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Exploring the self-assessment of sustainability indicators by different stakeholders

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ABSTRACT

One of the main roles of indicators is communication with stakeholders. However, different types of stakeholders can interpret indicators differently, due to different values, interests or cultural and academic context. Significant gaps between indicator data and stakeholders' perceptions can point to a failure of indicators in fulfilling their communication role. Despite this, most of the literature on stakeholder participation associated with sustainability indicators focuses on participation in the design and development of indicator systems (e.g. in indicator selection) or in data collection for indicator calculation. The main aim of this research is to explore the self-assessment of sustainability indicators conducted by different types of stakeholders, including local communities, practitioners, decision-makers and academia and how it relates with indicator data. A regional sustainable development indicator system for the Algarve region – the most southerly region of Portugal – is used. The analysis focuses on the subset of headline indicators, which usually aim at communicating with a wider audience. Results show several disagreements among the different participants, in some cases each group makes different interpretations of indicators. Different response patterns were identified between local stakeholders from different municipalities within the region. It was also possible to identify which indicators require improvements and what kind of improvements are needed, namely to enhance the communication ability of indicators. Our findings support the notion that an evaluation of sustainability performance by stakeholders can be used as an indirect way of evaluating the strengths and weaknesses of technical indicator sets and drawing conclusions about its overall utility and societal value.

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1. Introduction

Over the last two decades there has been a marked change in the way that the public perceives environmental issues and the concepts associated with sustainable development, either due to increasing media coverage or to more formal programmes like school curricula (Holt and Barkemeyer, 2012). However, citizens can only bring about pro-environmental behaviour change with support. The challenge for governmental authorities is to mobilize civil society in a way that promotes environmental citizenship. Therefore, the creation of more opportunities for civic engagement and volunteerism, and the support of new tools for promoting community connection can be suggested for policy action (Dobson, 2010). Public participation should be based on access to information. This is crucial for establishing a relationship of trust between

researchers, decision-makers, and the community, although it demands major investments in resources (Silva, 2004).

Indicators are usually pointed out as a privileged vehicle to communicate complex information in a simplified manner. Developing indicators at various scales has become a common approach to address the need for evaluation tools (Bockstaller and Girardin, 2003). They are considered to be effective tools in monitoring, evaluating and communicating complex phenomena, making the concept of sustainable development operational, increasing transparency and accountability with the provision of widespread access to information, engaging stakeholders and supporting decision making (Mascarenhas et al., 2010).

Decision makers, scientists and the public can use indicators for different purposes. Therefore it is critical that great care be taken in their development (Morrone and Hawley, 1998). Governmental indicators usually reflect a lengthy process of agency scientists and policy makers engaging in 'knowledge selection' that yields concise, understandable presentations of data (Chess et al., 2005). It is also a common key concern for indicator practitioners to acquire, select and process data so that indicators reflect

the key trends as objectively as possible (Lyytimäki et al., 2011). In other cases, sustainability indicators are most often developed by scientists, expressed in technical language, and target aspects of the environment that scientists consider useful for understanding ecological conditions. Yet, public values should be included in decision-making. In order to adequately include societal values, the public and decision makers must be informed participants in the dialogue about what is important for an assessment and what should be measured. However, the complexity of ecological issues and the ways in which they are often communicated make it difficult for these parties to be involved in this dialogue (Schiller et al., 2001). It is commonly accepted that if the stakeholders, who will ultimately benefit from indicators, are involved and engaged in indicator conceptualisation and development, then it is far more likely that they will use and appreciate the results (Bell and Morse, 2001; Krank et al., 2013). However, some authors like Macnaghten et al. (1995) stress that many of people's key concerns do not lend themselves to measurement, being relational and locally specific. Macnaghten and colleagues also found that it was apparently difficult for people to reflect on the role of existing indicators in their lives, and that the majority of them not only considered the idea of indicators an abstract and difficult concept, but more generally were suspicious of official statistics and information. The basic idea behind indicators is to simplify complex processes and highlight trends considered relevant. However, oversimplification can easily create misunderstandings, confusion and greater uncertainty. In many cases indicators only point to the direction of development, leaving the user with considerable freedom to interpret the desirability of development. Different users can have different values, interests, cultural contexts, and academic backgrounds; therefore even the simplest indicators can be understood in various ways (Chess et al., 2005; Lyytimäki et al., 2011). There is then the risk that laypeople inappropriately infer information, which suggests that explanatory text may be needed to describe specifically how indicator information might – and might not – be used (Chess et al., 2005). Indicators may also be unable to describe recent developments, given the time lags of several years frequently involved in indicator production and reporting (Rosenström and Lyytimäki, 2006).

This raises questions about the impact of indicators in public perception of sustainability and more specifically environmental issues. In fact, several authors have already stressed the need for better ways to communicate technical indicator information (see for example Hart, 1999; Schiller et al., 2001; Chess et al., 2005). According to Jackson et al. (2000), a useful indicator must produce results that are clearly understood and accepted by scientists, policy makers, and the public. They also stress that the presentation of indicator results should highlight their relevance for specific management decisions and public acceptability. Making the results comprehensible and meaningful to the public is challenging but essential if evaluations are to be translated into policy and action (Becker, 2004). Developing indicators is hence challenging because it is not simply about finding reliable data and justifiable proxies for the issues that are of interest. It is equally important to recognize the importance of open communication (Hildén and Rosenström, 2008).

But Lyytimäki et al. (2011) note that the main emphasis in indicator development has been on the production of new indicators. In line with other authors (e.g. Mitchell, 1996; Bell and Morse, 2011), they argue that it is at least equally important to focus on how, when and by whom indicators are actually used. However, there have been relatively few studies done on how indicators are actually being used in policy processes and how governance is being influenced or not by real indicator systems (Bell and Morse, 2001; Gudmundsson et al., 2009; Bell and Morse, 2011). Ramos and Caeiro (2010) also observe that indicator sets used to assess sustainable

development performance do not usually include evaluation of the performance measurement instrument itself. The findings by Chess et al. (2005) indicate as well that without substantial pre-testing and revision of indicators, efforts to communicate with stakeholders and the public may be frustrated. It is therefore important that indicator practitioners do not stop when the indicator report is published, but continuously evaluate the use of indicators and make interventions whenever necessary. Continuous evaluation is particularly important when using proxy indicators, which describe issues indirectly. These may be controversial, but capable of inducing discussion (Lyytimäki et al., 2011).

On another related level, self-assessment approaches used by local communities, in particular in voluntary-monitoring programmes, are examples of complementary approaches to the more traditional use of indicators for measuring and communicating sustainability related issues. Community-based monitoring refers to a range of activities through which concerned citizens gather and record systematic observations about environmental or social conditions, often in collaboration with government, industry, academia or community institutions (Whitelaw et al., 2003). Community-based monitoring, or citizen monitoring, takes advantage of the availability, skills and incentives of local participants (Hunsberger et al., 2005). In participatory monitoring and evaluation, research in the late 90s has revolved around finding ways to help different people to identify clearly their information needs, and to negotiate common ground and acceptable forms of assessing information (Guijt, 1999). However, difficulties in achieving effective citizen involvement have continued to be reported for example in environmental assessment follow-up (Hunsberger et al., 2005), or in coastal management (Silva, 2004).

Stakeholders' own assessment of sustainability performance could be used to make qualitative comparative analysis with the formal technical assessments that are provided by indicators (Ramos and Caeiro, 2010). It can have additional benefits like increasing stakeholder engagement in assessment and reporting initiatives and even a feedback effect of increasing awareness. An evaluation of sustainability indicators' signals or messages by stakeholders can also be used as an indirect way of evaluating the strengths and weaknesses of the technical indicator sets and drawing conclusions about its overall utility and societal value. Since one of the main roles of indicators is communication with stakeholders, significant gaps between indicator data and stakeholders' perceptions can point to a failure in fulfilling that role. The credibility of sustainability self-assessment and the related procedures and outcomes analysis is a relatively under-explored issue, but it could be of particular importance (Ramos and Caeiro, 2010). The main aim of this research is to evaluate the self-assessment of sustainability indicators conducted by different stakeholders, including local communities, practitioners, decision-makers and academia, and how it relates with indicator data.

2. Methods

2.1. The case of the Algarve region

The Algarve is a Portuguese NUTS II[1] region composed of 16 municipalities (Fig. 1). It is the most southerly region in Portugal, with an area of about 5000 km^2 (5% of the territory) and a coastline of approximately 200 km. This region has 33% of the territory classified under the European Natura 2000 network, with a significant part of that territory in the coastal zone. The Algarve has about 451,005 inhabitants (INE, 2011), i.e. 4.3% of the Portuguese