



Research article

Psychosocial drivers for change: Understanding and promoting stakeholder engagement in local adaptation to climate change in three European Mediterranean case studies



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ABSTRACT

Stakeholder engagement in the processes of planning local adaptation to climate change faces many challenges. The goal of this work was to explore whether or not the intention of engaging could be understood (Study 1) and promoted (Study 2), by using an extension of the theory of planned behaviour. In Study 1, stakeholders from three European Mediterranean case studies were surveyed: Baixo Vouga Lagunar (Portugal), SCOT Provence Méditerranée (France), and the island of Crete (Greece) ($N = 115$). Stakeholders' intention of engaging was significantly predicted by subjective norm (which was predicted by injunctive normative beliefs towards policy-makers and stakeholders) and by perceived behavioural control (which was predicted by knowledge of policy and instruments). Study 2 was conducted in the Baixo Vouga Lagunar case study and consisted of a two-workshop intervention where issues on local and regional adaptation, policies, and engagement were presented and discussed. A within-participants comparison of initial survey results with results following the workshops ($N_{T1} = 12$, $N_{T2} = 15$, $N_{T3} = 12$) indicated that these were successful in increasing stakeholders' intention of engaging. This increase was paired with a) an increase in injunctive normative beliefs towards policy-makers and consequently in subjective norm, and to b) a decrease in perceived complexity of planning local adaptation and an increase in knowledge regarding adaptation to climate change.

1. Introduction

Engagement in decision-making refers to different processes and mechanisms that enable the involvement of stakeholders in the various activities that are related to decision-making, such as communication and public participation (see Rowe and Frewer, 2005). The Intergovernmental Panel on Climate Change (IPCC, 2014) alerts that good decision-making in adaptation to climate change requires the engagement of different stakeholders and the existence of a supportive context, as well as the use of decision-making processes and specific tools to transfer knowledge. Climate change issues can usually be addressed in

land-use planning and should be of interest to policy-makers and administration, researchers, end-users, and the general public. Engagement has been promoted as a way to improve the quality of decision-making, to achieve greater acceptance of policies, to enhance understanding of environmental problems, and also in order to ensure the democratic legitimacy of decision-making, considering that all individuals should have the right to be engaged in decisions that affect them (Bautista et al., 2017; Lee et al., 2013). However, the specific nature of climate change issues might undermine stakeholder engagement. The goal of this work is to explore how stakeholders' intention of engaging in adaptation to climate change can be explained (Study 1)

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and increased (Study 2), focusing on a psychosocial perspective.

Over the last decades, there has been a trend towards an increased engagement of stakeholders in decision-making. Legislation in a number of countries has made it necessary to have public engagement. In Portugal, as in most European countries, for example, the Environmental Charter stipulates that public environmental policies are subordinated to the principle of information and participation, which obliges citizens to be involved in environmental policies, giving priority to the dissemination and sharing of data and research, the adoption of policy-monitoring actions, and the nurturing of a culture of transparency and accountability, seeking a high degree of respect for environmental values by the community, while ensuring that citizens have every right to intervene in the design and monitoring of the implementation of environmental policies. It is also defined that the elaboration and revision of the planning instruments imply public engagement from the beginning of this procedure, and, also important, it is specified that climate change is an object of environmental policies. However, guaranteeing the engagement of individuals typically faces many challenges (Rowe and Frewer, 2005). These challenges are amplified when climate change issues are being considered, because they are a rather complex and sometimes controversial, trans-sectorial issue (e.g., water resources, biodiversity, forest, soil, coastal zones, ...), which needs to be dealt with within the existing regulation and the regulation on development, risk analysis, and land-use planning. Indeed, the levels of engagement are not typically high (Few et al., 2007), and more research is currently being carried out to learn how engagement can, in fact, be improved (Bautista et al., 2017; Gramberger et al., 2015; Verbrugge et al., 2017). However, currently there are no integrative psychosocial models of how stakeholder's engagement in the process of planning adaptation to climate change can be understood and promoted. Most research focused on the effects of specific psychosocial variables in specific climate change issues. Following on the theory of planned behaviour, we aim to gather various attitudinal, normative and behavioural control variables to have a better and broader understanding of the intention to engage in the process of planning local adaptation to climate change.

1.1. Applying the theory of planned behaviour to understand and promote stakeholder engagement in adaptation to climate change

The theory of planned behaviour (e.g., Fishbein and Ajzen, 2010) is one of the most influential and powerful behavioural theories to understand and predict deliberated behaviours (Nosek et al., 2010), such as engaging in planning adaptation to climate change. It postulates that behaviour is motivated by situation-specific beliefs about its likely outcomes (behavioural beliefs), beliefs about the normative expectations of others (normative beliefs), and beliefs about the presence of factors that may influence the performance of the behaviour (control beliefs). Behavioural beliefs create a favourable or unfavourable evaluation of the behaviour (attitude towards the behaviour), normative beliefs produce the perceived social pressure regarding the behaviour (subjective norm), whereas control beliefs create the perceived ability to perform the behaviour (perceived behavioural control). Behavioural intention, which is the immediate antecedent of behaviour, is formed based on the attitude towards the behaviour, subjective norm, and perception of behavioural control.

There has been little research using this theory to understand and promote stakeholder engagement in local adaptation to climate change. Nonetheless, it has been effectively applied to understand individual intentions and behaviours that reduce the adverse impact of climate change (Kim et al., 2013; Masud et al., 2016) and also to environmental issues at management level (Papagiannakis and Lioukas, 2012). Therefore, in this work, we will explore whether stakeholder engagement in planning local adaptation to climate change can be explained using the theory of planned behaviour (Study 1). As this is a planned, complex, and multidimensional behaviour, the theory should be

adequate. Furthermore, since the theory of planned behaviour is one of most influential for its contribution towards framing and evaluating interventions (see Nosek et al., 2010), we also expect it to be useful in promoting stakeholder engagement in local adaptation to climate change (Study 2). To our knowledge, no research has yet tested the usefulness of this theory in promoting the intention of engaging in adaptation to climate change.

2. Study 1

The aim of this study was to explain stakeholders' intention of engaging in the processes of planning local adaptation to climate change by the year 2050. The 2050 time horizon is often used in climate change policies and was explicitly set because the theory of planned behaviour indicates that the behaviour of interest must also be clearly defined in terms of elements pertaining to time. There is still limited evidence showing which beliefs should be integrated into the theory of planned behaviour regarding climate change. Therefore, we opted for exploring the most commonly mentioned issues in existing literature on the subject. In the following text, we will briefly describe these and suggest which role they might have within the aforementioned theory (see Fig. 1).

As determinants of *attitude* towards engaging in planning local adaptation to climate change, we considered beliefs on local adaptation, on adaptation and inaction costs, and on engagement. *Beliefs on local adaptation* were based on the IPCC (2014) definitions of its purpose (e.g., adjustment to expected climate) and should positively predict attitude. *Costs of adaptation and inaction* are expected to have a crucial role in adaptation policies (Watkins et al., 2007). Perceived costs of adaptation should negatively predict attitude, whereas perceived costs of inaction should positively predict attitude. *Engagement* is also expected to be of great importance (Scherhauser, 2014), as stakeholders must be engaged in decision-making processes to plan adaptation to climate change. Beliefs towards engagement should positively predict attitude.

To better comprehend the complexity of climate change issues, we extended the theory to include more general beliefs that are often described as relevant antecedents of attitude. More particularly, we added climate change scepticism, uncertainty, spatial and temporal bias, and risk perception. *Climate change scepticism* should negatively predict attitude, to the extent that if individuals are sceptical towards climate change they will not have an attitude that supports planning adaptation. Along this line, Evans et al. (2014) indicated that a higher belief in climate change was related to a higher willingness to mitigate it. Similarly, *local uncertainty* on climate change issues should negatively predict attitude. Vulturius and Gerger Swartling (2015) showed that stakeholders struggle to form a positive opinion when information is perceived as uncertain or contested. Regarding *biases*, researchers have pointed out two that can be of relevance, when it comes to dealing with environmental problems: a *spatial bias*, which leads to considering local environmental conditions as better, and a *temporal bias*, which leads to considering future environmental conditions as worse (Gifford et al., 2009; Schultz et al., 2014). Climate change is often communicated as a global and future issue. As such, individuals might believe in climate change in general, but also think that they will not be affected, because it will occur at a distant point in time and space. Spatial and temporal biases should negatively predict attitude. *Risk perception* is also an important variable when considering climate change (Luís et al., 2018) and was considered in terms of probability, impacts and worriedness towards specific risks expected to increase due to climate change. Risk perception should positively predict attitude.

To understand *subjective norm* towards engaging in planning adaptation to climate change, we considered descriptive and injunctive normative beliefs, having policy-makers and stakeholders in general as referents. Although the original theory of planned behaviour did not consider descriptive normative beliefs, several researchers have

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