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Participation in flood risk management and the potential of citizen observatories: A governance analysis

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ABSTRACT

The implementation of the European Flood Directive 2007/60/EC requires the establishment of public participation mechanisms to ensure citizens' involvement in the flood management cycle. This raises questions on how to achieve this goal and successfully translate the directive into meaningful and effective participation. Innovative means, such as citizen observatories enabled by information and communication technologies, have the potential to provide citizens with a substantially new role in decision-making. In this paper, we present a framework developed for analysing the potential for participation via ICT-enabled citizen observatories and undertake a comparative analysis of the UK, the Netherlands and Italy. Expository and qualitative research was undertaken in the three case study areas, with the aim of identifying and comparing the transposition of the EU Flood directive and the mechanisms in place for citizens' participation during different phases of the disaster cycle (prevention, preparedness, response, and recovery). Our analysis of the transposition of legal obligations for citizen participation shows that implementation is limited when examining both the respective roles and types of interactions between citizen and authorities and the impact of citizen participation on decision-making. Different authorities have differing perceptions of citizen participation in flood risk management in terms of their roles and influence. Our results also indicate that these perceptions are related to the importance that the authorities place on the different stages of the disaster cycle. This understanding is crucial for identifying the potential of citizen observatories to foster greater citizen engagement and participation.

1. Introduction

Despite the progress of engineering works for flood disaster reduction over the last twenty years, flooding continues to be a major challenge (Yamada et al., 2010) and incidences of floods have been on the rise, responsible for more than half of all disaster-related fatalities and a third of the economic loss from all natural catastrophes (White, 2000 as cited by Bradford et al., 2012). Nowadays, flood risk management approaches focusing on non-structural measures, such as improved land-use planning, relocation, flood proofing, flood forecasting and warning and insurance are advocated (Bradford et al., 2012). One of the approaches being practiced by several European

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countries is integrated flood risk management, which considers the full disaster cycle in the management and prevention of flood disasters (European Environment Agency, 2010). Moreover, the importance of stakeholder participation in decision-making, and in flood risk management in particular, has been recognized by international and regional treaties such as the Aarhus Convention (1999), which promotes public participation in decision-making on environmental issues, and the European Flood Directive 2007/60/EC, which requires the establishment of public participation mechanisms to ensure citizens' involvement in the flood management cycle. Yet questions can be raised as to how to achieve this goal and successfully translate these requirements into meaningful and effective participation. Innovative means, such as citizen observatories enabled by information and communication technologies (ICTs) (e.g. sensor technologies and social media), have the potential to provide new ways (and perhaps even new paradigms) of participation, whilst at the same time generating relevant information and promoting demand-driven policy responses (Holden, 2006; Rojas-Caldenas and Corona Zambrano, 2008). However, similar to other technologies, its realization will be socially shaped, including by local patterns of participation.

We first present the framework for analysing the potential for participation via ICT-enabled citizen observatories and then undertake a comparative analysis of governance structures, institutions and mechanisms for participation in the UK, the Netherlands and Italy. We analyze the transposition of the European Flood Directive in these different contexts and examine the potential for increased citizen participation in flood risk management through citizen observatories. The paper draws on empirical and expository research in three case study areas in the UK, the Netherlands and Italy, undertaken within the WeSenseIt[1] project. The remainder of this paper is structured as follows: Section 2 presents a literature-based discussion on horizontal modes of governance and the potential for citizen participation, enhanced through technological developments. In Section 3 we present the framework developed for analysing ICT-enabled citizen observatories. Sections 4 and 5 introduce the three cases and present the key findings. We conclude with a discussion of the results in Section 6.

2. Horizontal modes of governance and citizens participation

The concept of water governance has quickly gained popularity in policy dialogues since its emergence in the 70s. It captures "*the processes and institutions through which decisions are made related to water*" (Lautze et al., 2011, p. 4). In contrast to 'government', 'governance' highlights a shift from state-centred management towards 'a greater reliance on horizontal, hybrid and associational forms of government', involving a broader network of actors, including citizens (Hill and Lynn, 2005, p. 173; Swyngedouw, 2005). Water governance therefore consists of the processes of decision-making and definition of goals by a range of actors, while water management (and flood risk management more specifically) consists of targeted activities to attain such goals. Analytical approaches for examining (water) governance processes, and participation, stem from a variety of disciplines but typically focus on institutional aspects and range from methodologically pragmatic (e.g. the OECD (2011) multi-level water governance analysis) to very comprehensive ones (e.g. Saravanan, 2008; Pahl-Wostl, 2009; Pahl-Wostl et al., 2010; Rijke et al., 2012). The structural elements of water governance consist of four dimensions: institutions, actor networks, multi-level interactions, governance modes (Pahl-Wostl, 2009).

Parallel with the rise of horizontal 'modes of governance', relying on networks of actors and individuals, is the increased emphasis on stakeholder participation. Participation approaches have progressed through a series of phases (Reed, 2008): awareness raising in the 1960s, incorporation of local perspectives in the 1970s, recognition of local knowledge in the 1980s, participation as a norm as part of the sustainable development agenda of the 1990s, subsequent critiques and recently a 'post-participation' consensus regarding best practice. Although participatory approaches are commonly presented as antidotes for a lack of legitimacy of traditional policymaking approaches and as a means for leading to more informed and effective policies, several studies have also shown that many participatory approaches fail to do so (Edelenbos and Klijn, 2006; Behagel and Turnhout, 2011). Arnstein's (1969) seminal article 'The ladder of citizen participation' serves as a starting point for most debates on quality and purpose of citizen participation. Along the 'ladder', different forms of participation are ranked from manipulation (the lowest in the group of non-participation steps) to citizen control (the highest step; also the highest degree of citizen power). The ladder, thus, implies that participation is an ends rather than a means. Fung (2006) argues that the ladder mixes empirical scaling with normative approval while excluding important elements of the context and, therefore, the desirability within which participation may take place. It also does not take into account links between (i) the goals of involvement, (ii) those who actually participate and (iii) the ways in which they are invited to participate (Tritter and McCallum, 2006). Fung (2006) proposed an alternative, distinguishing between three dimensions of public decision mechanisms, namely the scope of participation (who participates: from government representatives to the general public (citizens), the mode of communication and decision (how participants interact and what role they play), and the extent of authority (participation for personal benefit only (individual education), up to direct authority). The resulting three-dimensional 'democracy cube' provides, according to Fung (2006), a tool for understanding the potential and limits of participation. Different participatory mechanisms can be situated in the cube and compared in order to understand their suitability for addressing specific governance problems.

More recently, research has focused on the influence of technological developments, such as geographic information systems, on public participation (Wehn and Evers, 2014; White et al., 2010). The innovative combination of existing and new

[1] WeSenseIt is a European Research project (2012–2016) developing, implementing and testing citizen observatories of water and flooding in three cases studies located in Italy, the United Kingdom and The Netherlands. More information about the project can be found at www.wesenseit.eu.