Autónomas) with governments that have broad powers over land planning, environmental and resources policies, agricultural policy, and other matters.

Figure 1. River basin districts in Spain



Source: www.iagua.es (2009)

For the management of water resources the country is divided into 17 river basin districts (see Figure 1). The 2001 Water Act (Legislative Decree 1/2001), which consolidated the 1985 Water Act and its subsequent reforms, establishes that, when river basins cross more than one autonomous region, water planning and management is the responsibility of the central government, through its RBAs (brightly colored districts in Figure 1). When river basins fall entirely within one autonomous region (grey colored districts), the regional government has water management responsibilities. In all cases, however, the central Ministry of the Environment and Rural and Marine Affairs<sup>3</sup> (*Ministerio de Medio Ambiente y Medio* Rural y Marino or MARM) is responsible for guiding and supervising the implementation of European Union legislation relating to water resources<sup>4</sup>.

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<sup>&</sup>lt;sup>3</sup> The Ministry of the Environment and Rural and Marine Affairs was created in 2008 as a result of the fusion of the Ministry of the Environment *(Ministerio de Medio Ambiente* or MMA) and the Ministry of Agriculture, Fisheries and Food (*Ministerio de Agricultura, Pesca y Alimentación* or MAPA).

<sup>4</sup> For more information on Spain's water institutions see Varela

<sup>\*</sup> For more information on Spain's water institutions see Varel. & Hernández-Mora, 2009.



# User participation in water resources management prior to the WFD

Water institutions in Spain have traditionally incorporated water user associations for the management of communal irrigation systems. Since the appearance of the original RBAs in the 1920s, representatives of these irrigator associations have been an integral part of their governing and management bodies. From a public participation perspective, the 1985 Water Act (which substituted the one in place since 1879) was significant in that it expanded the concept of users to representatives of other economic uses beyond irrigators. It also set up the organizational structure of RBAs through participatory councils and boards and determined the proportional representation of permitted users in each of them: the Governing Council, the userparticipated management boards (User Assembly, Public Works Councils, User Management Councils, and Dam Release Commission), and in the RBA's planning unit, the Water Council.

Since 1985 therefore, participation in water management decision making has been largely limited to permit-holding water users: irrigators, hydroelectric companies, industrial users, and urban water suppliers. Their representation in the various RBAs' councils is proportional to the volume of water permitted, hectares irrigated or megawatts produced (in the case of economic uses), or to the number of inhabitants that are being supplied (in the case of municipalities). Since irrigation represents about 75% of overall consumptive water use in Spain, and can use as much as 90-95% of available resources in some river basins, agricultural interests have traditionally predominated in the public debates over water.

The institutional structure that has solidified over time relies on a bilateral relationship between permitted water users and technical staff in RBAs, all collaborating to augment supply through infrastructure development in order to meet growing demands. Other values and interests, such as ecosystem conservation or defense of the interests of society at large that may use water ecosystems for recreation and aesthetic enjoyment, have traditionally been excluded from the decision-making process.

# c. River basin planning in Spain prior to the WFD

The 1985 Water Act required water management in Spain to be based on water planning on both a river basin and on a national scale. In 1993 the Spanish government presented a first Draft National Hydrologic Plan (DNHP) (Anteproyecto del Plan Hidrológico Nacional), consisting primarily of a list of 200 new large dams and 14 inter-basin water transfers connecting northern river basins with southern (more arid) river basins. As Martínez Gil (1997) points out, the large number of proposed infrastructures was a catalyst for the organization of social movements opposed to the construction of new dams and in defense of territorial integrity. Additionally, the lack of adequate technical, socioeconomic and background rationale for the plan prompted the involvement of experts and scientists that advocated a rigorous technical and public debate over water planning principles and goals and defended river ecosystem values. For the first time therefore, other interest groups beyond permitted water users were demanding a seat in the decision-making table.

Throughout the 1990s Spanish RBAs undertook an extensive river basin planning process. By 1998, each RBA had approved its own basin management plan. The central government then had to propose a revised DNHP that would coordinate the different basin plans, resolve possible conflicts, and establish the conditions for potential inter-basin water transfers (art. 43, Law 29/1985).



Given the challenges and lack of social, environmental or financial viability of the first DNHP, the second Draft was preceded by the publication in 1998 of the "White Book on Water" (MMA, 2000). The White Book constituted an important first attempt to present a systematic and critical assessment of the situation of water resources in Spain and to make this information available to public scrutiny and debate outside of the Water Administration and beyond traditional stakeholders. The debates over the White Book in specialized forums, conferences and other venues served to further open water policy discussions to experts and stakeholders from various fields and interest groups.

In 2000, the same year that the WFD was approved, the Spanish Government presented a second DNHP. However, neither the White Book on Water (published when the WFD was being debated in Brussels) nor the DNHP incorporated the fundamental shift in water policy and management that was required by the WFD. From a public participation perspective the basin plans and the DNHP were elaborated with very limited public input. Participation was largely restricted to formal debates in the councils of the RBAs and in the National Water Council<sup>5</sup>. Beyond the legally prescribed consultation requirements, the Ministry of the Environment invited 100 scientists and experts from several disciplines to review and assess the proposal. While the resulting reports were not made public by the government, the FNCA organized a public

symposium in which over 60 of the invited experts attended and provided their reports for publication (Arrojo, 2001).

Beyond these formal and informal public debates surrounding the White Book on Water and the DNHP, what was perhaps particularly relevant was the consolidation of the new arguments, actors and coalitions that had emerged in opposition to the 1993 DNHP. The 2001 NHP (Law 10/2001) once again proposed the construction of a large number of new dams as well as a major inter-basin water transfer between the Ebro river in the northeast and the southeastern Mediterranean regions (Valencia, Murcia and Almeria). The social movement that emerged-originally in the Ebro Delta region and the wider Ebro basin and eventually nationwidein opposition to what became known as the Ebro Transfer, constituted a turning point in the debates over water in Spain (Font and Subirats, 2009). For the first time, hundreds of thousands of citizens demonstrated in Tortosa (capital of the Ebro Delta region), Barcelona, Zaragoza, Madrid and Valencia in opposition to the Ebro Transfer and in defense of a perceived threat to the territorial identity of the lower Ebro basin and of broader ecosystem values. In addition, a diverse coalition of scientists and legal and technical experts (including the independent members of the National Water Council) coalesced around the demand for a more rational and sustainable water policy, consistent with the requirements of the WFD, and in opposition to the NHP.

The collaboration of scientists, technical experts and social movements toward a common goal responded to the limited opportunities for meaningful public input and debate surrounding water management and policy decision-making. There was a need for a transformation in the way decisions over water were carried out in Spain. Perhaps the most significant record of the

seats. As a result, the Council's reports are usually supportive of official plans and only have minority dissenting opinions issued

by its more independent members (environmentalists,

<sup>5</sup> The National Water Council is an advisory body ascribed to

scientists and sometimes others).

the Ministry of the Environment and Rural and Marine Affairs. It issues recommendations on projects and plans that impact public water resources and are national in scope. It is made up of appointed representatives of the national and regional governments; the RBAs; and representatives of stakeholder groups (energy, agriculture, commerce, water supply, local governments and environmental interests). Representatives of the national and regional governments hold a majority of



technical and social debates of this period can be found in the proceedings of the Iberian Congress for Water Planning and Policy (*Congresos Ibéricos de Planificación y Gestión del Agua*) organized by the Foundation for the New Water Culture in 1998, 2000, 2002, and 2004.

In June 2004, shortly after coming to office, a newly elected government modified the NHP by cancelling the Ebro Transfer (Royal Decree Law 2/2004). It was also at this time that the work required for the implementation of the WFD in Spain started in earnest. To a large extent, as Del Moral and Hernández-Mora point out (2007), the conflicts surrounding the 2001 NHP had mired the water community in a largely fruitless debate over proposals and approaches that clearly needed to be overcome in order to adapt to the philosophy and goals of the WFD.

# 4. PUBLIC PARTICIPATION IN THE 2005-2015 RIVER BASIN PLANNING PROCESS

# Public participation and the WFD river basin management plans

The PP the processes related to implementation of the WFD in Spain formally started with the publication for consultation of the initial planning documents (timetable, work program and PP plan) in early 2007. Table 1 presents a summary of the PP activities undertaken in the different river basin districts. Beyond the formal consultation processes (shown in columns 2-4), the active participation activities undertaken in the different river basin districts provide new spaces for public input and involvement. It is possible to distinguish between three large groups of river basins according to the way water authorities have organized their PP activities.

In the first group are the interregional river basins (those that cross more than one Autonomous region, top group in Table 1) managed by the RBAs. To a large extent, their public consultation and active participation plans follow the guidelines established by the General Water Directorate of the central MARM. They have divided the basins for participation purposes into smaller sub-basins. They also identified potential stakeholders and grouped them into three categories: public administrations (including local governments); economic users (including irrigators, industrial users, hydroelectric users); and civil society (including recreational users, scientists, environmentalists, etc.). They organized separate workshops in each sub-basin for each stakeholder category to debate the different planning documents. Multi-stakeholder workshops (where all categories were included) have also been organized during the public consultation phase of the documents. While the general design of the active participation processes may be similar, there are significant differences among them both in

In the Ebro basin, the RBA defined 27 sub-basins and organized four different workshops in each one throughout 2007, one with each stakeholder category, in order to collaboratively identify the primary water management challenges in each region. It also held basin-wide expert workshops and smaller participatory processes for specific users (for instance recreational users).

timing as well as in content.

In the Guadalquivir, on the other hand, the RBA conducted thematic basin-wide workshops in the initial planning phases throughout 2008; organized plenary presentations to different stakeholder groups of the Draft Significant Water Management Issues draft document (*Borrador del Esquema de Temas Importantes* or ETI); and has conducted multi-stakeholder territorial workshops



in each of 5 planning regions to discuss the proposed program of measures in late 2009 and early 2010.

Another example is the Guadiana RBA, which divided the basin into three planning areas and organized three stakeholder workshops and one multi-stakeholder workshop in each of them in 2008 to present and debate the ETI draft document. It also held thematic basin-wide workshops in 2009 to discuss some particularly challenging issues (agricultural non-point source pollution; environmental flows; or governance).

Finally within this first group it is worth noting the design of specific PP or mediation processes in some basins on particularly relevant issues. This is the case, for instance, of the mediation process organized for recreational users (anglers and kayakers) and hydroelectric interests in the Northern river districts (Cantábrico and Miño-Sil). Another noteworthy example is the public participation process in the Júcar river basin district to develop the Júcar River Restoration Plan<sup>6</sup>.

The **second group** includes those PP processes that are taking place in river basin districts that fall entirely within the territory of an autonomous region and are therefore managed by the water authority of that region (second block in table 1). The situation in those intraregional river basin districts is very diverse, as is apparent in table 1. On one hand are those basins that are still in the initial phases of the planning process, as is the case in some of the Canary Islands, and on the opposite side of the spectrum are the Balearic Islands, Andalusia or Galicia, that have already completed the 6-month public consultation period of its draft BMP or Catalonia, which approved its BMP in November 2010 (December 2010).

<sup>&</sup>lt;sup>6</sup> The Júcar River Restoration Plan public participation process was a result of the agreements reached as part of the debates that led to the modification of the Júcar-Vinalopó water transfer project in 2006.



Table 1. Synthesis of public participation processes in Spanish River basin districts

	PUBLIC CONSULTATION			ACTIVE PUBLIC PARTICIPATION							
	Timetable, Work Program and Public Participation Plan	Significant Water Managemen t Issues	Program of Measures and Draft Basin Management Plan	Debate of IMPRESS or diagnosi s	Scope of participation	Participants <sup>4</sup>		Process structure			
						Stakeholders	General public	Plenary presentations	Single stakeholder workshops	Multi- stakeholder workshops	Thematic workshops
SHARED RIVER	BASINS										
Cantabrico	07-07/01-08	07-08/01-09	-	-	6 sub-basins	Х	-	X	-	Х	X
Duero	07-07/01-08	07-08/01-09	-	Χ	Basin-wide	Х	-	-	Х	-	-
Ebro	07-07/01-08	07-08/01-09	-	-	31 sub-basins Basin-wide	Х	-	Х	Х	-	-
Guadalquivir	07-07/01-08	07-08/01-09	-	-	5 sub-basins	Х	-	Х	Х	Х	-
Guadiana	07-07/01-08	07-08/01-09	-	-	3 sub-basins	Х	-	Х	Х	Х	Х
Júcar	07-07/01-08	-	-	-	3 sub basins	Х	-	Х	Х	Х	Х
Miño-Sil	07-07/01-08	07-08/01-09	-	-	2 sub-basins	Х	-	Х	-	Х	Х
Segura	07-07/01-08	07-08/01-09	1	-	8 sub-basins	X	ı	X	Х	X	Χ
Тајо	07-07/01-08	07-08/01-09	-	-	Basin-wide	Х	1	Х	Х	Х	-
INTERNAL REGI	ONAL RIVER BA	SINS									
Andalusia Internal River Basin (IRB)	Completed	Completed	Completed		3 sub-basins	Х	-	×	1	х	-
Baleares IRB	Completed	Completed	Completed	-	5 sub-basins	Х	-	Х	Х	Х	Х
Canarias IRB1	Completed	Started	-	-	7 sub-basins	Х	-	-	Х	-	Х
Cataluña IRB <sup>2</sup>	Completed	Completed	Completed	Х	16 districts	Х	Water festivals	Х	Х	Х	Х
Galicia Coast IRB	Completed	Completed	Completed	-	Basin-wide	-	-	-	-	-	-
País Vasco IRB <sup>2</sup>	Completed	Completed	-	-	3 districts	х	Water forums	Х	Х	Х	Х
AUTONOMOUS	COMMUNITIES			•							
Cantabria <sup>3</sup>	Completed	Completed	-	Х	10 sub-basins	Х	Water Forums	Х	Х	Х	Х
Navarra <sup>3</sup>	Completed	Completed	-	Х	5 sub-basins	Х	Water Festivals	Х	Х	Х	-



#### **NOTA TABLA:**

Only the Insular Water Councils of the islands of Tenerife and Las Palmas de Gran Canaria have carried out active public participation initiatives. The information in this table therefore refers to these two islands.

<sup>2</sup> Catalonia and the Basque Country have undertaken public participation processes both in internal basins as well as in those sub-basins within their territory that are part of the Ebro River Basin District (and Cantabrico River Basin District in the case of the Basque Country).

<sup>3</sup> Cantabria and Navarra autonomous regions have undertaken public participation processes in the river sub-basins that are within their respective territories, but that are a part of the Cantábrico, Ebro and Duero (the latter only in the case of Cantabria). Cantabria has internal river basins but has not yet assumed management and planning responsibilities from the Cantábrico River Basin Authority.

<sup>4</sup> We consider general public as the natural or legal persons and, in accordance with national legislation or practice, their associations, organizations or groups (article 2.4 Aarhus Convention, 1998, and article 2.1 Law 27/2006). We consider stakeholders the public affected or likely to be affected by, or having an interest in, the decision being made (articles 2.5 y 7 Aarhus Convention 1998, and article 2.2. Law 27/2006). Source: Updated from Ballester & Hernández-Mora

Source: Updated from Ballester & Hernández-Mora (2008).

Within this group, the public participation processes undertaken by the Catalan Water Authority (*Agencia Catalana del Agua* or ACA) is worth highlighting (see Figure 2). The Agency divided the river basin district into 16 sub-basins for public participation purposes and designed a six-month PP process that it implemented in each of them. Each process started with a shared diagnosis of the situation using the draft IMPRESS document prepared by the ACA for each sub-

basin. These were followed by multi-stakeholder workshops and thematic working groups for particularly relevant or conflictive issues. The results of the workshops were presented in plenary sessions to all participants. At the end of each process, the ACA held feedback sessions in which it classified the proposed measures into four groups:

- Proposals that were rejected and the reasons that motivated their exclusion;
- Proposals that were already planned or in the process of implementation;
- Proposals that were accepted and would be incorporated into the RBMP under the responsibility of the ACA;
- Proposals that were accepted but exceeded the ACA's mandate and were the responsibility of a different public administration.

In all cases the decisions of the Agency were justified and discussed in the feedback sessions with all participants, thus ensuring participants that their efforts and contributions had been taken into account. Furthermore, the Agency has published an evaluation of the PP process, including indicators such as total number of participants, proposals received, accepted and rejected, and a reflection of future steps for participation in BMP implementation.



Plenary session: Information about the process Single stakeholder workshops: diagnostic debate · Public administration · Farming and forestry · Industry and business (including hydroelectric uses) · Environmental (University, education, associations) Month 2 Plenary session: IMPRESS assessment Multi-stakeholder workshops: Proposals · Industrial and urban pollution Agricultural pollution · Hidromorphological and biological quality Month 3-4 Water savings, water use ant sanitation · Environmental flows Plenary session: Presentation of proposals Month 6 Plenary session: Administration feedback

Figure 2. Public participation processes in the Catalan Internal River Basin Districts

Source: Adapted from Ballester (2008b)

third group includes public participation processes undertaken Autonomous Communities of Cantabria and Navarra (last two rows in Table 1) in basins and sub-basins that are a part of the Ebro, Cantábrico or Duero river basin districts. There are two aspects worth highlighting in these processes. The first one is the fact that the governments in each region decided to contribute to the river basin planning process through the promotion of active public participation processes. In the case of Cantabria, the autonomous government created the Office for Hydrologic Public Participation of Cantabria (Oficina de Participación Hidrológica de Cantabria or OPHIC) in 2006, with the specific purpose of conducting PP processes related to the development of the new BMPs and following up on the implementation of the proposed measures. In the case of Navarra, the autonomous government commissioned the Center Environmental Resources of Navarra (Centro de Recursos Ambientales de Navarra or CRANA) in 2005 to undertake the Navarra Water Forum (Foro del Agua de Navarra), a PP process in five

sub-basins that fall within Navarra territory, and increased their staff to undertake this mission.

The second noteworthy aspect is the success of both processes in involving the wider public as a result of their determination to expand the water debates beyond traditional stakeholders. They achieved this through a variety of activities. On one hand their integration with other social networks and PP initiatives such as neighborhood associations, Agenda 21 processes, rural development initiatives, networks municipalities, etc. They also conducted extensive fieldwork prior to the start of each sub-basin PP process: gathering existing information determine the situation of the river basins and the primary pressures, impacts and challenges to reaching WFD goals; processing and presenting the information in an easily understood format; and widely disseminating the information among the public. Finally, all processes included large public events (water festivals and forums) with the goal of bringing the issues closer to the wider public.



# Other forms of public participation: Social networks for a New Water Culture

Public participation in water planning and decision-making in Spain has been channeled either through formal participation mechanisms in the RBAs' participatory councils and board, or through the processes initiated in the context of the WFD discussed above. However, other forms of PP have emerged over the past several years in response to a perceived need to create alternative channels that help interest groups and the larger public to advocate their positions in the water policy debates. These social networks constitute new forms of organization that have a potential to influence water policy decisions through public pressure, demands for information and more participatory substantial venues, public information campaigns and the presentation of valid policy alternatives. They have the ability to "use new information in social learning processes and derive collective action from new insights rooted in shared experiences" (Pahl-Wostl et al. 2007). They serve the basic functions of social networks identified by other authors (Lauber et al. 2008) such as: exchanging ideas; disseminating knowledge; and exerting influence. They should therefore be taken into consideration in the search for new institutional arrangements that can more adequately respond to the challenges and needs of modern society.

There are currently five active networks organized with the expressed goal of defending what is known as the values and principles of the New Water Culture and actively involved in the implementation of the WFD in their respective regions (see Figure 3):

 The Catalan Network for a New Water Culture (Xarxa Catalana per una Nova Cultura de l'Aigua), created in 2001 in the context of the debates surrounding the National Hydrologic Plan and the Ebro river transfer.

- The Andalusia Network for a New Water Culture (Red Andaluza por una Nueva Cultura del Agua), created in 2004 as a regional coordinator of social movements, activists, technical experts and academics active in Andalusia.
- The Citizen network for a New Water Culture in the Tajo/Tejo and its rivers (*Red Ciudadana por una Nueva Cultura del Agua en el Tajo/Tejo y sus Ríos*), created in April 2007 as a network of over 100 Spanish and Portuguese associations, institutions, municipalities and individuals interested in the protection of the Tajo river and its environmental and cultural values.
- The Blue basin: Network of organizations in defense of the Ebro River /Cuenca Azul – Red de organizaciones en defensa de la Cuenca del Ebro), created in 2009 to advocate for an ambitious implementation of the WFD in the Ebro basin.
- The Network for a New Water Culture in the Júcar (Red por una Nueva Cultura del Agua en el Júcar) created in March 2010 as a network of 20 organizations of the Júcar river basin in defense of the New Water Culture values and of a basin management plan in accordance with the goals of the WFD

These networks share several common characteristics. They are all made up of a wide diversity of environmental groups, local and regional citizen organizations, rural development groups, recreational user associations, etc. While member organizations may defend a variety of interests and operate independently from each other, they share the principles of the New Water



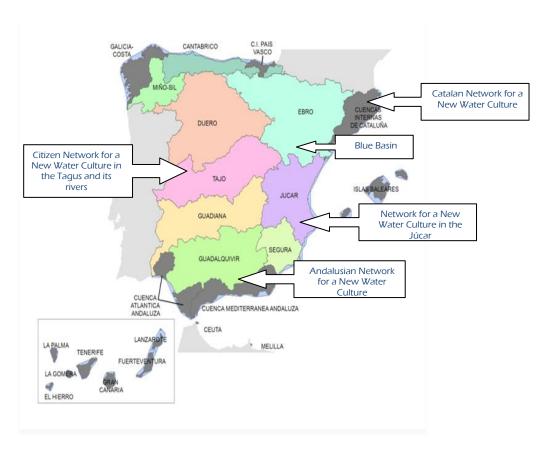


Figure 3. Social networks in defense of a New

Culture (a term that most have used in their names) as a uniting and inspiring philosophy, and rely on the WFD as the legal backing to their proposals and actions. Apart from their specific differences, all networks share similar goals of protecting water ecosystems and their value as an integral part of their local and territorial identity. They defend an approach to water resources management based on economic rationality, ecosystem protection and public participation.

In order to achieve their goals the networks use some common strategies. For the most part they rely on e-mail lists, blogs and websites to post and share information among members. In some cases (Tajo and Andalusia) they hold annual meetings hosted by alternating member groups in different locations of the basin or region to share information, design strategies, and reinforce personal relationships and links. They rarely have a solid organizational structure, operating on a

volunteer basis with no staff (with the exception of the Xarxa in Catalonia) or headquarters. They have close links with the scientific and technical community who are often active members of the networks. Experts contribute information and technical and legal expertise; help in the elaboration of viable alternatives to proposed infrastructures; and provide arguments for the development of public comments, allegations and public testimony. The networks combine technical work with social activism, promoting demonstrations, marches, concerts, forums and seminars, petition drives, river days and other forms of public mobilization.

Social networks have been active in the WFD PP processes, serving as information clearinghouses and providing guidance to their members. In the case of the Xarxa in Catalonia they have played a pivotal role in the monitoring and evaluation of the PP processes organized by



the Catalan Water Authority, receiving funding from the Agency to support its small staff and activities.

If indeed the WFD aims to encourage public involvement in the water debates and social commitment to the goals of sustainable water management and use, water authorities should support and empower these kinds of grassroots initiatives. However, with the exception of Catalonia, this support has been lacking.

#### 5. THE **KEYS** TO **EVALUATING PUBLIC** PARTICIPATION IN RIVER BASIN PLANNING **PROCESSES IN SPAIN**

Von Korff et al. (2010) highlight how the PΡ increasing importance of has been accompanied by extensive research focusing on two key issues: (1) what are the benefits of public participation and (2) how can "good" or "effective" participation be carried out and evaluated. In the case of Spain, most PP processes are still ongoing and their outcomes, the BMPs, are not available at this time. A detailed evaluation is therefore not yet possible. Basic questions such as whether the PP processes have helped improve public decision-making and resulted in BMPs that help achieve WFD goals cannot be answered at this time.<sup>7</sup>

Instead, we have chosen to identify and discuss issues that can more directly affect the credibility, legitimacy and results of the PP processes as a first step toward a broader analysis of their impact on improved public decision making which can be undertaken when the

<sup>7</sup> It is worth noting here that there is a project currently underway, "Deliberative democracy and water policy", funded by the Spanish Ministry of Science and Innovation for the 2010-2012 and led by the Institute for Governance and Public Policy of the Autonomous University of Barcelona with participation of several members of the FNCA's WFD Observatory, including the authors of this paper. The project aims to evaluate the results of the PP processes in the elaboration of the RBMPs and contribute to the academic debate over changes in governance and the introduction of mechanisms for democratic innovation.

outcomes (the BMPs) are available. We focus our analysis on four elements that can be potential indicators of the processes' credibility and success: the role played by public authorities, particularly the water administration, in the promotion of the PP processes and their response to the process' outcomes; the quality, relevance and adequacy of the information provided to participants in the process; the PP methodology used; and the characteristics of the participating public. These elements build on La Calle's (2008b) proposed framework and coincide with some of the design principles identified by other authors (Von Korff et al., 2010; Mostert et al., 2007; and Acland 2008, as cited in Irvine and O'Brien 2009). The perception that members of existing social networks have of the PP processes can also contribute valuable information to this initial assessment.

## The role of public authorities

A review of the PP processes currently underway highlights the limited compromise that political leaders and water administrators have with both their implementation and results. This lack of implication has several negative consequences: the insufficient human financial resources given to PP in the context of the water planning processes; the lack of integration of PP in day to day water management activities and in the basin planning processes; the absence of the PP processes from the political agenda; and the lack of political compromise in supporting the planning goals that should derive from the implementation of the WFD. The relevance and usefulness of PP as an integral part of any public policy decision making process, and of water planning and management in particular, has not been acknowledged by those with water management responsibilities. As a result, PP is too often relegated to marginal



processes that must be undertaken by legal imperative.

The lack of political will or involvement too often results in the weakness of the PP processes and the lack of integration of their results in water policy. Consequently the results lose credibility among participants who become frustrated and lose any incentive to remain involved.

Two notable exceptions are found in Catalonia, where the Catalan Water Agency created a specific PP unit, and in Cantabria, with the OPHIC. The creation of these departments, with their own personnel and specific mandates, results from a political commitment to the idea of improving and facilitating public decision making through PP. As a result, the PP processes undertaken in these two regions stand out for their intensity, flexibility and coherence.

Another clear example of political support is the Navarra Water Forum that was undertaken by the CRANA in 2005 as a result of a specific mandate of the autonomous government of Navarra. The Forum resulted in intense PP processes in the Ebro and Cantábrico sub-basins located in the region of Navarra.

A second significant issue regarding public authorities when discussing water policy alternatives is the need for effective intercoordination. administrative The traditional approach to public policy and government is firmly rooted in the division of responsibilities along administrative boundaries and clearly defined sectoral responsibilities. However, this approach cannot adequately handle challenge of achieving good ecological status that the WFD poses for water ecosystems that often cross political and administrative boundaries. The BMPs' programs of measures require policies and initiatives from different levels of government (municipal, regional, national) and from different sectors (land use and urban policy, agricultural policy, industrial policy, urban supply sanitation, etc.) that must necessarily integrated in order to be successful. It is for this reason that the WFD requires the creation of the Committee of Competent Authorities for each river basin district to supervise and cooperate in the planning process and in the implementation of the BMPs and programs of measures. The committees were not created for river basins in Spain until late 2008 and have only recently started operating, but without any evident improvement in real and effective administrative cooperation.

This lack of effective administrative cooperation is one of the most significant weaknesses common to all PP processes. The lack of coordination in the face of competing and overlapping responsibilities often results in the avoidance of responsibilities and lack of clarity and specificity of programs and plans and, consequently, in a lack of legitimacy and mistrust toward PP processes. Many of the policies and plans that need to be implemented to achieve WFD goals (for instance agricultural, land use or industrial initiatives) exceed the powers of the water administration. However, the RBAs hold responsibility for promoting PP and approve the BMPs. Consequently, it is the water administration that must promote cooperation amona competent authorities. In this sense, better interadministrative cooperation would allow for a more effective and in-depth public debate of policy alternatives, a debate that has so far been largely limited both in extent and content.

It is not only necessary to ensure better coordination among different public administrations, but also within different departments of the same administration. In the case of the RBAs there is a significant lack of integration between the activities of the planning department (responsible for developing the new BMPs and the associated PP programs) and the



other departments within the authorities. To a large extent, the latter operate in accordance with traditional values and objectives, and have not yet internalized the new approaches to water policy and management that come with the implementation of the WFD, including those related to more open, transparent and participated decision-making.

### b. Information for public participation

Information is a fundamental building block for effective public participation. However, in order to be effective, information must be adapted to the capabilities and needs of end users, updated regularly, user friendly and reliable. Information provides content to public debates and influences decisively the construction of public opinion. Access to information is also a right (La Calle, 2008a) that public administrations have to recognize and comply with.

In Spain, the WFD implementation process has contributed significantly to the improvement of the quality and quantity of information available to the public on the web pages of RBAs, although there are still substantial differences between different sites. It is important to note that quantity of information does not necessarily imply sufficiency or quality, since an excess of information can also lead to opacity. However, the information available on RBA's websites is constantly improving.

In spite of the fact that the WFD, both in the text as well as the guidance documents (EU, 2003) established quality criteria for public information, it is often difficult to find rigorous technical information that is presented in a user-friendly and synthetic format; is updated regularly; uses language that is adapted to different target audiences; and that makes it possible to identify the sources of the information as well as the key elements or arguments. The technical nature of

the planning documents makes them often difficult to use and understand by the non-specialized public, becoming a clear barrier to PP in the planning debates. This limitation became apparent for instance in the scarce response that RBAs, received to the initial documents that were published on the webs for public consultation in 2007 (see table 1) without supporting outreach and information programs.

Some examples of good practices in this area are the interactive IMPRESS documents that the Catalan Water Agency made available on its website during the PP processes, or the userfriendly ETI documents it developed to support the different sub-basin PP processes. Another example of an effort to improve public information is the online territorial information system or the river reports of the Ebro RBA; or the summary documents prepared by the OPHIC in Cantabria to inform the PP processes which they were constantly reviewing and improving as they gained experiences and inputs in the successive PP processes. Finally, it is worth noting the efforts of some RBAs, such as the Guadiana and Guadalquivir, to highlight the changes introduced in the different documents as a result of the PP processes to facilitate review.

# c. Process design and methodology

analysis of the different public participation processes highlights the importance of the methodology used to design and guide them. In Spain there is a scarcity of professionals specialized in PP and mediation techniques, particularly with knowledge and experience of water management and ecosystem issues. Too often, the techniques and methods used in water planning PP have not been appropriate to the needs of specific processes, resulting in frustration and alienation of potential participants. Additionally, the geographical extension of many



of the sub-basins that were identified for participation purposes imply the inclusion of territories with significantly different realities and problems, making it difficult to conduct coherent and integrated public debates on shared problems.

In spite of the fact that uncertainty, complexity and change are integral parts of the water management challenges we face, the PP processes have often lacked the flexibility to adapt to emerging needs and to the realities of different situations. In this sense, the willingness of some RBAs to create new forums for participation, such as the Miño-Sil or Ebro RBAs that created specific mediation and PP processes for recreational users, are noteworthy. Another example is the changes introduced in the PP plan by the Júcar RBA in response to public comments and suggestions.

Another weakness of some of the processes is the absence of goals and a roadmap for PP. The clear identification of goals is key for public involvement, for adequately managing expectations, quaranteeing the usefulness of the process, planning it correctly and running it smoothly. Many processes, particularly the early ones, have failed to adequately communicate the goals of PP, sometimes failing to contextualize it within the framework of the WFD implementation. In these cases it has been unclear what the future steps of the process would be, how the results would be integrated within the BMP, or what criteria would be used to prioritize the proposed measures.

The processes that laid the ground rules from the outset, defined clear objectives and clarified their purpose were most robust. The best examples are the feedback sessions organized by the Catalan Water Authority at the end of each sub-basin process. They allowed the Water Authority to clarify their commitment to the results and their intention of including the proposals in

the draft BMP or, when excluded, the rationale behind that exclusion.

A similar example can be found in the meetings organized by the Water Authority of the Balearic Islands in the final phase of the planning process with the goal of presenting the contents of the draft BMP. These meetings allowed participants to see whether their proposals had been included in the final document and discuss the contents of the draft plan. No other RBA has organized similar meetings so far, indicating that they may consider the draft BMPs as the feedback document for participants.

When the PP process starts with a shared discussion of existing problems in a river basin and potential causes—in essence, an open debate of the IMPRESS documents—as was the case in Cantabria, Navarra and Catalonia, the processes themselves are more credible and robust.

A final consideration is that PP is too often undertaken as a mere formality without sufficient time or integration within the decision-making process. The WFD encourages PP as a means to guarantee its success and improve decision-making related to water. However, in order to achieve this goal it is necessary to grant PP processes sufficient time and flexibility for deliberation and the emergence of potential conflicts and their resolution. It is also important to design processes that are coherent and substantial, going beyond isolated meetings with stakeholders that are separate from the planning and management processes.

# d. Participants in water debates

Ultimately, an analysis of the effectiveness and credibility of PP has to include a review of who participates and how and when they participate. In this sense, some of the previous indicators discussed here have determined the commitment



of interested parties to the processes and their active participation throughout their duration. In this sense, members of social networks for a new water culture are stakeholders that historically have not had a seat at the decision-making table, are committed to an ambitious implementation of the WFD in Spain, and would therefore have a significant stake in PP. Their response to, and involvement in, these processes can help draw some preliminary conclusions before a more thorough evaluation can be made once the processes are complete.

While there have been internal debates in some of these networks about the usefulness and convenience of getting involved in WFD-related PP, overall, network representatives participated. In the case of the Ebro's Cuenca Azul, for instance, the Ebro RBA provided financial support for the organization of workshops to debate proposals and specific issues with expert support. In Catalonia, the Catalan Water Agency provided continued funding to the Catalan Network to coordinate environmental non-profits' participation in the different sub-basin processes, thus reinforcing their work and capabilities and quaranteeing input from traditionally а underrepresented stakeholder group in the water policy debates. In these cases, PP is contributing to reinforce these networks, opening new spaces of communication between different groups that may have common interests and goals.

In the Tajo, on the other hand, members of the Citizen Network participated actively in some of the initial PP workshops and activities, but went on to organize a coordinated protest to what they perceived as a flawed and opaque process where some of the key issues where not on the table for debate. The Tajo Network also served to exchange technical and legal expertise among members to help guide the elaboration of

comments and allegations to the draft ETI document.

Most PP processes analyzed have not included the general public as a target of the information, consultation or active participation activities. Therefore they have not designed or searched for adequate channels of communication or adapted the information to different audiences. PP has largely been limited to stakeholders, thus limiting the quality of the processes and failing to meet one of the key WFD requirements: the implication of the general public in water planning and management activities. The Water Forums and Festivals of Cantabria and Navarra are noteworthy exceptions. Although they were only organized in specific moments of the process, they indicate a willingness to go beyond traditional stakeholders and implicate a wider public in the debates. It is significant that, too often, the processes have ignored existing networks and social movements active and interested in these issues, failing to use the potential they offer for involvement and participation of a wider public.

A significant barrier to the involvement of organized social networks in the PP processes initiated by the RBAs is the lack of credibility of RBAs vis-a-vis non-traditional water users and stakeholders. An additional barrier is uncertainty with respect to the potential influence of the processes in the final decisions and, therefore, the usefulness of PP. These doubts are only increased with the realization of persisting "back doors" or parallel channels communication between more traditional water users (irrigators and hydroelectric users primarily) and the RBAs. This results in a conviction that nontraditional stakeholders can more effectively influence decision-making processes through public activism and campaigns, outside established PP processes.



## 6. CONCLUDING REMARKS

After reviewing the existing spaces for PP in water policy decision-making in Spain and attempting a first analysis of existing citizen networks and their perception of those spaces, we find some unanswered questions. Perhaps the main ones refer to the effectiveness and ultimate usefulness of public participation processes as well as to their future and continuity.

In what pertains to their effectiveness, a pending question refers to the management of the proposals that emerge from PP processes. It is necessary to clarify the criteria used to prioritize these proposals and to include them (or not) in the draft BMP. The organization of feed-back sessions similar to those designed in Catalonia would help acknowledge participants' contributions and strengthen the processes by demonstrating the usefulness of everyone's efforts.

The challenges posed by ineffective interadministrative coordination also affect the potential outcome of PP. Since many proposed measures exceed the responsibilities of the water administration, it is essential to implement effective cooperation and coordination mechanisms administrations with among responsibility in the various sectors (agriculture, land use, industry, etc.) that have an impact on and are impacted by the management of water The adequate balancing integration of conflicting interests and needs of different but interrelated sectors will condition our ability to adequately address fundamental issues for the attainment of WFD goals such as the determination of environmental flows, the revision of water permits, the development of new irrigated agricultural areas, the challenges of nonpoint source pollution, or the construction

and development of new hydraulic infrastructures to meet various needs.

Given that many PP processes take place at the sub-basin level, it will be important to successfully integrate their results into basin-wide management approaches. That is, an effort needs to be made to maintain the richness of local contributions without losing the necessary basin-wide perspective.

In what pertains to the continuity of the PP dynamics once the planning process has been completed, there are no indications of plans to continue these efforts in the implementation phases of the BMPs. The efforts undertaken by stakeholders, the public and the water administration in the development of PP programs can be lost if we can't guarantee a certain continuity during the implementation phase. Furthermore, the WFD requires the promotion of active participation for the implementation of the Directive, which would logically include the implementation of the BMPs.

Along the same lines, it is important to consider how to integrate the active participation processes undertaken under the WFD with the formal participatory structures that are a part of the Spanish water administration. While from a legal perspective they may be different realms of participation, it is important to learn from the experience gained through the more active and extensive PP processes. These should serve to enrich existing formal participation structures which need to be reformed to include new stakeholders and interest groups that are active in public policy debates and can make valuable contributions.

A pending challenge remains to involve the general public in the water policy and management debates, promoting public education and outreach activities, in order to promote an understanding and appreciation of



the value of aquatic ecosystems for our health, livelihoods and emotional wellbeing. Given the constantly changing social context and the demands for new forms of governance that can better respond to society's needs, we should reflect on how to best capitalize on the opportunities that arise from the appearance of self-organized social networks and movements active in the water debates, and how we can help strengthen them so they can actively contribute to the participation of the wider public in the collective construction of public policies.

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## **Bibliography**

Acland, A. (2008) *A handbook of public and stakeholder engagement.* Surrey, U.K. Dialogue by design.

Arrojo, P. (coord.) (2001) *El Plan Hidrológico Nacional a Debate.* Ed. Bakeaz and Fundación Nueva Cultura del Agua.

Ballester, A. (2008a) Experiencias de cuencas españolas. Buenas prácticas: Las experiencias de Catalunya y otras Comunidades Autónomas, Jornada taller- Experiencias positivas para la mejora del proceso en la planificación de las demarcaciones hidrográficas de Andalucía. Sevilla, 4 de septiembre 2008. Available at: <a href="http://www.unizar.es/fnca/docu/080904taller/ballester.pdf">http://www.unizar.es/fnca/docu/080904taller/ballester.pdf</a> (checked on 20/03/2010).

Ballester, A. (coord.) (2008b) *Intercambio de experiencias de procesos de participación relacionados con la Directiva Marco del Agua.* Fundación Nueva Cultura del Agua y grupo de trabajo de participación y DMA del seminario de participación ambiental del Centro Nacional de Educación Ambiental. Unpublished report.

Ballester, A. and Hernández-Mora, N. (2008). Participación Pública en el Proceso de Elaboración de los Planes de Cuenca en España. VI Congreso Ibérico de Gestión y Planificación del Agua, Vitoria. Available at: <a href="http://www.fnca.eu/congresoiberico/documentos/c0417.pdf">http://www.fnca.eu/congresoiberico/documentos/c0417.pdf</a> (checked on 20/03/2010).

European Commission (2003). WFD CIS *Guidance* document no 8. Public participation in relation to the Water Framework Directive. September 2008.

Del Moral, L. (2008) La participación pública en el nuevo proceso de planificación hidrológica en curso. La experiencia de la Demarcación del Guadalquivir y de la Comunidad Autónoma de Andalucía. XIII Jornadas de Derecho de Aguas, Ciudadanos y usuarios en la gestión del agua, Zaragoza, 21-22 February 2008.

Del Moral, L. and Hernández-Mora, N. (2007) Síntesis y conclusiones del Panel científico-técnico de seguimiento de la política de aguas en España. Available at: <a href="http://www.unizar.es/fnca/varios/panel/conclusiones.pdf">http://www.unizar.es/fnca/varios/panel/conclusiones.pdf</a> (checked on 20/03/2010).

Espluga, J. and J. Subirats (2008) *Participación ciudadana en las políticas de agua en España.* Panel Científico-Técnico de Seguimiento de la Política de Aguas. Convenio MMA-Universidad de Sevilla. ISBN 13:978-84-691-0027-1. Available at: (http://www.unizar.es/fnca/varios/panel/53.pdf) (checked on 20/03/2010).

Font, N. and J. Subirats (2010) Water management in Spain: The role of policy



entrepeneurs in shaping change. *Ecology & Society*, 15 (2), Art. 25. [Online] <a href="http://www.ecologyandsociety.org/vol15/iss2/art">http://www.ecologyandsociety.org/vol15/iss2/art</a> 25/

Irvine, K. and S. O'Brien. (2009) Progress on stakeholder participation in the implementation of the Water Framework Directive in the Republic of Ireland. *Biology and Environment: Proceedings of the Royal Irish Academy.* Vol. 109B, No.3, 365-376.

La Calle, A. (2008a) *El nuevo marco jurídico de las directivas europeas y las nuevas oportunidades de participación*. IN: Las aguas subterráneas en España ante las Directivas Europeas: retos y perspectivas. (Groundwater in Spain in the face of the European Directives: Challenges and opportunities). AIH-GE.

La Calle, A. (2008b) *La importancia de la participación pública: De la obligación a la convicción*. Jornada Taller – Participación en el proceso de planificación hidrológica: Experiencias positivas para la mejora del proceso en la planificación de las demarcaciones hidrográficas de Andalucía. Sevilla, 4 septiembre 2008. Available at:

http://www.unizar.es/fnca/docu/080904taller/lacalle.pdf. (checked on 20/03/2010).

Lauber, B., D. Decker and B. Knuth. (2008) Social networks and community-based natural resources management. *Environmental management* 42: 677-687.

Martínez Gil, J. (1997) *La nueva cultura del agua en España.* (The new water culture in Spain) Ed. Bakeaz and Fundación Nueva Cultura del Agua.

MMA, 2000. *Libro Blanco del Agua en España*. (White book of water in Spain). Secretaría de Estado de Aguas y Costas. Dirección General de Obras Hidráulicas y Calidad de las Aguas. Ministerio de Medio Ambiente. Madrid, 637 pp.

Mostert, D., Pahl-Wostl, C., Rees, W., Searle, B., Tabara, D., and J. Tippett (2007) Social learning in European river-basin management: barriers and fostering mechanisms from 10 river basins. *Ecology and society* 12(1):19. [Online] URL: http://www.ecologyandsociety.org/vol112/iss1/art119/

Pahl-Wostl, C., Craps, M., Dewulf, A., Mostert, E., Tabara, D., and T. Traillieu. (2007) Social learning and water resources management. *Ecology and society* 12(2):5. [Online] URL: <a href="http://www.ecologyandsociety.org/vol112/iss2/art5/">http://www.ecologyandsociety.org/vol112/iss2/art5/</a>

Subirats, J. (1997) Democracia: participació i eficiència. *Revista CIFA*, 6.

Varela, C. and N. Hernández-Mora. (2010) Institutions and institutional reform in the Spanish water sector: A historical perspective. In: "Water Policy in Spain." Garrido, A. and M.R. Llamas (eds). Taylor & Francis.

Von Korff, Y, P. D'Aquino, K.A. Daniell and R. Bijlsma. (2010) Designing participation processes for water management and beyond. *Ecology and society* 15(3):1. [Online] URL: <a href="http://www.ecologyandsociety.org/vol115/iss3/art1/">http://www.ecologyandsociety.org/vol115/iss3/art1/</a>

## Primary web pages consulted:

WFD Observatory of the Fundación Nueva Cultura del Agua:

http://www.unizar.es/fnca/index3.php?id=1&pag =18

Iberian Water Congress for Water Management and Planning:

http://www.fnca.eu/congresoiberico/index7.php? lan=1