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# Networked Water Citizen Organisations in Spain: Potential for Transformation of Existing Power Structures in Water Management

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**ABSTRACT:** The shift from hierarchical-administrative water management toward more transparent, multi-level and participated governance approaches has brought about a shifting geography of players, scales of action, and means of influencing decisions and outcomes. In Spain, where the hydraulic paradigm has dominated since the early 1920s, participation in decisions over water has traditionally been limited to a closed water policy community, made up of economic water users, primarily irrigator associations and hydropower generators, civil engineering corps and large public works companies. The river basin planning process under the Water Framework Directive of the European Union presented a promise of transformation, giving access to non-economic water users, environmental concerns and the wider public to water-related information on planning and decision-making. This process coincided with the consolidation of the use of Information and Communication Technologies (ICTs) by the water administration, with the associated potential for information and data generation and dissemination. ICTs are also increasingly used by citizen groups and other interested parties as a way to communicate, network and challenge existing paradigms and official discourses over water, in the broader context of the emergence of 'technopolitics'. This paper investigates if and in what way ICTs may be providing new avenues for participated water resources management and contributing to alter the dominating power balance. We critically analyse several examples where networking possibilities provided by ICTs have enabled the articulation of interest groups and social agents that have, with different degrees of success, questioned the existing hegemonic view over water. The critical review of these cases sheds light on the opportunities and limitations of ICTs, and their relation with traditional modes of social mobilisation in creating new means of societal involvement in water governance.

**KEYWORDS:** ICTs, water governance, social networks, public participation, power, Spain

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## INTRODUCTION

Water management is necessarily a political process (Agnew, 2011). In a context of increasing socioeconomic water scarcity and uncertain knowledge, heightened by climate change and rapidly evolving socioeconomic conditions, politics plays an even more crucial role in decisions over how to

allocate and manage water. However, some authors (Kaika, 2003; Kaika and Page, 2003; Swyngedouw, 2005) have argued that in the recent past, water management decisions have been progressively 'depoliticised'. In their view, this has happened both through an emphasis on governance arrangements that incorporate previously politically contentious actors into staged and formalised participatory decision-making processes, and through the progressive dominance of purportedly impartial (apolitical) allocation mechanisms (economic instruments, technical and scientific expertise) over truly political decision-making. This process of 'depoliticisation' is an attempt to hide or veil the intrinsically political nature of the decisions concerning environmental policy. Thus, according to this perspective, while powerful actors continue to dominate and control water-related decisions those outside the centres of power are disoriented and demobilised, with the consequence that their arguments and interests lose presence and strength.

The currently dominating Integrated Water Resources Management (IWRM) paradigm emphasises precisely these managerial, economic and governance approaches. The European Union's (EU) Water Framework Directive (WFD, Directive 2000/60/EC) is considered by many an implementation of the IWRM approach in a real-policy context (Del Moral et al., 2014). It is also perhaps the most ambitious attempt by the EU to incorporate a governance approach to natural resources management, which results in a shifting geography of players, scales of action, and means of influencing decisions and outcomes (Kaika, 2003). The WFD requires multi-level coordinated planning and management, economic assessment of water services and public participation that aim to increase the efficacy of the Directive.

In the EU, the process of implementation of the WFD has led to changes in technical procedures and has also served to question existing paradigms and mindsets. In the case of Spain, the elaboration of the WFD River Basin Management Plans (RBMPs) starting in 2004 required significant changes in terms of the information needed, the players involved and the planning process. Under Spanish law prior to the WFD, RBMPs were regulatory instruments that served to allocate water resources among uses and users and to justify the need to undertake additional development of water resources. For this reason, the WFD in Spain triggered a debate around what type of paradigm should guide water-related decisions in the new Plans. While the regulatory and resource allocation character of the plans remains, early assessments expected the WFD implementation to entail a transition from a hierarchical, supply-centred 'traditional hydraulic paradigm' toward more transparent, multi-level and participatory water planning and management (Sauri and Del Moral, 2001).

Recent research has critically reviewed the effectiveness of the new governance approaches for water resources management in Spain, both in substantive and procedural terms. In relation to information and public participation requirements, these analyses have demonstrated that there has been a substantial increase in information-sharing by water authorities thanks to the availability and use of internet-based information and communication technologies (ICTs) (Hernández-Mora and De Stefano, 2011; De Stefano et al., 2012). Additionally, and in compliance with WFD requirements, public participation processes have been undertaken in most river basins for the development of RBMPs (Espluga et al., 2011; Pedregal et al., 2011; Ballester and Pares, 2013). However, while the increase in information availability and public participation requirements should have involved an opening up of decision processes to all actors, research has shown that critical aspects continue to be decided upon behind closed doors by members of the traditional water policy community (Ballester, 2012; Ballester and Espluga, 2012; Ferrer, 2012; Hernández-Mora, 2012; Hernández-Mora and Ferrer, 2012; FNCA, 2014; Parés et al., 2015). The power balance continues to favour large water users, leaving the interests of underrepresented groups aside. These minority groups (environmental interests, recreational water users, or small rural populations affected by large infrastructural works) had previously resorted to contentious political protest actions with varying degrees of success (Ferrer et al., 2006; Tàbara and Ilhan, 2008; Arrojo et al., 2010; Font and Subirats, 2010; Swyngedouw, 2013). As we will later discuss in

more detail, the governance approach promised by the WFD was welcomed by these actors as an opportunity to participate in decisions over water in conditions of equality.

In this general context, over the past few years the burgeoning use of ICTs<sup>1</sup> has enabled the appearance and consolidation of new forms of social action by opening new possibilities to previously powerless stakeholders to share information and improve the effectiveness of their political activism in different realms of the public domain. This emerging networked citizen politics has been conceptualised as 'Technopolitics' (Toret, 2013; Jurado, 2014) to emphasise the key role of the appropriation of ICTs for political action. The extent to which the emergence of these technologies is actually providing new avenues for participated decision-making and contributing to alter the dominating power balance is now the centre of debate and research (Della Porta and Mosca, 2005; Iosifidis, 2011; Subirats, 2011; Castells, 2012; Fuster Morell and Subirats, 2013; Calderaro and Kavada, 2013; Taylor, 2014; Earl et al., 2014; Argawal et al., 2014). To our knowledge, however, this analysis has not been extensively applied to the domain of water resources management, where participatory governance was first institutionalised in the EU.

This paper aims to contribute to this body of work by critically analysing the experience of water-related socio-environmental networked citizen organisations (from now on citizen water networks, or CWN) that operate in Spain at the river-basin, regional and national scale. These networks are coalitions of environmental groups, citizen organisations, activists, scholars, local municipalities, and other actors organised to defend the patrimonial values of water. They started emerging in the early 2000s and use ICTs in different ways for organisational and communication purposes. The paper will try to discern whether the use of ICTs is improving their ability to organise and influence decision-making processes, particularly in the context of the WFD planning. For this purpose we assess the role ICTs play in the CWN's collective organisation and ability to access information, the role CWNs have played in recent water-related decisions, and their perception of the usefulness of ICTs as a support tool for their work.

The paper is organised in five sections. Following this introduction, the second section discusses the theoretical framework and academic debate to which this paper aims to contribute: the evolution toward governance approaches to water resources management and the role of ICTs in providing alternative public spaces for influencing public policy decisions. The third section outlines the methodological approach used to conduct the analysis. The fourth section sets the context of the evolution of Spanish hydro-politics and the role played by socio-environmental groups in this evolution. The fifth section presents the results of the evaluation of the use of ICTs by active CWN. The final section presents some concluding remarks and recommendations for future research.

## **THEORETICAL FRAMEWORK**

One of the building blocks of the WFD is the introduction of information, consultation and public participation requirements in an effort to improve its effectiveness and facilitate its implementation and compliance (Newig and Fritsch, 2009; Pares, 2010). When the WFD was approved in 2000 this approach was part of a wider effort by the European Commission to "open up the policy-making process to get more people and organizations involved in shaping and delivering EU policy" (EC, 2001: 2).

The shift from hierarchical-administrative management approaches to multi-level and participated governance – what is known as the transition from government to governance in natural resources management (Page and Kaika, 2003) – finds theoretical grounding in the proponents of deliberative

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<sup>1</sup> In this paper, we use the term ICTs to refer to software and hardware technology that allows users to communicate and generate, store, access, transmit and manipulate information. It therefore includes both computer- and telephone-based telecommunications, the internet and processing applications.

democracy. Governance requires a transition toward a networked approach that incorporates different government levels, civil society organisations and private sector actors into decision-making processes. In deliberative democracy or discursive democracy, deliberation is central to decision-making. For a democratic decision to be legitimate, it must be preceded by authentic deliberation, not merely the aggregation of preferences that occurs in voting (Fishkin, 1991; Subirats, 2003; Gutman and Thompson, 2004; Brugué and Vallès, 2005). The outcome of decisions over the management and allocation of public resources is reinforced and validated through the involvement of, and open discussion among, all relevant players under conditions of equal access to information and power.

In the field of natural resources management, this line of thought points out that definition of policy alternatives cannot be a primarily technical-hierarchical process, but that it requires collaboration and participation from interested parties (Coote, 1998; Pahl-Wostl, 2007; Lauber et al., 2008). It is not possible to reach technical and scientific consensus on every question, or to impose solutions on a society that is increasingly critical, active and diverse. According to Anthony Giddens, society has ceased to base its normative order on the accumulation of a body of knowledge neatly accepted, and reproduced and transmitted by successive 'guardians of truth castes', as was the case in the classical industrial society. Today's post-traditional society is faced with a wall of uncertainty, with discordant voices that experts cannot effectively answer (Giddens, 1990). Or as Ulrich Beck argues with respect to decisions relating to complex and risky environmental problems, collective steps may be partially blind, but at least should be the result of agreement and rational prioritisation (Beck, 1996).

Practical experience, however, has shown that, even under deliberative processes such as those encouraged in the context of the WFD, final basic decisions remain outside the public sphere and respond to power dynamics that are not explicit. A recent research project (PART DMA – Deliberative Democracy and Public Policy), evaluated public participation processes in Spain in the context of the WFD (Pedregal et al., 2011; Ballester and Parés, 2013). Researchers conducted extensive interviews with over 100 stakeholders and public officials in six Spanish river basins and reviewed public documents and meeting minutes (Ballester, 2012; Ballester y Espluga, 2012; Ferrer, 2012; Hernández-Mora and Ferrer, 2012; Hernández-Mora, 2012; Parés et al., 2015). Results showed that, regardless of the quality of the public participation processes from a formal perspective, participants consistently felt that the most contentious issues were not on the table and that powerful stakeholders had parallel access to decision-makers, outside of participatory processes. Furthermore, these processes were organised in a way that did not take into account different capabilities of participants (volunteers versus professional staff, financial resources, access to technical support, etc) so that participants could not influence decisions equally. Finally, even in those cases where deliberative processes tried to account for these factors, final decisions did not necessarily reflect the outcome of discussions, and key decisions were made behind closed doors by traditional players in Spanish hydro-politics (Ballester and Parés, 2013; FNCA, 2014; Parés et al., 2015).

Some authors argue that 'governance-beyond-the-state' management approaches focused on reaching consensus and the rational establishment of priorities, force actors to collaborate within a given framework that cannot be questioned or altered and that profoundly conditions the terms of the debate and thus the final policy outcome (Peck and Tickell, 2002; Swyngedouw, 2011). It can be argued that by promoting governance approaches to the management of the public sphere, activists are 'de-activated' and compelled to replace acts of contestation and political protest by processes of collaboration with the state (Molle, 2009; Parés, 2010).

The emergence of new forms of social networked organisation triggered by the appropriation of ICTs for political action is relevant in this debate. If indeed governance processes may have failed to produce improved outcomes in terms of equity or democratic quality, it can be argued that ICTs can provide new avenues for previously disenfranchised actors to access information, mobilise politically and ultimately increase their presence and weigh in public decisions. This phenomenon has increasingly been the focus of analysis and research (Castells, 2012; Toret et al., 2013; Calderaro and Kavada, 2013; Milan and

Hintz, 2013; Jurado, 2014). These authors argue that the outbreak of social movements such as the Arab Spring, the Spanish 15M or Occupy Wall Street, is the result of profound dissatisfaction with democratic systems and political institutions that have turned their back to the real needs and concerns of common citizens and instead serve the interests of a powerful few. According to this line of thought, increasingly active and critical social actors no longer accept a representative democratic system in which participation is limited to periodic elections or the possibility to provide feedback to government proposals that are more responsive to those with more power and access. Furthermore, when deliberative approaches also fail engaged citizens, ICTs can provide new avenues for political activism and alternative social spheres for information-sharing and extra-representational participation (Fuster Morell and Subirats, 2013).

As we have seen in this section, there is a rising academic and political attention being paid to the role played by civil society in public decision-making as a result of the changing roles and relationships between civil society, the market and the state. Some of this literature has probed the role played by ICTs in the emergence of new forms of networked social action (Della Porta and Mosca, 2005; Kavada, 2010; Bennett and Segerbeg, 2013). Others (Font and Subirats, 2010; Parés, 2010) have looked at the role civil society has played in hydro-politics in this new governance context and within the European Union. However, few have looked at the interface of these different fields of research: governance, civil society activism, ICTs and water resources management. It is to this interface that this paper aims to make a contribution.

## METHODOLOGICAL APPROACH

In designing the research we decided to focus our analysis on well-established CWNs that emerged in Spain starting in 2001. These networks incorporate local or environmental groups that work on specific issues in more traditional ways but find advantages in articulating their work in broader geographical networks. As we will see in the following section in more detail, network members share an understanding of water as a common good, essential for life and the conservation of water-dependent ecosystems. They defend the right of all interested actors to actively participate in the decisions over the management of water resources in conditions of equality. They are, for the most part, long-lasting informal communities (many do not have a legal structure) open to anyone willing to join moderated discussions online. In order to evaluate the role CWNs have played in recent water planning processes and whether the use of ICTs makes them more effective, we have used different sources of data and information:

- Participant observation of the activity of these networked communities (setting up of the network, attendance in physical meetings, participation in e-mail distribution lists). Members of the research team are active participants in two of the CWN analyzed (Tajo and Andalucía networks) and have followed the emergence and evolution of the others, being members of their e-mail distribution lists since their inception. This part of the research is based on participatory methodology, that is, research that argues in favour of the possibility, the significance, and the usefulness of involving agents as research partners in the knowledge-production process (Cornwall and Jewkes, 1995; Bergold and Thomas, 2012).
- Results of previous research projects and Spanish water-policy evaluation initiatives (PART-DMA,<sup>2</sup> INTRAG,<sup>3</sup> OPPIA<sup>4</sup> evaluations) in which some authors of this study participated, that

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<sup>2</sup> PART-DMA (Deliberative democracy and water policy: An analysis of public participation in the context of the Water Framework Directive in Spain) was A 3-year project (2010-2012) funded by the Spanish Ministry of Science and Innovation (CSO2009-09880).

critically evaluated the WFD implementation process in Spain and the accompanying public information and participation processes.

- Information from the CWN websites (see Table 2) and literature review from the existing bibliography on the evolution of Spanish hydro-politics.
- Results from an online survey distributed through the CWN e-mail distribution lists in September 2014. The survey had 31 questions divided into five sections: characterisation of the CWNs; use of ICTs as communication and organisational tools; participation of network members in the WFD-river basin planning processes and the role played by ICTs in facilitating this participation; CWN influence on decisions over water; and access to information over water. Twenty five questions were multiple choice (with an option of expanding/clarifying responses) and six questions asked for qualitative responses. Fifty-four replies were received between September and October 2014, distributed as follows: Red Tajo (*Red Ciudadana por una Nueva Cultura del Agua en el Tajo/Tejo y sus Ríos*, Tajo Citizen Network for a New Water Culture) (19 replies), RANCA (*Red Andaluza por una Nueva Cultura del Agua*, Andalusian Network for a New Water Culture) (14), Red Júcar (*Red por una Nueva Cultura del Agua en el Júcar* or Jucar Network for a New Water Culture) (7), URA-Nueva Cultura del Agua (Network for a New Water Culture in Navarra) (5), XNCA (*Xarxa per una Nova Cultura de l'Aigua*, Catalan Network for a New Water Culture) (3), Cuenca Azul-Ebro (5) and the Red Agua Pública (Public Water Network) (4). Thirty percent of respondents belonged to two or more networks, generally a regional or basin network and the Public Water Network. Thirty respondents (56%) were male, 10 (19%) female and the rest wished to remain anonymous. Of those who disclosed personal information (40 respondents), 78% resided in urban areas of over 20,000 inhabitants and had an average age of 48.
- In-depth phone interviews to one relevant member of six of the seven CWNs analysed, conducted in November 2014, to gain an understanding of their perceptions and insights of the realities under analysis (Fox, 2009) (Table 1). Interviewees were chosen amongst survey respondents based on their active participation in and exhaustive knowledge of the origins, goals, and operation of each CWN.

Table 1. Characterisation of interviewees.

Network	Interview number	Gender	Education	Age
Red de Agua Pública (RAP)	1	Female	Attorney	43
Red por una Nueva Cultura del Agua en el Júcar (Red Júcar)	2	Female	Economist	41
URA Nueva Cultura del Agua (URA)	3	Female	Environmental agent	48
Xarxa per una Nova Cultura del Agua en Catalunya (XNCA)	4	Female	Agricultural economist	38
Red Ciudadana por una Nueva Cultura del Agua en el Tajo/Tejo y sus ríos (Red Tajo)	5	Female	Environmental attorney	44
Red Andaluza por una Nueva Cultura del Agua (RANCA)	6	Male	Biologist	44

<sup>3</sup> INTRAG (Transparency Index in Water Management in Spain) is a biannual evaluation of transparency of river basin agencies in Spain. The index is made up of 80 water data indicators that should be included in Agencies' websites (De Stefano et al. 2011).

<sup>4</sup> The Water Policy Observatory (OPPA) of the Foundation for a New Water Culture ([www.fnca.eu/oppa](http://www.fnca.eu/oppa)), is made up of a network of academics, water professionals and activists who conduct an ongoing evaluation of Spanish water policies.

## A NEW WATER GOVERNANCE IN SPAIN: THE EMERGENCE OF CITIZEN WATER NETWORKS

The evolution of Spanish water policy over the past three decades and the resulting shifting geometries of power provide a particularly adequate context within which to apply this analysis. Throughout the twentieth century, Spanish water policy was governed by the 'traditional hydraulic paradigm' (Sauri and Del Moral, 2001; Bukowski, 2007), consisting in the publicly funded development of the country's hydraulic capacity to serve growing irrigation and hydroelectric demands. This approach was based on a strong cultural and socio-political tradition with deep historical roots. Between 1940 and 1980 the Spain's hydraulic capacity increased by over 1000 Mm<sup>3</sup> per decade (Bukowski, 2007). Starting in the early 1920s, water management was organised on a river basin scale, through river basin management agencies (RBAs or *Confederaciones Hidrográficas*) that depended organically from the central Government (Del Moral and Do O, 2014). From the outset, economic users of water, primarily irrigators and hydroelectric companies, were part of the RBAs' management boards, actively participating in and influencing decisions over water management and allocation (Varela and Hernández-Mora, 2009). Together with the professional civil engineering corps, who made up the staff of public RBAs and private companies that undertook development projects, these constituted what has been called the 'traditional water policy community' (Hernández-Mora et al., 2014).

With the advent of democracy in 1975, Spain's institutional structure was profoundly transformed, with significant powers devolved to 17 regional governments (*Comunidades Autónomas*) (Font and Subirats, 2010). These regional governments became an increasingly active player in water policy development, having full planning and management responsibilities for rivers that flow within their boundaries, and participating in the boards of RBAs responsible for interregional river basins. The 1985 Water Act incorporated water quality concerns into water management, and environmental interests and other social groups gained testimonial representation in RBAs' boards (*Consejos del Agua*) (Varela and Hernández-Mora, 2009). In spite of these changes, the hydraulic paradigm continued to predominate. In compliance with the 1985 Act, which mandated river basin planning as the basis for management, a first National Hydrologic Plan (NHP) was drafted in 1993 that proposed several interbasin water transfers and more than a hundred new big dams in order to continue supplying large amounts of water at low cost for the users. In the new institutional context however, the proposal raised significant criticism and opposition from donor regions, environmental groups and academics, and for the first time in Spain's hydro-political history, in response to these protests the plan was withdrawn (Sauri and Del Moral, 2001; Font and Subirats, 2010).

Throughout the 1990s, successive governments worked to complete the hydraulic planning process through the approval of River Basin Hydrologic Plans. The effort culminated in the approval of the 2001 NHP, a more modest version of the 1993 draft Plan, but that still proposed to build a large interbasin water transfer from the Ebro Basin in the northeast to the southeastern Mediterranean regions, in addition to over 200 new large water infrastructures.

The NHP approval process was deeply contentious. While the traditional water policy community together with the regions that would receive transferred waters staunchly supported the project, new actors that had emerged in the early 1990s made their opposition known (Hernández-Mora et al., 2014). Regional governments, environmentalists, social movements representing regions and villages affected by new infrastructural works, academics, and some political parties used the different avenues available to them to oppose the approval of the NHP (Sauri and Del Moral, 2001; Bukowski, 2007; Font and Subirats, 2010; Parés, 2010). The opposition was articulated around the ideas of the New Water Culture movement, a coalition of activists, intellectuals and academics that worked to offer an alternative water management paradigm for Spain (Tábara and Ilhan, 2008), one that was based on environmental conservation, public participation, economic rationality and demand management.

While these debates were taking place, the rest of the European Union was already immersed in the process of development and approval of the WFD, imposing planning and management goals and

processes that had very little in common with what was happening in Spain. In fact, starting in the late 1990s, proponents of the New Water Culture began using the WFD as the superior legal framework to support their arguments and challenge the existing institutional framework and the dominating hydraulic paradigm. When a new government came into office following national elections in 2004, it cancelled the Ebro transfer plan using the New Water Culture as a discursive tool to support their new policy proposals, and launched the WFD implementation process in earnest.

When the new WFD-based water planning cycle started, many social and environmental groups that had previously been excluded from the decision-making table and resorted to contestation and social mobilisations (Parés, 2010) saw the promises of WFD-mandated participatory planning and management as an opportunity to finally take part, in conditions of equality, in decisions over water. The socio-political struggles that had accompanied the approval and eventual cancellation of the Ebro transfer project were seen by many as a sign that things were starting to change, and that new goals of ecosystem restoration, economic rationality, efficiency, transparency and public participation would now come to dominate Spanish water policy.

In compliance with the WFD calendar, Spanish RBAs started the elaboration of the new RBMPs and designed the required public information and participation processes (Espluga et al., 2011). These ranged from ambitious plans expressly articulated around the deliberative democracy ideals (Parés et al., 2015), to less ambitious and more perfunctory public information meetings in order to comply with WFD requirements. In any case, the WFD planning introduced significant changes and expectations for those actors that were active in the defence of the New Water Culture ideals.

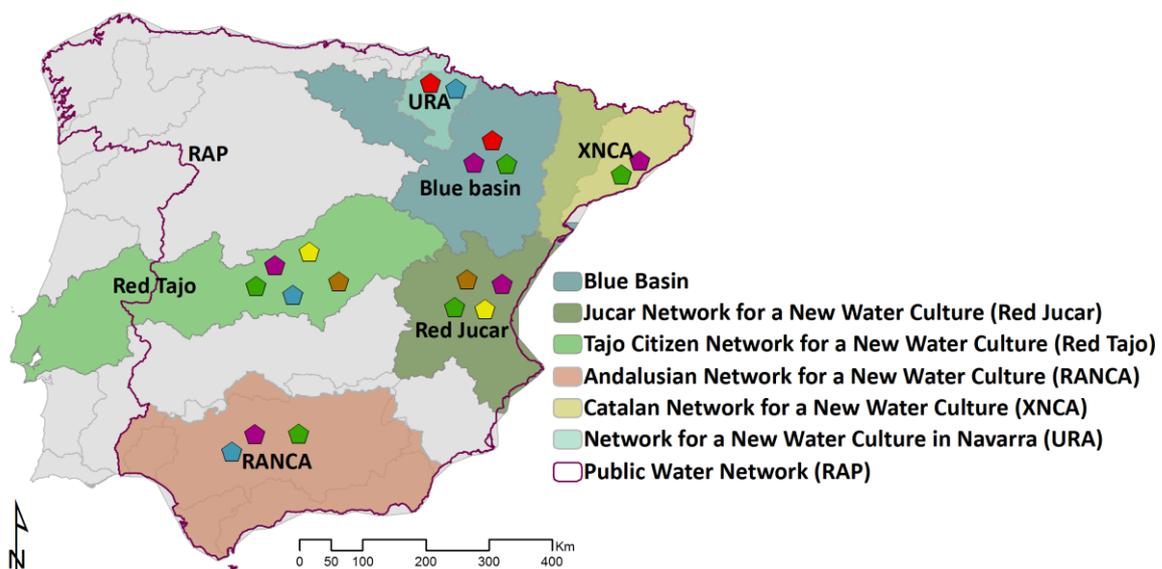
Based on the experiences of the struggles surrounding the NHP, and in light of these expectations, CWN started organising in different basins and regions. These networks (with the exception of the Public Water Network which focuses exclusively on urban water privatisation and related conflicts) are inspired by the New Water Culture principles and organised at the river basin, regional or national scale (see Figure 1 and Table 2). Given the geographical dispersion of CWN members, ICTs (primarily email distribution lists) are instrumental in their organisation and operational development. CWN are forms of social organisation based on the free exchange of information and knowledge, common learning and collaborative and volunteer work of its members (Ferrer and Ballester, 2013). They are online communities that do not have paid staff or a physical office. Membership extends beyond the traditional environmental community to include a wide range of local activists, citizen and heritage organisations, experts, and academics that collaborate to build a common understanding of the problems and propose alternatives to water management challenges with a strong focus on a balanced approach to territorial development. They are umbrella organisations that sometimes serve to legitimise, empower or support the work of individual member organisations, or provide them with a common voice vis-à-vis the water administration. Their membership grows as new local conflicts arise and local groups organise and reach out to these networks for organisational or technical support. These CWNs can be categorised into two main groups: those that have organised with a clear vocation of becoming an actor with its own voice in the hydro-political landscape of a region or basin, and those that aim to serve primarily as a network of information exchange and mutual technical support. Below is a brief characterisation of each of these networks.

- The Catalan Network for a New Water Culture (*Xarxa per una Nova Cultura de l'Aigua* or XNCA) was created in 2001 as a network of environmental and citizen organisations, academics and activists that opposed the Ebro Basin transfer project and aimed to achieve a more equitable and environmentally sustainable water management in Catalonia (Hernández-Mora and Ballester, 2010; [www.xnca.org](http://www.xnca.org)). Its role is one of coordination and support to member organisations. Between 2004 and 2010 the XNCA received funding from the Catalan Water Agency to coordinate the participation of environmental groups in the elaboration of the Catalan internal basins' RBMPs. The disappointment over the outcome of the planning process

has led XNCA to work on water politics in a broader sense, focusing on opening up the network to other, but similar, activist realms such as energy, infrastructures and corruption (Interview 4).

- The Andalusian Network for a New Water Culture (*Red Andaluza por una Nueva Cultura del Agua* or RANCA) was created in 2001 as a regional coordinator of social and environmental movements, activists and academics working to defend ecosystem-based and participatory water management and oppose specific hydraulic public works proposals in the region of Andalusia. It includes territory in four river basin districts. They meet once a year to organise and plan the annual *Fiestas del Agua*, hosted by different member organisations each year. The fiestas serve to update members on ongoing water conflicts, present technical reports, and reach a wider community through popular activities (concerts, theatre, etc).

Figure 1. Spanish citizen water networks.



- The Tajo Citizen Network for a New Water Culture (*Red Ciudadana por una Nueva Cultura del Agua en el Tajo/Tejo* or Red Tajo) was created in 2007 inspired by the Andalusian and Catalan networks and in order to defend the environmental, territorial and patrimonial value of the Tajo River. Its membership includes individuals and organisations in the Tajo River Basin both in Spain and Portugal. They meet annually in the *Jornadas por un Tajo Vivo*, weekend-long workshops that are open to the public and organised by a different member organisation each year. In addition to their coordinating role, they aim to be an actor with a common voice in the hydro-political arena. Being an informal organisation with no legal structure, it depends on their member organisations or individual members to initiate legal actions or submit comments.
- Blue Basin (*Cuenca Azul*) was created in 2008 based on the experience of Red Tajo to coordinate the advocacy work of environmental and citizen organisations in the Ebro River Basin during the elaboration of the Ebro River basin management plan. They received funding from the Ebro RBA in 2009 and 2010 to actively coordinate the participation of environmental groups during the planning process, organising workshops and providing technical support during the public consultation phases. URA and XNCA are part of the Blue Basin CWN since a portion of the territory of Catalonia and Navarre is included in the Ebro River Basin.

Table 2. Characterisation of networked water citizen organisation in Spain.

Name	Year created	Membership <sup>1</sup>	Survey responses received (% membership)	Main focus	Geographical distribution	Web page, blog, Facebook or twitter
Xarxa per una Nova Cultura del Agua en Cataluña (XNCA)	2001	35	9%	Defend the patrimonial value and public nature of water and associated ecosystems and landscapes. Advocate for true social participation in decisions over how to manage our common water resources.	Autonomous region of Catalonia	<a href="http://www.xnca.org">www.xnca.org</a> (updated regularly) Twitter for specific projects
Red Andaluza por una Nueva Cultura del Agua (RANCA)	2001	149	9%		Autonomous region of Andalucía	<a href="http://www.redandaluzagua.org">www.redandaluzagua.org</a> <a href="https://www.facebook.com/redandaluza">www.facebook.com/redandaluza</a> <a href="http://nueva.culturadelagua">nueva.culturadelagua</a>
Red Ciudadana por una Nueva Cultura del Agua en el Tajo/Tejo (Red Tajo)	2007	241	8%		Tajo River Basin	<a href="http://www.redtajo.es">www.redtajo.es</a> (updated regularly)
Cuenca Azul	2008	40	5%	Coordinate participation of member organisation in WFD river basin planning process to achieve good status of all waters.	Ebro River Basin	<a href="http://www.cuencaazul.com">www.cuencaazul.com</a> (last update, July 2014)
Red por una Nueva Cultura del Agua en el Júcar (Red Júcar)	2010	53	13%	Promote ecological, social, cultural and emotional values of water-dependant ecosystems and an ambitious WFD implementation of the Jucar River.	Jucar River Basin	No
URA Nueva Cultura del Agua (URA)	2011	70	7%	Promote the values of the NWC, participated and transparent management of water resources, and a more sustainable approach to land and water resources management.	Autonomous region of Navarra	uranuevacultura.wordpress.com (updated regularly)
Red de Agua Pública (RAP)	2011	56	7%	Defence of public nature of urban water services	Spain	redaguapublica.wordpress.com/about (updated regularly) Twitter: <a href="https://twitter.com/RedAguaPublica">@RedAguaPublica</a>

<sup>1</sup> Membership numbers indicates the number of addresses ascribed to the e-mail distribution lists. They include individuals, environmental groups, citizen organisations, neighbourhood associations, municipalities in some cases like Red Tajo, or regional networks of associations. Therefore, the actual number of individuals that receive information from the network is actually larger. In the case of member organisations, typically a spokesperson will participate in the Network's discussions on behalf of the organisation and report back to the members.

- The Júcar Network for a New Water Culture (*Red por una Nueva Cultura del Agua en el Júcar* or Red Júcar) was created in 2010 primarily to coordinate the work of environmental and citizen organisations in the two regions that make up the Júcar River Basin. The goal of the network is one of coordination and information exchange, particularly during the WFD planning process. They have two representatives in the Júcar RBA's Water Council from among network members, and they discuss and negotiate comments and joint positions. The Red Júcar enables member organisations to work at the most appropriate scale to defend their interests.
- Network for a New Water Culture in Navarra (*URA Nueva Cultura del Agua*) was formed in 2011 as a network of environmental, civic and agrarian organisations to promote the principles of the New Water Culture for water and land resources in the autonomous region of Navarra. Currently their work focuses on opposing a large publicly funded irrigation scheme (Canal de Navarra) that would transform traditional farming practices in parts of Navarra, and supporting local opposition to new large dam projects. Given the somewhat small area they cover, they meet monthly in a central location to discuss activities and plan strategies.
- Public Water Network (Red de Agua Pública or RAP) was created in 2012 as a common space for social organisations, institutions and individuals that defend the public nature of urban water services and oppose privatisation of water supply and sanitation services in different parts of Spain.

### **CITIZEN WATER NETWORKS AND ICTs: AN OPPORTUNITY FOR INCREASED POLITICAL ACTIVISM IN WATER GOVERNANCE?**

This section presents the results of the research based on the methodological tools presented above. The results are organised into two main topics: (1) the role ICTs play facilitating organisation, access to information and communication for CWNs; and (2) the incidence of CWNs on decisions about water, with a special focus on the role ICTs play improving the CWN political efficacy.

#### **Use of ICTs for networked activism**

We identify two main types of functions that ICTs can perform in terms of supporting networked water activism: improving collective organisation and collaborative work and enhancing access to information. This includes sharing information among activists, generating alternative information to official discourses over water, disseminating their own information to the public and facilitating decision-making within the network.

#### *Use of ICTs for collective organisation and collaborative work*

ICTs have played a pivotal role in the articulation of CWNs in Spain (Table 3). According to 87% of survey respondents, ICTs were crucial for the creation of the network as they facilitate communication among geographically distant members, enhancing their ability to share information, generate a common understanding and opinion of the issues they face, and enabling the organisation of collective actions.

Without the e-mail distribution list it would be very hard, if not impossible, to have a network (Interview 2).

For us the e-mail distribution list has been a key tool. We meet regularly but that happens because we are in constant contact through the distribution list. Without that daily contact we would rarely meet (Interview 3).

Seventy-three percent of respondents (73%) consider that ICTs complement, but do not replace the need for face-to-face interactions, which continue to be important in order to build relations of trust.

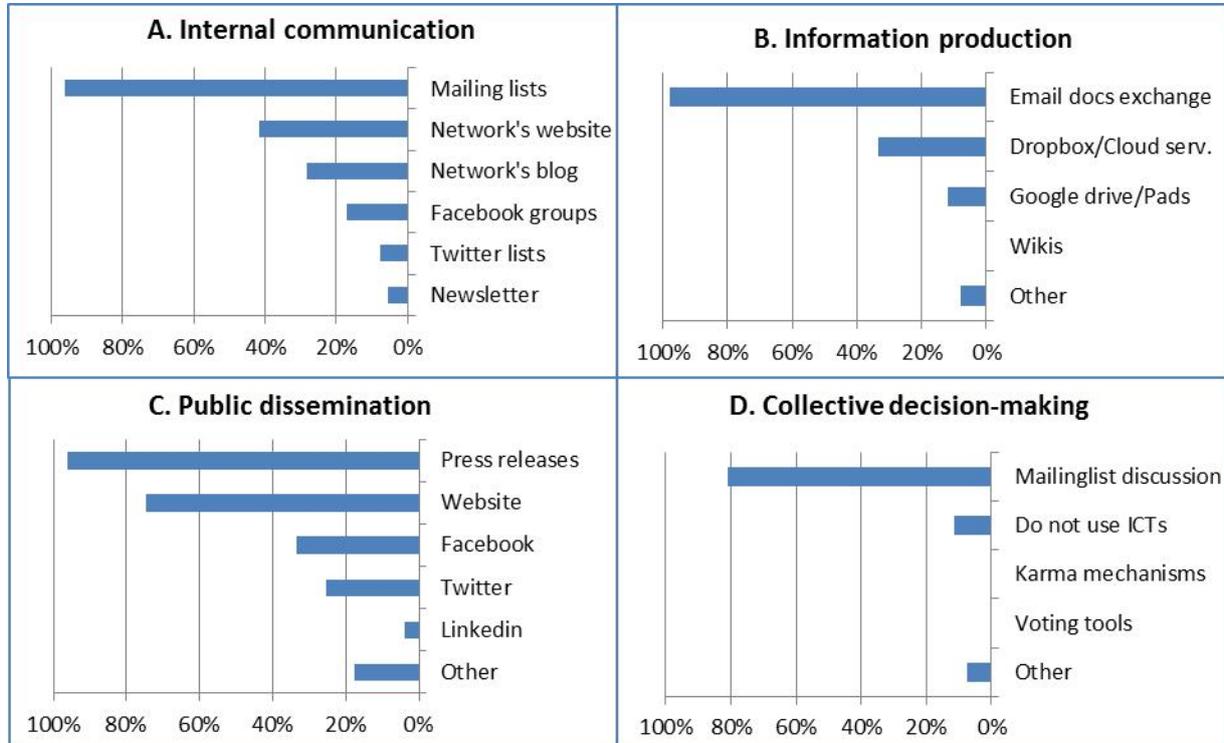
These personal interactions can take the form of annual meetings where members participate in technical sessions, social events and field trips, working meetings that can be frequent (e.g. up to once a month) or sporadic meetings for organisational purposes. Some CWN members also point to the role ICTs play facilitating connections with international networks with similar goals (for instance RAP with the European network of public water advocates Aqua Publica Europea, or XNCA with European Water Movement and Mediterranean water networks).

Table 3. Advantages of ICT use for collaborative work.

Facilitated creation of water network by coordinating geographically dispersed people and organisations	87%
Facilitate the organisation of collective actions	72%
Facilitate exchange of information and opinion generation	94%
Complement personal interactions in periodic meetings that continue to be necessary	74%
Eliminate the need for personal interaction	8%
No specific advantages	2%
Other	9%

Not all CWNs take advantage of the possibilities offered by ICTs equally. E-mail distribution lists are the main tool used for internal communication, generation and dissemination of information, and collective decision-making (Figure 2). Unidirectional information tools such as public websites or blogs also play an important role in sharing information with the general public and trying to reach a broader audience.

Figure 2. Use of ICTs for communication and decision-making within the networks.



The use of virtual social networks (Facebook, Twitter) to disseminate opinions and relevant information among network members and with the broader public is limited, with the exception of RAP and, more

recently, RANCA. Collaborative tools for generation of information (Google Drive, Wikis, etc) are not commonly used, while cloud-sharing of documents and information in Dropbox is more extended. Other tools for generation and sharing of collaborative information are Skype for virtual meetings, WeTransfer, Prezi, and other open source tools. Decisions are mainly made through open discussions in the mailing lists or, in some cases, in group meetings complemented by phone calls and phone messaging systems (WhatsApp) but not through voting or karma virtual systems. The preference for more traditional ICTs such as e-mail may respond to a general lack of familiarity of CWN network members with more complex tools. However, other researchers have also found that e-mail lists are pivotal social network tools strategically used by social movements to generate discussions and organize collective action because they provide certain advantages, not because of limited knowledge of other ICTs (Barassi and Treré, 2012).

We could use other tools, such as google docs and all that but, at the end, I really can't understand the tool and it is not worth the effort. It is easier to exchange documents and edit and send version 1, version 27, and we can all understand who wrote what (Interview 2).

As observed in Figure 2C, communication with the public is mainly carried out through traditional press releases and information posted on the networks' websites or blogs. Active social media campaigns, for instance through Twitter, are not used, even though they usually have a higher viral effect, impact on the media and thus influence on public opinion. The Public Water Network, which operates at a national scale, stands out for a more intensive use of virtual social networks. URA uses the network's blog and Xarxa the group's webpage for internal and external communication. E-mail distribution lists become forums for sharing information, discussion and generating opinion. According to survey respondents, 76% of the messages they send to the lists are responses or comments to messages received. Survey respondents are active information consumers (90% read messages daily or weekly) but less active producers (62% send messages monthly or only occasionally). This indicates that, as is the case in other virtual networks (Fuster Morell and Subirats, 2013) few people are generating most of the information that is consumed by network members.

The use of ICTs by CWN has generally not increased over time. While 94% of survey respondents acknowledge that ICTs are playing a fundamental role in their ability to work collaboratively, these are not used to their full potential. This is partly due to the age of network members (average age of survey respondents and interviewees was 48, which also reflects average age of network membership), and the resulting lack of proficiency in the use of social media.

Our age has not facilitated our fluid use of TICs. In my case I don't have a personal Twitter or Facebook account. I would be afraid to use a tool in which I am not proficient to give publicity to (the CWN), I would be incapable of doing it (Interview 3).

Other reasons can help explain the less intensive use of ICTs by CWNs. On the one hand, different network objectives require different tools. Some CWNs do not have an ambition to have a political presence in public debates, but rather emphasise their role as information clearing houses and technical support to local members. They therefore do not feel a need to project a public message that is widely distributed. This is the case of Red Jucar, XNCA or RANCA.

Most people do not understand (the CWN) as an actor that wants to send a public message, but rather as a network that allows us to stay in touch, send action alerts, or provide each other with technical support (Interview 6).

Even when there is a desire to be an active actor in a region or basin's hydro-politics, CWNs often find they do not have the expertise or the resources to use these tools. The effective use of social media requires a significant time commitment (something that is challenging in volunteer-based networks) and an ability to send frequent and clear messages (something that is difficult when public statements

have to be agreed upon between many member organisations). It is worth noting, however, that in many cases individual organisations that make up the CWNs use social media more intensely to communicate local actions and broadcast their messages, using Twitter or Facebook accounts with thousands of followers.

When asked what were the primary drawbacks of using ICTs for their work, almost 70% of the respondents identified the digital divide as a major inconvenience since it excluded activists who are not active social media users. The digital breach as a source of inequality for political influence is a common source of concern in the literature on social movements and ICTs (Della Porta and Mosca, 2005; Cantijoch, 2014).

Respondents also identified the excessive flow of information as a significant drawback (50%). Many respondents (40%) belong to more than one CWN and it is likely that they receive information from other citizen groups, thus leading to an information overload. A concern for some network activists (30%) is the lack of confidentiality in the exchange of information and opinions, that is, a lack of control over who reads messages and gets information. This has consistently been a struggle in some of the larger networks and sometimes leads to the emergence of smaller working groups that discuss more sensitive issues or political strategies. This option has been used by some CWN to deal with conflicts among network members, devise strategies to influence public decisions, advance in the CWN's discourse, or discuss specific proposals or actions.

Overall the use of ICTs as a tool to facilitate collaborative work of CWN provides three main advantages: the possibility of working collaboratively across large geographical spaces (a river basin, an autonomous region or an entire country); the possibility of maintaining a constant flow of information and thus build a shared understanding of the issues of concern; and the ability to take decisions quickly and effectively.

ICTs facilitate contact, exchange of opinions, exchange of information, and allow us to make decisions effectively and quickly, without needing to be physically present in the same place (survey respondent).

#### *Accessing, generating and disseminating information*

ICTs are essential tools for accessing, generating and disseminating information. Access to information is a prerequisite for participatory decision-making and a basic need for the work of CWN. According to survey results, the two main sources of information for water activists are the information received from their networks through their use of ICTs and the official information posted on institutional websites (Table 4).

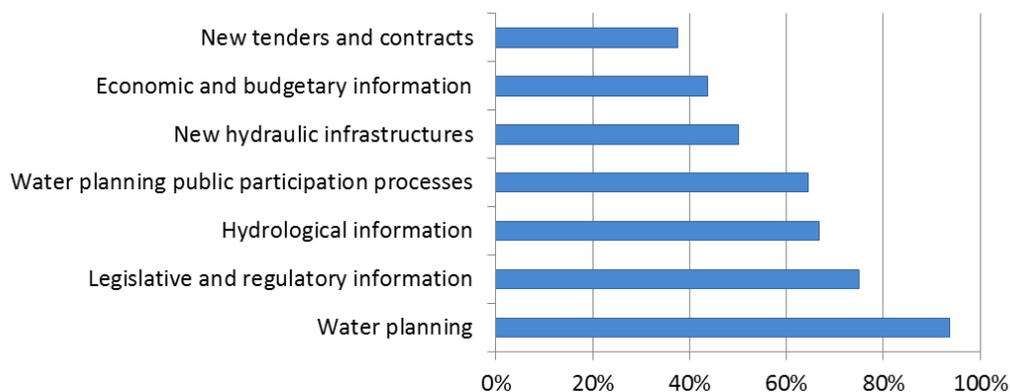
Table 4. Main sources of water-related information.

ICTs used for internal communication by citizen water networks	96%
Websites of public institutions	82%
Online newspapers	69%
Mailing lists of other water or environmental networks	59%
Digital newsletters	47%
Printed newspapers	41%
Facebook	33%
Twitter	29%
Specialised blogs	18%
Radio	14%
Linkedin	10%
Television	8%

Other important sources of information are online newspapers, mailing lists from other CWNs, and digital newsletters from water specialized sites like iAgua ([www.iagua.es](http://www.iagua.es)) or the New Water Culture Foundation ([www.fnca.eu](http://www.fnca.eu)). Virtual social networks like Twitter, Facebook and LinkedIn have less extended use among respondents.

CWN members rely on public institutions' websites for information on WFD planning and related public participation processes (Figure 3). They also use these sites for obtaining hydrologic data and legislative information. Information on other issues, such as new infrastructure projects, tender and contracts and the water administration's budget, is less sought online. This is not due to a lack of interest since the impacts of hydraulic infrastructures or large projects articulate the work of many of these networks. Rather, it is because activists know that this type of information is rarely available and, when requested, not always shared by the authorities. This latter affirmation is in line with the results of an ongoing evaluation of transparency in information of water administrations in Spain (INTRAG Project), which found that official water-related economic and financial information is rarely available online (De Stefano et al., 2012; TI-E, 2014).

Figure 3. Information obtained from official websites by water activists.



The information required by water network members for their work that is not available from official sources can be grouped into four major types: real-time hydrological and ecosystem health monitoring; water balances, withdrawals and water rights; socioeconomic assessments of planning scenarios, water services costs and tariffs; and information related to RBA organisation, decision-making justification and accountability. This information is closely related to WFD implementation process, thus highlighting once more that the Directive acts as an overarching umbrella for the CWN activities and information demands.

Members of CWN express frustration about the difficulty of finding the information they require in official websites, which is often not clearly structured and contains no metadata. Research on transparency and open governance emphasises that data and information should be easily accessible and downloadable online, in reusable formats (machine readable), with proper metadata and universal reuse licences (see definition of open data at <https://okfn.org/opendata>). When survey participants were asked what information format they required, almost all (93%) responded that they used pdf files, but a large percentage (57%) also required cartographic information (shapefiles, kml, etc), documents in processable MS Office files (74%) and 19% as relational databases. While the first two are widely available in the websites of public water administrations in Spain, processable data forms are usually not. As a result 58% of respondents said they only sometimes found the information in the format they needed. When asked to specify what information formats they would need to more

effectively do their work, they requested updated water data infrastructures, multi-scalar information (local, regional, river basin, etc) in open formats and visual interactive tools that enable easy access.

Table 5. Information shared through the CWN use of ICTs.

Information on the basin, geographic area or conflict of interest from alternative sources	88%
Announcements of actions or demonstrations	88%
News and press reviews	82%
Information on the basin, geographic area or conflict of interest generated by the network	73%
Information on water policy and management from other regions/basins	71%
Information on relevant legislative initiatives	71%
Other	37%

Members of CWN also rely heavily on alternative sources of information (see Table 4), primarily information generated within the network (either collaboratively or by individual members) or found through other sources (social media, online newspapers, academic or technical reports, etc) and shared. For the most part the information exchanged within the network pertains to water-related issues of concern in their basin or region as well as specific action calls.

Relevant official water legislation and planning information is frequently made available to CWN members through their internal communication tools, and actively commented on. For the most part survey respondents agree that the information they get from their networks provides an alternative storyline on water management issues either contesting (78%) or complementing (55%) the official one. It is through online discussions of posted news and events that alternative information and a collective understanding of problems and possible solutions are generated.

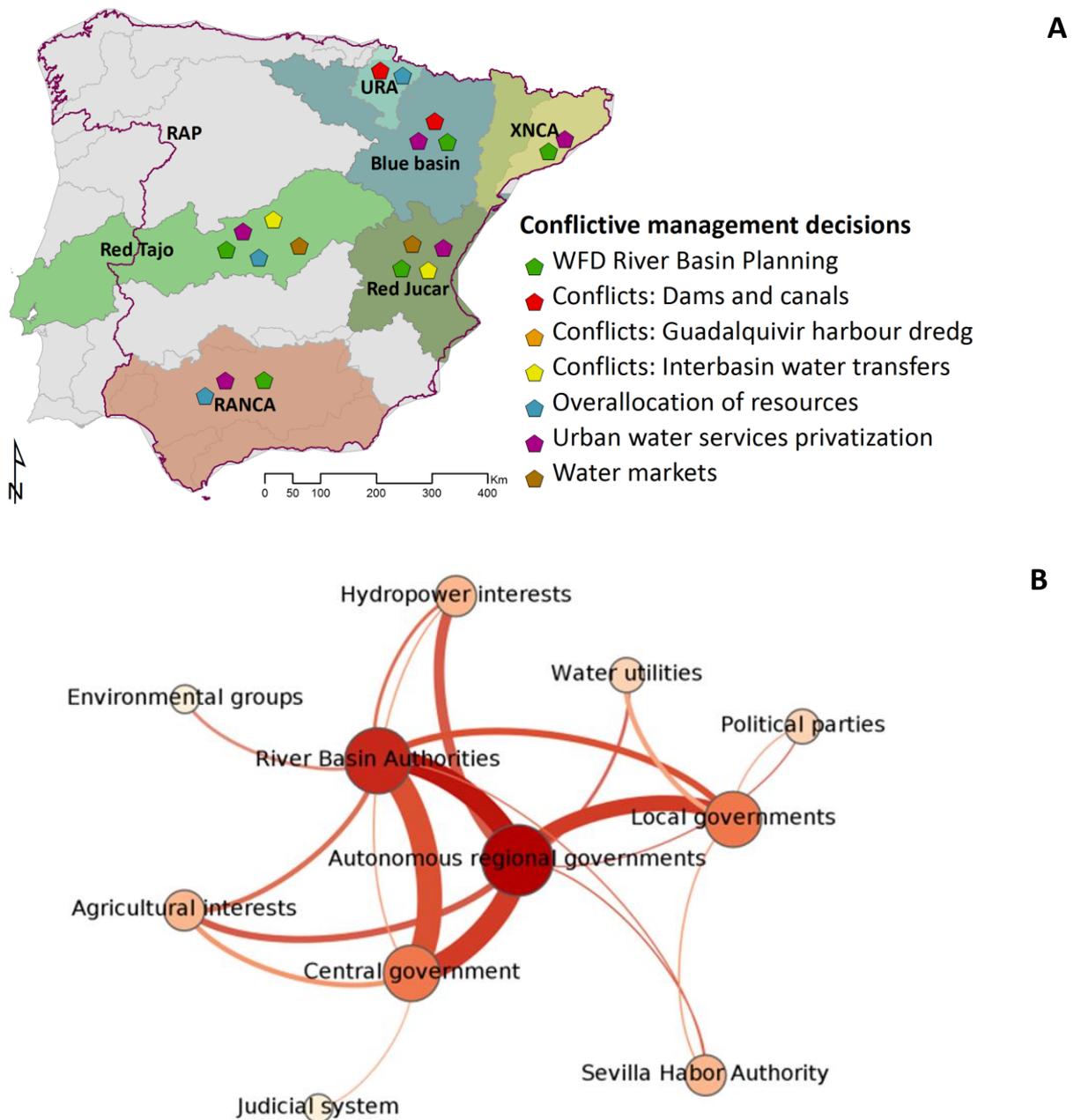
### **Power relations in water governance in Spain and political activism**

This section discusses the incidence of CWNs on water-related decisions and whether the use of ICTs is improving their ability to influence decision-making processes and change the power balance in water allocation and management decisions in Spain.

Figure 4A depicts key water management decisions that were taken in different regions and river basins in 2014 according to survey respondents. These decisions can be grouped into four major categories: the WFD river basin planning process (plan development and approval, public participation processes, environmental goals, programmes of measures, etc); conflicts regarding major hydraulic infrastructures where CWNs are active (water transfers, new dam proposals, major dredging operations); conflicts regarding water allocation (overallocation of resources or use of water markets); and urban water services privatisation processes and associated issues (pricing, access to information, public participation, etc). The issues reflect the themes that currently articulate the work of CWNs.

Figure 4B depicts who were the major players in these key water management decisions, also from the perspective of survey respondents. The figure shows the aggregated relations between the different institutions and groups involved. The size and colour intensity of the nodes constitute a function of the number of connections each actor or institution has with other actors/institutions in specific decisions. Thus the darker the colour and the larger the size, the more decisions they have been involved in together with other institutions. The size of the links is a function of the number of times in which the institutions have been involved together in making decisions.

Figure 4. Key water management decisions in Spain in 2013-2014 (A) and key actors involved (B) according to citizen water networks.

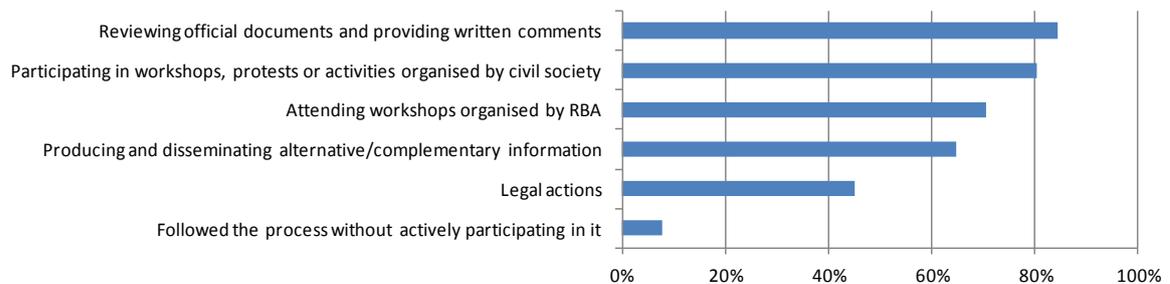


Source: Own elaboration with data from the surveys.

Figure 4 clearly shows that, from the perspective of the members of CWNs who participated in this research, the traditional water policy community (agricultural interests and hydroelectric companies) together with public administrations at different levels (river basin authorities, regional governments with significant intensity, national government, and local authorities in the cases of privatisations of urban water services), continues to dominate decision-making processes in Spain. In their view, alternative voices, such as those coming from socio-environmental groups, are marginal and testimonial, and have very limited incidence on final decisions.

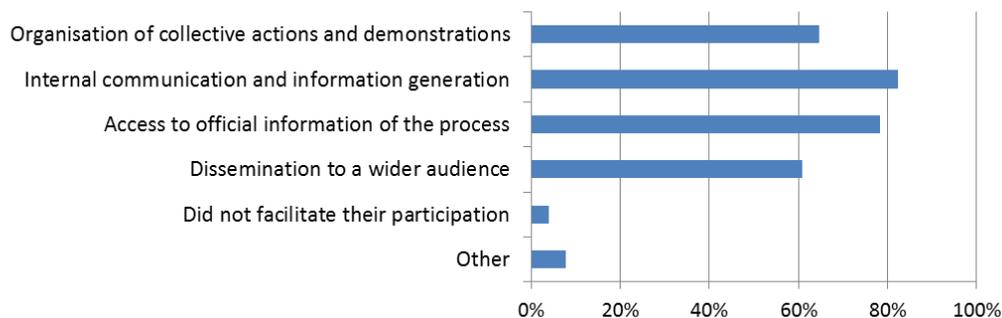
An analysis of Figure 5 shows that there was an initial trust in the new governance forms introduced by the WFD and activists participated actively in public participation processes, for instance with 84% of respondents providing written comments to official RBMP planning documents and over 70% attending workshops organised by RBAs.

Figure 5. Participation of respondents in water planning/water privatisation debates.



Furthermore, CWNs actively organised workshops and activities to disseminate information on the issues of concern, and generated documentation and technical reports to support the demand for either an ambitious implementation of the WFD from an environmental perspective, or argue against urban service privatisation efforts or new infrastructural proposals. In the view of research participants, ICTs increased the ability of CWN members to participate in water planning or privatisation decision-making processes (Figure 6) by enhancing internal communication and access to both official and alternative information, facilitating the organisation of campaigns and demonstrations, and, when this is a goal, disseminating the opinions and positions of the network to a wider audience.

Figure 6. Role of ICTs facilitating participation in decision-making processes.



Initial support for the WFD participatory planning process was tempered by the realisation that major decisions continued to be restricted to traditional actors in Spain’s hydro-politics, confirming what previous research projects (PART-DMA) had already suggested and was discussed earlier in this paper. As a result, a large proportion of socio-environmental groups have initiated legal actions against the public decisions adopted (over 45% of survey respondents have actively participated in the preparation of these legal actions). That is the case, for instance, in the Tajo, Ebro or Júcar river basins, or in some water privatisation cases. In fact, the perception of members of CWN on the performance of water authorities in terms of opening up truly participatory (deliberative) decision-making processes is very

poor. Only 2% of responses consider that there was a real willingness to incorporate new actors in decision-making processes in conditions of equality. A majority (over 60%) consider that participatory processes were a mere formality to fulfil the requirements of the WFD. Even when new players were included, their weak power positions compared to other traditional players were not taken into account in order to provide for a more even playing field.

In general public participation processes have not demonstrated any interest in the incorporation of the information provided by those actors that have traditionally been underrepresented: social, environmental and cultural organizations, non-consumptive water users, riparian residents, etc (Survey respondent, Red Tajo).

More critical members of CWN consider that authorities tried to boycott socio-environmental groups' participation in some situations, or only provided spaces for participation as a reaction to public pressure. In the case of XNCA, this disappointment has led them to expand their focus beyond water and the WFD.

We are fed up (...) we are tired of reading documents. (...) There are people that have been making comments to public documents for over 20 years, and they are tired, because no one pays any attention. We still make comments, but without the least expectation that they will have any effect. (...) We are witnessing the privatization of the state. We are in a post-state, post-democratic, post-everything era. The structure of the state has been completely delegitimized (Interview 4).

In this context of frustrated expectations, there is an overwhelming impression that the networks' positions have not had an impact on the final decision and that their influence over water policies is very limited.

I think the Network had a testimonial presence in spite of our efforts. Decisions were taken unilaterally by the administration. Other interest groups with greater influence may have had an impact on final planning decisions: irrigators, hydroelectric companies or utility companies (Survey respondent, RANCA).

While major decisions continue to be made by members of the traditional water policy community, the new governance approaches have helped incorporate new players in decisions over less controversial issues where stakes are not so high. In fact, participants in the research acknowledged that comments of CWN members had influenced decisions in some local areas (for instance, local river stretches or environmental flows in less-developed areas) or helped improve existing planning information.

Even if the final results are not what we wanted, we were able to influence the margins of the decisions, avoiding potentially worse outcomes (Survey respondent, RAP).

The organizations that make up the Network with their comments and suggestions were able to affect some minor part of the final decisions, helping [the water administration] avoid making errors and incorporating some caveats (Survey respondent, RANCA).

They also felt their participation had improved the planning process in procedural terms and served to make their arguments heard in public spaces and fora where they had until now been absent.

Our comments have not been taken into account because the Plan and the (major decision) had already been negotiated behind citizens' backs. It has been somewhat significant that our arguments have been read and taken into account to some extent (even if only to build stronger counter arguments) throughout the debate (Survey respondent, Red Tajo).

Despite the perception that their effectiveness in altering the power balance is poor, activists greatly valued other reasons for their involvement in CWN. The ability to work in a coordinated fashion throughout the river basin is particularly important. In the case of the Red Tajo, for instance, the articulation of a basin-wide CWN including groups and municipalities from the Portuguese side of the

basin had made them more effective in reaching European institutions, where both Spanish and Portuguese Members of the EU Parliament advocated their positions.

Table 6 summarises how activists rate their CWN's ability to empower them in terms of access to information and decision-making. In their view, network membership has helped them improve their understanding of problems and decision-making processes. They value improved access to both official information used for decision-making as well as their own alternative information. However, CWNs have not been able to significantly improve their access to people or institutions with decision-making capacity or the possibility of influencing final decisions.

Table 6. Evaluation of the advantages of belonging to networked water organisations (1 lowest value and 10 highest value).

Stated advantage	1-4	5-7	8-10	No answer
Knowledge and understanding of decision	8%	26%	65%	0%
Access to official information used in the decision	24%	28%	44%	2%
Access to alternative information regarding the decision	14%	34%	51%	0%
Improving understanding of the problem	4%	26%	69%	0%
Access to persons/institutions with decision-making capacity	50%	36%	12%	0%
Possibility to influence final decision	67%	26%	6%	0%

Finally, participants were asked to assess the potential of ICTs to play a greater role in improving decisions over water. There is recognition that ICTs play a key role in improving access to information as well as providing tools for information on quality control. Research participants also acknowledge that ICTs have served to open up alternative and accessible channels of communication to disseminate information that questions official discourses. In their view, a more effective use of social media that demonstrate public interest in the CWN's positions (through *retweets*, 'I like', etc) would enable their message to more easily reach traditional media, decision-makers and the general public, increasing their political profile in those cases where this is a goal.

(In twitter) there are debates about water-related news and people share information in a very immediate and direct way (for instance, with pictures). Some journalists follow these debates, and they can decide to do a story on that issue, a story that, in turn, reaches politicians and the general public (Interview 5).

This alternative flow of information contributes to create a critical opinion, contest official proposals and organise collective actions (letter-writing campaigns, public comments, etc).

ICTs can play an important role in the dissemination of information and the generation of public support. They can help improve transparency, information and the emotional identification of citizens with the problems we face. However, decisions over water management depend not so much on the use of ICTs, but rather on the low democratic quality of public institutions, the unequal power relations among actors and interests, and the disregard for basic legal and scientific considerations (Survey respondent, Red Tajo).

In their view, however, the low democratic profile of current water management institutions in Spain clearly hinders ICTs' potential to democratise decision-making processes. Without a real willingness to open up true spaces of deliberation where all actors can participate in conditions of equality, ICTs' role will remain that of useful tools for information-sharing and communication.

ICTs are conditioned by the framework established by the government (...) that has excluded civil society from decision making processes (...). We increasingly face decisions that (are not taken in the public institutions) but that respond to special interest groups and favouritisms instead of the public interest (Survey respondent, RAP).

## CONCLUSIONS

This paper starts with a critical review of participatory governance by questioning one of its main theoretical arguments: its appropriateness to manage the complexity and uncertainty that characterise major environmental dilemmas, where multiple legitimate actors intervene. This approach is questioned by those who understand it as materialisation of rhetoric tools that actually serve the interests of neoliberal globalisation, as it presents purportedly 'apolitical' mechanisms (market instruments, technical expertise) as 'impartial' responses to allocation disputes, and pursues the deactivation of conflicts through the idealisation of consensus.

Water policy in the EU is an excellent laboratory to test this general dynamic since Europe has pioneered the institutionalisation of participatory governance in the water sector through the implementation of the EU Water Framework Directive. The implementation of the Directive in Spain is of special interest due to the dominance of a water paradigm characterised by the central role of the state in water-related decisions and participatory processes accessible only to a few powerful interest groups.

The emergence of ICTs as an instrument capable of triggering political changes is a recent phenomenon that has shown its potential in different arenas of contentious politics: the Zapatista movement of the 1990s, the global justice movement, the Arab Spring, the *indignados* movement in Spain, or the Occupy Wall Street movement in the US. This has opened a new and rich debate about the nature of 'technopolitics' and its potential as a rule-changing instrument in decision-making processes. In this context, it is worth analysing the realm of overlap between the frustrated participation of social movements in water policy in Spain and the potentially empowering role that ICTs can play.

In this paper, we have analysed the experience of Citizen Water Networks (CWNs) that have emerged in Spain over the past 15 years at different geographical scales (river basin, regional or national) to participate in and influence debates and decisions over water. While socio-environmental organisations and networks have been active in Spanish hydro-politics for over 35 years, CWNs have emerged, grown and articulated their activities taking advantage of the communication and organisational possibilities provided by ICTs. We have explored in what ways the use of ICTs by these networks may have provided a more effective access to information and political operational involvement in water governance and where the limitations may exist. We also evaluated whether the use of ICTs has improved their ability to influence water management decisions and change the power balance in water policy-making.

Our results coincide with those of other scholars who have studied the role of internet and ICTs in the organisation, operation and effectiveness of other social movements (Della Porta and Mosca, 2005; Kavada, 2010; Barassi and Treré, 2012; Earl et al., 2014; Agarwal et al., 2014). They reveal that ICTs have allowed CWNs to organise and work collaboratively across large geographical areas and facilitated their ability to more easily access, generate and disseminate information. This is particularly important in terms of information that questions the official and hegemonic discourses over water resources management, contributing to create alternative rationalities and opinions. The CWNs analysed in this study use primarily email distribution lists to generate and share information among network members, to make decisions as a network and organise actions. They use web pages and blogs for external communication. The use of virtual social networks like Twitter or Facebook and collaborative editing tools such as Google Drive or wikis is less significant, although local organisations that make up these networks often do use these tools intensively. This is in clear contrast to other social movements in Spain linked to the 15M that have largely relied on these tools for improving the efficacy of their work and for interacting with the wider public and make their messages viral. The potential of virtual social network campaigns to influence public opinion also seems to be largely unexploited by CWN, where the digital divide and the time required to be constantly present in the web appear to be important limitations for more intensive ICT use. However, not all CWNs seek to directly influence public opinion

but rather emphasise the coordinating, support and information exchange capabilities of the network. In this sense, e-mail distribution lists are used strategically to reinforce this coordinating role and to produce and share new contents and meanings.

In terms of improving transparency and accountability of water management decisions, our study shows that CWN members actively use and control the quality of official water information on water planning and management. They read, reuse and comment on official documents and demand a wider variety of data and information in open formats than what is currently available in official websites of water authorities.

Our research also confirms results of earlier projects which indicated that, although citizens' knowledge and access to information have increased throughout the WFD implementation process, the governance approach introduced by this legal framework over the last decade has not yielded real changes in terms of access and influence on final decisions by all actors in conditions of equality. Furthermore, while ICTs have enhanced previously underrepresented actors' capacity to develop a shared (and alternative) understanding of the problems they face and empowered them to act collectively, their influence on final decisions continues to be very limited. In fact, it can be argued that by originally trusting the transformative potential of WFD governance approaches, activists have invested tremendous efforts in participating in debates over the managerial aspects of water management (the 'margins' of the debate) but remained excluded from the truly critical and controversial decisions.

Post-democracy reduces water decisions to management, that is, to decisions located at the level of 'policies' and not in the realm of the 'political' as we have illustrated. Yet, the following questions remain unanswered: Is there any level of decision that escapes this 'postdemocratic dynamic'? If the answer is positive, what is the scale and nature of decisions where participatory processes in water management may have some operability? Could a more intensive and effective use of ICTs by CWNs, one that more effectively reaches mass audiences, make a difference in terms of their ability to truly influence decisions?

This study shows that the low democratic profile of current water management institutions in Spain clearly hinders ICTs' potential to democratise decision-making processes. Without a real willingness to open up true spaces of deliberation where all actors can participate in conditions of equality, the role of ICTs will remain one of strengthening CWNs' organisational capabilities and ability to obtain and generate information, but will not alter the basic framework for water policy-making. It could be argued that trust on the potentialities of ICTs as transformative tools is linked to the confidence in the possibility of transforming the context within which decisions are made, that is, the democratic process itself.

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