How social capital influences community support for alternative water sources

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ABSTRACT

Ensuring future water security requires broad community support for changes in policy, practice, and technology, such as those involved in delivering alternative water schemes. Building community support for alternative water sources may involve a suite of engagement activities, ranging from information campaigns, through to grassroots and participatory approaches. There is increasing recognition that 'social capital'—the degree of social connectedness, trust, and shared values within a community—is important for building support for pro-environmental policies. However, little research has examined *how* social capital might influence support for alternative water schemes. We surveyed a representative sample of Australian adults (n = 5194). Support for alternative water sources was examined using a series of questions focusing on stormwater harvesting, desalination, and recycled water. Involvement in community organisations (defined as participation or membership) was used as an indicator of social capital. Using a series of mediation analyses, we identified that community involvement is associated with support for alternative water sources, and that this effect is mediated by (i) stronger water-related social norms, (ii) greater water-related knowledge, and (iii) increased recall of water-related information. Our results also suggest that these indirect effects can be conditional upon location, employment status, life satisfaction, and language spoken within the home. These findings highlight the importance of social capital in building engagement in water-related issues, and specifically, building support for alternative water sources. In addition they highlight potential pathways for the association between social capital and support for alternative water sources for different social groups and communities.

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1. Introduction

1.1. Importance of community support for alternative water sources

Alternative sources of potable water—including treated wastewater, desalinated water, and harvested stormwater—provide a means of improving future water security, especially in the context of population growth, climate change, and urbanisation (McDonald et al., 2014; Vorosmarty et al., 2010). One of the challenges in expanding use of alternative water sources, however, is lack of widespread public support for

these measures. A number of potable water recycling schemes around the world have faced public opposition that has prevented their successful introduction (Hurlimann & Dolnicar, 2010; Po, Kaercher, & Nancarrow, 2003). Communities have also expressed negative attitudes toward desalination schemes (King et al., 2012) and potable use of harvested stormwater (Leonard, Mankad, & Alexander, 2015; Mankad & Walton, 2015). Many factors influence individual support for alternative water sources, including trust in water authorities and scientists, perceptions of risk and health concerns, perceptions of water quality, knowledge about alternative water, and perceived wider community support for alternative water schemes (Fielding, Gardner, Leviston, & Price, 2015; Leonard et al., 2015; Mankad & Walton, 2015). The finding that perceived community support is an important determinant of individuals' own attitudes towards treated stormwater (Leonard et al., 2015), suggests that an individual's social context—and the nature of their interactions with others—influences support for alternative water

sources. Despite the recognition that our interactions with others can have a powerful influence on attitudes and behaviours (Allo & Loureiro, 2014; Dean, Lindsay, Fielding, & Smith, 2016; Jones, Clark, Panteli, Proikaki, & Dimitrakopoulos, 2012), little research has examined these issues in the context of the critical issue of acceptance of alternative water sources. Therefore, this paper investigates how social factors such as interactions with others influence support for alternative water sources, using a social capital framework.

1.2. Social capital

Social capital is a broad construct: it has been described as the factors that 'glue' society together (Edwards, 2004), and defined as 'the social connectedness of a community that enables people, organisations, and communities to work together collaboratively for mutual benefit' (Edwards, 2004; Miller & Buys, 2008). Using the economic analogy of 'capital', social capital is conceptualised as a resource that can be accumulated or drawn upon in times of need (Flora & Flora, 2012). Moreover, because individuals can draw from social capital in their communities, it can operate at both an individual and community level (De Clercq et al., 2012). There are three key types of social capital (Poortinga, 2012; Quinn, 2008). Firstly, *bonding* social capital represents close personal ties within groups, such as families and friends. In contrast, *bridging* social capital represents loose ties between people who may or may not be similar, such as workmates and acquaintances. Thirdly, *linking* social capital reflects relationships that reach across explicit, formal or institutionalised, power gradients in society (Poortinga, 2012; Quinn, 2008). Therefore, linking social capital connects dissimilar people and organisations across society, and provides access to new sets of resources.

Social capital is a complex concept, represented by diverse indicators (Edwards, 2004; The World Bank, 2015). Much social capital research focuses on 'community involvement'—participation and membership of community organisations (Putnam, 1995; Wollebaek & Selle, 2002). Community involvement is a key indicator of social capital: social capital encourages participation within communities, and participation builds social capital by connecting people to diverse networks as well as conveying multiple other benefits (Kim, Subramanian, & Kawachi, 2006; Poortinga, 2012). Although much of the early research contends that face-to-face interactions are necessary for building social capital (Painter & Paxton, 2014; Putnam, 1995), it is now accepted that passive membership of an organisation may confer beneficial effects (Wollebaek & Selle, 2002). In the current study, we use community involvement as an indicator of social capital.

1.3. Is social capital associated with support for alternative water sources?

Many environmental initiatives aim to harness social capital to pursue environmental objectives (Allen et al., 2011; Selman, 2001). Research indicates that strong social networks are associated with greater support for pro-environmental policies. For example, individuals who report being influenced by a larger number of individuals or organisations are more likely to support alternative water sources (Dolnicar, Hurlimann, & Grün, 2011). Moreover, social capital has been associated with individual engagement in water issues (Dean et al., 2016), greater perceived benefits of wetlands management (Jones et al., 2012), and greater support for water funding initiatives (Jones, Evangelinos, Gaganis, & Polyzou, 2011).

Despite these associations, there is limited research examining *how* community involvement may actually influence support for policies. Involvement with a greater number of organisations, also

called 'scope of participation' can increase likelihood of coming into contact with new issues and individuals from diverse backgrounds and viewpoints. (Wollebaek & Selle, 2002). These type of interactions may shape the way individuals perceive alternative water sources. This aligns with Bisung and Elliott (2014), who propose a framework linking social capital with community management of water resources. They argue that social capital enhances management via its effects on collective action, knowledge, attitudes, and behaviours (Bisung & Elliott, 2014). It has also been suggested that community involvement may influence engagement in water-related issues via activating social norms about water (Dean et al., 2016). This past research and theorising highlights that knowledge and social norms might be important variables in explaining the link between social capital (as measured by community involvement) and support for alternative water sources. Therefore, in this paper, we examine three potential pathways linking involvement in community organisations and support for alternative water sources. We propose that community involvement may be related to alternative water source support via: (i) activating social norms about water conservation; (ii) building water-related knowledge; and (iii) increasing recall of water-related information:

(i) *Activating social norms:* Social norms are standards or rules that regulate behaviour in a social setting; they are an inherent feature of social capital (Edwards, 2004). Group interactions allow sharing of diverse group norms and values (Edwards, 2004). This is important when considering that social norms exert a strong influence on environmental behaviours and support for pro-environmental policies (Allo & Loureiro, 2014; Fielding, Thompson, Louis, & Warren, 2010). It is possible that community involvement could generate opportunities for activating social norms about water issues, where greater involvement is associated with greater exposure to a range of social norms—including norms that are in favour of sustainable water management. To our knowledge, though, no research has examined this possibility. Therefore, we hypothesise that greater community involvement will be associated with greater support for alternative water sources via enhanced water-related social norms.

(ii) *Building knowledge:* Knowledge about water is associated with greater support for alternative water sources (Dolnicar et al., 2011; Jeffrey & Jefferson, 2003). Knowledge can be shared through networks via formal mechanisms such as newsletters and events, or informal mechanisms such as word of mouth. Sharing knowledge has been considered an important benefit of social capital (Chen, Wang, & Huang, 2014; Kim et al., 2006; Lu, Ruan, & Lai, 2013). Knowledge sharing may also be enhanced by greater network diversity and greater confidence in information sources (Martini, Nelson, & Dahmus, 2014). Therefore, we hypothesise that greater community involvement will be associated with greater support for alternative water sources via greater water-related knowledge.

(iii) *Increasing recall of water-related information:* Information has an important influence on support for alternative water sources (Dolnicar, Hurlimann, & Nghiem, 2010; Fielding & Roiko, 2014). Community involvement may increase exposure to information via a number of pathways. Greater community involvement is associated with greater media engagement (Gil de Zúñiga, Jung, & Valenzuela, 2012). Specifically, community involvement may also increase *recall* of water-related information: discussions about water may increase the salience of water-related issues, enhancing subsequent detection and recall of related information (Martini et al., 2014). Importantly, a higher number of community ties has been associated with greater recall of health messages (Viswanath, Randolph Steele, & Finnegan, 2006), potentially via community involvement