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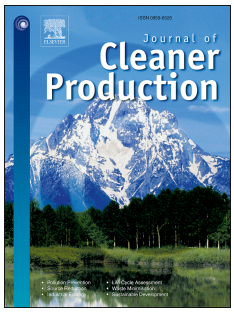

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Local Sustainability Indicators in Portugal: assessing implementation and use in governance contexts

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Abstract

This paper assesses the implementation and use of sustainability indicators (SI) in local governance contexts in Portugal. The need to analyse the development of local SI is considered critical, given the lack of research on the understanding of how, when and by whom SI are implemented and used, particularly in the Portuguese local governance

context. The first aim of this article is to map experiences of SI in Portugal by assessing how many local councils developed indicator systems and when, and the major driving forces and general features of those systems. The second aim is to analyse and compare 7 case studies, in further detail, to explore the governance factors that influence indicator success and how indicators are used within local contexts. Two particular conceptual frameworks were applied to structure research and analysis. Based on a national survey and case study methodology, findings reveal that local SI in Portugal are still in early stages of development. Where SI have been designed earlier, there has been a lack of political commitment and vision, and a need to overcome local government malfunctioning more than the complex obstacles of sustainable development governance. Applying both conceptual frameworks enabled to present critical lessons on the relationship among governance factors and types of uses when implementing SI in Portugal and to suggest the value of this integrated analysis for other governance contexts.

Keywords – sustainability indicators, sustainable development, local governance, local government, Portugal**.**

Word Count: 7735 (without tables, figures and references)

1. Introduction

Several attempts have been made to develop better information systems and indicators to improve decision-making in public administration, local governance, environmental sciences, among others (Hezri and Dovers, 2006). The notion of an evidence-based government has provided further impetus to the proliferation of performance indicators to inform policy delivery and development (Solesbury, cited in Hezri and Dovers 2006) and to generate public debate, especially in relation to key issues such as sustainability and the way government policy affects outcomes. This characterises what Wong (2006) calls an *information intensive governance regime*, with the search for improved methodologies to develop the most appropriate and best indicators (Caeiro et al., 2012; Lundberg et al., 2009; Evans, 2005; Flood, 1997). The improvement of information systems for decision-making is mostly driven by a rational and technical perspective that envisages a straightforward relationship between better indicators and better policies or policy outcomes (Holman, 2009). This expert oriented approach on indicators has received more focus and attention for a longer period of time, as is the case for sustainability indicators (Lyytimäki et al., 2014; Bell and Morse, 2011).

By sustainability indicators we mean quantitative or qualitative data that assess and bring together multiple areas of concern regarding social, environmental, economic, institutional and spatial development. Nevertheless, intensive discussions around the sustainability indicators 'industry' (Hezri and Hasan, 2004) at different territorial levels have generated distinct theoretical and practical approaches from the technical one. Two particular approaches have emerged to question the way in which indicators are developed and applied, experienced and used (e.g., Bell and Morse, 2011) and to question if and how they

effectively improve decision-making: the 'participative' or public-oriented and the 'governance' or process-oriented approaches (for a classification of these approaches see Moreno Pires, 2014 or Holman, 2009). On the 'participative' approach, several authors have been discussing indicators and their inherent tensions between the role of science (experts) and the role of lay knowledge (layman) and the need to build participatory indicator processes (Holden, 2011; Mineur, 2007; Evans, 2005; Innes and Booher, 2000). Others discuss the need to develop context-dependent systems instead of 'technical' and harmonised indicators (Moreno Pires et al., 2014; Dahl, 1997) or how to best take advantage of participatory approaches to design indicators while coordinating them with top-down ones (Ramos et al., 2014; Holden, 2011; Reed et al., 2006; McAlpine and Birnie, 2005). On the 'governance' approach, several authors note the need to analyse the obstacles for institutionalisation and updating of indicators and the need to understand the use and influence of indicators at different territorial scales and by different stakeholders (Krank et al., 2013; Holman, 2009; Gahin et al., 2003; Pastille, 2002).

This research explores a *governance approach* to sustainability indicators because it considers critical to see indicators beyond technical or participative tools. They have a steering potential to influence governance contexts at the same time that their effective use is influenced by those contexts. As such, it tries to understand and assess the factors, obstacles and challenges of developing sustainability indicators in existing local institutional arrangements and how these limit or facilitate indicators' implementation and use. By institutional arrangements we refer to the set of actors, organizational structures, formal and informal procedures, rules, routines, cultures and knowledge that govern the actions around SI work (based on the concept of institutions provided by March and Olsen, 1989). In particular, this research empirically addresses the Portuguese institutional local context given the dearth of research regarding the understanding of *if* and *how*

sustainability indicators are implemented and used in the country. The need to identify and analyse the development of local SI in Portugal was also emphasised by the Portuguese Environmental Agency (APA) when launching the Portuguese Sustainable Development Indicator System (APA, 2007). Thus, the first aim of this paper is to gather background information for accurate mapping of local experiences with SI in Portugal by answering the following questions:

(RQ1): how many local councils have developed sustainability indicators and when?

(RQ2): what are the major driving forces and general features of those systems?

Given the lack of research on the understanding of how, when and by whom SI are implemented and used (e.g., Lyytimäki et al., 2014; Krank et al., 2013) and to further advance the theoretical and practical positioning of these processes in local governance contexts, this paper then delves into a second aim, analysing and comparing seven Portuguese case studies in detail and poses two core questions:

(RQ3): what governance factors influence indicators' success (in reference to the capacity to implement and maintain indicators over time)?

(RQ4): how are indicators used within local governance contexts?

Following the introductory section that frames the research context and aims, section 2 discusses the literature and identified needs to evaluate sustainability indicators' efficacy, use and influence on decision-making and policy in the context of governance (Moreno Pires, 2014; Bell and Morse, 2011; Hezri and Dovers, 2006). It combines the conceptual frameworks of Moreno Pires and Fidélis (2012) and Hezri (2004) to assess SI implementation processes in local governance contexts and their impacts on indicator use. Subsequently, section 3 explains the methodological lines chosen to address the research questions of the paper. Section 4 provides the results of a national survey directed at all Portuguese local councils to map SI projects and the findings of the deeper comparative

analysis undertaken in seven case studies. Section 5 discusses the findings and section 6 presents conclusions and recommendations to systematise the theoretical and practical contributions of the research on local SI in Portugal.

2. The steering potential of sustainability indicators in local governance and their different uses

The critical meaning of *steering* in the context of governance, as given by Stoker (2000, p. 98), recognizes that "government cannot impose its policy but must rather negotiate both policy and implementation with partners in public, private and voluntary sectors". To steer means to 'guide', to 'direct the course of'. *Steering* advocates suggest that it involves governments learning to establish a framework for effective collective action (Stoker, 2000). The issue of what approaches to use to steer governance processes becomes key and therefore the role of sustainability indicators becomes an interesting tool to study. Gonzaléz and Healey (2005) underline the need to place research that attempts to identify processes and tools for governance transformation to assess when, where and how steering initiatives may take place.

The *governance approach* to SI therefore seeks to understand and explain the way the development of SI steer governance arrangements for sustainable development. As processes surrounded by specific institutional and cultural frames, in given historical and geographical contexts, the development of indicators may strengthen coordination between different actors across different scales; enforce democratic and communication channels; bring new actors to sustainable development policies; improve or hinder trust in and efficiency of policy actions; or, may contribute to enhance the accountability and legitimacy of those actions (Moreno Pires and Fidélis, 2012; Holman, 2009). Evidence from several studies (e.g., Holden, 2013; Terry, 2008; Astleithner et al., 2004; PASTILLE,

2002) has contributed to a new understanding of the conflicting roles of indicators in local governance but have also pointed to the limited local relevance of indicators, to the lack of institutionalisation and support, and the lack of commitment towards sustainability in general (e.g., Cassar et al., 2013).

In this view, the normative framework developed by Moreno Pires and Fidélis (2012) provides a critical tool to assess and compare the steering potential of SI in complex and volatile governance contexts. This framework (see Table 1) evaluates: (1) the *nature of the indicator system* (scope of the indicators; implicit or explicit timeframe of the system; coherence among the defined roles for the indicators, their intended aims and target groups); (2) *overall responsibility for the indicator system* (political commitment; operational responsibility; sensitivity to political shifts); *(3) government coordination on working with the indicators* (sector or horizontal coordination among public actors; regional or vertical government coordination; training); (4) *stakeholders' involvement* (multi-stakeholder involvement; participation mechanisms; feeling of ownership and trust among actors); (5) *link to local plans or strategies* (performance of indicators; stable funding schemes); (6) *link with (inter)national networks* (capability to learn from other experiences); and (7) *communication across social groups* (indicators as new knowledge that may reinforce or disrupt power relations) (Moreno Pires and Fidélis, 2012).

Insert Table 1 here

While this framework was tested in one Portuguese municipality (Moreno Pires and Fidélis, 2012), it lacked a broader application in distinct governance contexts to be able to understand SI within key dynamic governance factors, their relationships in distinctive contexts, and to distinguish patterns and trends and to build upon them. Applying this framework to several Portuguese case studies allows to structure theoretical and practical

contributions of governance factors that influence indicators' implementation over time and answer research question 3 (RQ3) set out in Section 1.

The other core research question (RQ4) reflects on the need to assess how sustainability indicators are used within different local governance contexts. The work of Hezri (2004) provides a critical classification of indicator utilisation to clarify the possible multiple users and uses of local indicator systems. Drawing on Gudmundsson's (2003) work and on the literature of public policy, evaluation research and 'knowledge utilisation', Hezri (2004, p. 366) typifies different policy learning outcomes and conceptualises an interesting taxonomy of five possible uses for indicators: (1) *Instrumental use* – when indicators are used for action and problem solving and directly influence decision outcomes; (2) *Conceptual use* – when indicators change a user's understanding of a problem (enlightenment); (3) *Tactical use* – when indicators are used either as a delaying tactic, as a substitute for action or to deflect criticism; (4) *Symbolic use* – when indicators are used as a sign or symbol of some other reality (to give ritualistic assurances so that decision-makers maintain appropriate attitudes); and, (5) *Political use* – when the content of indicators becomes ammunition to support a pre-determined position of a user.

Several authors argue that policy-oriented indicator systems such as expert based approaches are more likely to result in *instrumental use*, e.g., in concrete actions, programmes or plans, or in specific policy or management decisions, new agendas or in comparisons with other contexts (Hezri and Dovers, 2006; Rosenström 2006; Gudmundsson, 2003; Flood, 1997).

On the other hand, community-based (or bottom-up) approaches to indicator programs or state-of-the-environment reporting are more likely to promote conceptual, tactical or symbolic uses. Change through *conceptual use* may occur over a period of many years,

even though it is a very important effect (Holden, 2009; Rosenström, 2006; Gahin et al., 2003; Gudmundsson, 2003).

Symbolic use occurs when indicators are used to justify what policy-makers want to do (Rosenström, 2006) and to legitimize their actions. It is very close to *political use*. It can also be related to *tactical use* in the sense that ongoing or pending indicator systems are the justification for inaction (Gudmundsson, 2003).

Our interest is to understand how these dynamic theoretical frames can help us to answer the main research questions in the Portuguese context.

3. Methodology

3.1. Background to the Portuguese local context

Portugal has 308 municipalities with an average of 32.500 inhabitants each. Most of the criticism directed at local governments is concerned with their organizational structure and culture, which blocks transversal and multidisciplinary approaches to local development and weakens transparency, democracy and aggregated solutions for sustainability (Fidélis and Moreno Pires, 2009; Nogueiro and Ramos, 2014). The fragmented nature of urban policies with an implicit variety of urban agendas (Domingues et al., 2004) is reflected in many political and practical domains. In the case of urban regeneration policies, both Breda-Vázquez et al. (2009) and Baptista (2013) conclude that different entities, at different territorial levels, through different partnerships and sector practices tend to weaken 'cross-fertilisation' for institutional and policy learning and innovation and 'entice antagonism through instances of everyday governance' (Baptista, 2013, p. 50). As in the case of Local Agenda 21 (LA21) the spread of experiences without national government support and weak implementation outcomes and follow-up programmes have been

undermining long-term efforts of local strategies towards sustainability (Fidélis and Moreno Pires, 2009).

Nevertheless, the National Sustainable Development Indicator System and, particularly, the regional system of Sustainable Development Indicators for the Algarve (Mascarenhas et al., 2014) are two good examples of projects that developed indicators aiming to assess sustainability paths and to horizontally and vertically harmonise data and information. They have sought to combine 'expert-oriented' approaches with participatory initiatives, challenging traditional relationships amongst government entities and other stakeholders, fostering new governance arrangements and new conditions to change administrative and political cultures (Ramos and Caeiro, 2010). In spite of this, they still strive to be regularly updated and to disseminate their results. They were also unsuccessful in providing a strong impetus or general orientation for the local level, especially in the absence of line support from the National Government (Moreno Pires et al., 2014; Mascarenhas et al., 2010). These features contextualise the delicate cultures of local policy assessment, monitoring and communication in the country (Breda-Vázquez et al., 2010; Fidélis and Moreno Pires, 2009).

3.2. The national survey

A national survey directed at all Portuguese local councils was conducted in order to map local SI projects and answer the first two research questions (RQ1 and RQ2). The questionnaire was developed by the authors and designed to explore: the existence of an indicator system targeting sustainable development in the local council; year of establishment and update frequency; areas of concern; driving-force; main goals; responsibility for the system; information sources; target group; and communication strategy. The questionnaire (see Appendix 1) was intended to be exploratory, simple and

198 brief, to get a higher number of responses from Portuguese local councils and to identify as
199 many experiences with local sustainability indicators as possible. All 11 questions were
200 closed questions, some of which with multiple possible answers.
201 A draft of the questionnaire was pretested in September 2008 with a set of selected
202 individuals from the academy and from local councils. The pretest enabled to adjust some
203 questions, ratified the final questions and assessed the overall simplicity, quality and
204 feasibility of the questionnaire (Robbins, 2008). The survey questionnaire was then
205 distributed by post in October 2008 to the political leaders of all 308 Portuguese local
206 councils. In February 2009, it was sent by email to all local councils that had not replied to
207 the first round. This approach boosted the number of responses to 161, about 52% of the
208 Portuguese municipalities from the seven NUTSII (Nomenclature for Statistical Territorial
209 Units) regions (Fig.1). This response rate was higher when compared with typical public
210 administration response rates (Hu and Olshfski, 2008) or similar surveys in the country
211 (Nogueiro and Ramos, 2014), probably due to the simplicity of the questionnaire.
212 **Insert Fig.1 here**
213 The majority of responses (63%) were from small municipalities with less than 25,000
214 inhabitants, a reflection of their greater number, considering the size of Portuguese
215 municipalities; 15% (24/161) from municipalities with 25,000-50,000 inhabitants; 9%
216 (15/161) from municipalities with 50,000-75,000 inhabitants; and, 13% (20/161) from
217 municipalities with more than 75,000 inhabitants. Descriptive statistics were used to
218 explore the results, following recommendations by Wheater and Cook (2000).
219
220 **3.2. Selection, data collection and analysis of the case studies**
221 To answer our core research questions (RQ3 and RQ4), we selected seven case study
222 municipalities, based on the survey questionnaire results and on the application of several

criteria. The most important criterion was the *timeframe* of the experience with the indicator system. In order to be able to assess the implementation and use of sustainability indicators in local contexts through time, it was necessary to focus on processes with at least 3 to 4 years of experience. Only indicator processes that had started before or around the year of 2005 were considered. From the 30 identified local councils that had developed SI (see section 4.1), 12 met this first criterion. A second criterion aimed to choose cases that gathered some *evidence of success* in the development or operationalization of the indicator system over time (4 cases: Oeiras, Oporto, Mora and Palmela) or in the implementation of the project driving-forces (3 cases: Redondo, Mindelo, Aveiro) (Moreno Pires, 2011). Together, seven cases met our requirements and provided some diversity regarding *population dimension*, *driving-forces for the indicators* and *features of the system* (see Table 2).

Insert Table 2 here

These case studies are considered critical cases, as they represent the oldest experiences and some of the few existing projects in a country with a general local context of weak monitoring culture and fragile implementation of assessment tools. They can also be considered as maximum variation cases, in the sense that they are crucial experiences to obtain "information about the significance of various circumstances for case process and outcome (e.g., cases that are very different in one dimension such as size, form of organization, location or budget)" (Flyvbjerg, 2006, p.230): they are inserted in very different municipalities with different contexts and they are developed under different projects and follow different rationales (Table 2).

Several documents were collected for all of the case studies (from the minutiae of local authorities' meetings, to brochures, internal and external reports, local plans or strategies and all the relevant written material). In addition, interviews were conducted with the most

relevant actors involved in the indicator processes. In total, 30 semi-structured interviews were conducted between March 2008 and June 2009, these lasted 50-75 minutes and were recorded and transcribed. All elected politicians (*n*=8) were interviewed in person: Mayors (*n*=3), Deputy-Mayors (*n*=3) and Environmental Councillors (*n*=2). In Oporto and Palmela, it was not possible to interview politicians, although several attempts were made. As for municipal employees (*n*=12), interviews were conducted in person with: heads of departments (*n*=2), senior officers responsible for the indicator system (*n*=4) and other senior officers involved in indicator work (*n*=5, 1 by email). Key stakeholders (*n*=10) involved in the indicator process were also interviewed in person, except in 3 cases: external experts or consultants (*n*= 5, 1 by email); non-governmental environmental organizations (*n*=3, 1 by telephone); local company in Mindelo (*n*=1, by telephone), one citizen in Redondo (*n*=1). It is acknowledged that there are some methodological drawbacks to understand the full potential of the role of the indicators in local governance processes. In one way, it would be desirable to interview many more people or organisations, namely outside the sphere of local government. Even so, in the majority of the cases, indicators were not regularly disclosed to the public, thus the perceptions of citizens or other actors would not be so relevant to this research. Nevertheless, in some cases, we had the opportunity to interview people that were somehow involved in the process of developing the indicators but not as politicians, public staff or consultants/experts. Though interviewing techniques varied, these had no particular significance for research findings. Finally, some political positions were not possible to hear directly from elected politicians. The option was to complement the analyses with other relevant written material (minutiae of local authorities' meetings, written political discourses, etc.) in order to allow for a comparative perspective.

The normative framework to assess the role of local SI in governance contexts developed by Moreno Pires and Fidélis (2012) and the taxonomy of indicator uses of Hezri (2004) helped to shape the subsequent qualitative data collection and to structure and organize data-gathering and analysis to answer RQ3 and RQ4. To a certain extent, it helped to avoid the drawback of massive volumes of general, unfocused data that could have overwhelmed the research. Therefore, both the works of Moreno Pires and Fidélis (2012) and Hezri (2004) were considered as starting points, to deal with the data, to frame interview questions, to listen to interviewees, and to think analytically about qualitative data (Charmaz, 2004). An interpretative researcher conducting qualitative analysis attempts to describe and understand the experiences lived by a group of people, trying to learn how they construct their experiences through their actions, intentions, beliefs, and feelings. Therefore, the researcher should not be limited to preconceived concepts or hypotheses (Charmaz, 2004). Bearing this in mind, NVivo was used for coding and data analysis that facilitated self-analysis of qualitative data gathered and of previous categorization coming from both frameworks.

Finally, in order to summarize and structure the results for every criterion of the framework of Moreno Pires and Fidélis (2012) and the uses taxonomy of Hezri (2004) in each case-study, and to facilitate their visual interpretation, a nominal qualitative scale was designed and used. Even running the risk of oversimplification, the purpose of this scale is to simplify the findings analysed in Section 4 and to translate them into a few words (see Table 3), based on the qualitative assessment done in every case study. As such, we assessed the performance of each criterion or typologies of use, i.e., the way its ideal outcomes (see criteria aims in Table 1 and typologies of use on Section 2) are more distant or close to its practical or empirical findings, according to 5 different categories: Very Weak, Weak, Moderate, Strong and Very Strong.

297 Generally, when the empirical findings are very distant from or lack strength to achieve the
298 ideal outcomes of a criterion (e.g., scope of the indicators), the performance of that
299 criterion can be categorised as *Very Weak* (e.g., focusing only on one sector within a
300 limited temporal and geographical frame). In opposition, when the empirical findings are
301 very close or show potential to achieve the ideal outcomes of a criterion, the performance
302 of that criterion can be categorised as *Very Strong* (e.g., broad scope of indicators,
303 integrating several areas of concern across time and space). The category *Moderate* means
304 that the empirical findings of that case study are neither too close nor distant to the ideal
305 outcomes of that criterion (e.g., some areas are more neglected then others within a limited
306 geographical or temporal frame).
307
308 **4. Findings**
309 **4.1. Findings of the national survey**
310 A total of 81% (131/161) of the municipalities answered that they had not developed any
311 integrated indicator system targeting sustainability issues. Only 19% (30 municipalities[1])
312 declared having developed or being engaged in developing a specific comprehensive
313 system for its local context.
314 Nevertheless, several municipalities answered that although they do not have transversal
315 indicator systems, they have different sector systems aiming to monitor trends of particular
316 areas or plans. From these, some municipalities were involved in social indicator systems
317 (35 cases); sector plans (18 cases, including for instance, plans for the prevention of forest
318 fires); Quality Management Systems (13 cases); Environmental Management Systems (5
319 cases); Land-Use Planning Reports (6 cases) or others (10 cases).
320 Regarding the 30 municipalities that confirmed having developed specific sustainability
321 indicator systems (see Fig.2 for their regional distribution, by NUTSII regions), several

322 considerations can be made: 47% (14/30) of the experiences are from small municipalities
323 with less than 25,000 inhabitants, while 23% (7/30) are from cities with more than 75,000
324 citizens, including the two major cities of Lisbon and Oporto.
325 The systems were developed mostly in 2008/9 (15/30) and most of those developed before
326 2008 stated that the indicators were being updated (10/15 municipalities). This means that
327 developing SI is a recent phenomenon (the oldest indicator system was developed in 2002)
328 with a growing interest. The most common areas of concern for the indicators systems were
329 energy (25/30) and jobs, income and consumption (24/30) and the least addressed areas
330 were justice (10/30) and forests (9/30).
331 From the identified initiatives, 63% (19/30) considered LA21 implementation in the
332 municipality as a major *driving-force* (Fig.3), with very few experiences targeting the
333 development of indicator systems *per se*, without being attached to any specific plan (4
334 cases).
335 **Insert Fig.2 and Fig.3 here**
336 From the several possible *goals for developing the indicator systems*, respondents pointed
337 towards: the need to evaluate current local conditions (27/30); to support and inform
338 planning and decision-making (24/30) and to monitor a specific plan or strategy (23/30). Of
339 lesser importance were goals such as: the creation of opportunities for public debates
340 (12/30); the introduction of new working routines in the local council (10/30); meeting
341 legal requirements (8/30); and, changing the allocation of resources of established policies
342 (6/30).
343 As for the responsibility for the system, 12/30 cases stated a multidepartment team from the
344 Local Council, 10/30 stated that it belonged to a single department, 2/30 to only one
345 municipal employee, 2/30 to other options and 4/30 did not answer this question. The main
346 data sources were Local Councils (25/30), the Portuguese National Statistics Institute

(22/30) and other public organisations (22/30). To a lesser extent other sources were considered: private and/or non-governmental organisations (11/30), the media (5/30) and 6/30 from other sources.

Most respondents indicated several *main target groups*: local municipal employees (20/30), politicians (19/30), general public (17/30) and to a lesser extent specific local sectors (12/30) or others (3/30). Finally, when asked about the established *communication channels* to disclose indicators, 16/30 stated printed documents, 14/30 the local council website and 5/30 stated the media. Yet, in most cases, information may not be found easily nor is it openly available in the websites, as stated.

Some of those experiences deserve close attention, as they are strategic for the general research problem.

4.2. Findings from the analysis and comparison of the case studies

From the selected seven case studies, two typologies can be distilled according to their success or operationalisation. The cases of Redondo, Mindelo and Aveiro are considered less successful because they were unable to operationalise or even update their indicator systems after they were defined (see Table 2). To understand *why* indicators were not successful or used and *what* the main governance obstacles for their effective implementation were, we primarily focused on these case studies (Section 4.2.1). The other set of cases - Oeiras, Oporto, Mora and Palmela – groups successful cases that were able to maintain and operationalise the indicators in quite a dynamic manner and are therefore analysed subsequently to understand their achievements and uses (Section 4.2.2.), as well as their limitations and governance obstacles (Section 4.2.3.).

4.2.1. Why did some of the local sustainability indicators not succeed?

In Redondo, Mindelo and Aveiro the processes of designing and choosing indicators were driven by participatory strategies related to LA21 (Redondo and Mindelo) or a Local Plan for Environment and Sustainable Development (Aveiro) (see Table 2). Nevertheless, indicators were essentially considered as a procedural task of these processes to reinforce technical credibility to the local strategy and lacked public participation in their choice. The predominant rational discourse on indicators presented by all interviewees of these case studies emphasised the need for expert inputs to develop the indicators. They consider expert knowledge as more important than other types of knowledge. Because of this, key actors - such as municipal employees, who have to work with the indicators, or other local actors - were excluded from the discussion about which indicators to choose as only external experts were involved (except in the case of Aveiro, where some municipal employees made contributions to the system) (see Table 3).

In addition, interviewees unanimously agree that the general public does not have a specific interest for such issues nor do they have the adequate knowledge to add positive insights. Citizens have the right to be informed but no need to be involved. This rationale implies that no other kind of power or influence over the process is granted to the general public or to other local actors.

Similarly, interviewed politicians perceive sustainability indicators as monitoring instruments with technical specificities that should be dealt with, or are better dealt with, by experts. Three politicians even stated they already know their territory well enough for efficient decision-making and therefore rely on their own individual knowledge. Several municipal employees added that politicians are unwilling to risk developing an assessment tool that may make local policies and their outcomes – that do not depend entirely on local actions – more transparent (while possibly damaging their political image). In fact, weak political commitment and support towards these indicator systems undermined the

possibility of providing indicators with the necessary instruments and resources to be institutionalised when 'competing' with other local strategic issues (see Table 3).

The implementation of the indicators was therefore hindered by the lack of stable funding and by the fact that criteria used to choose the indicators such as ease of data collection or feasibility and low implementation costs, were also neglected. Furthermore, the non-assignment of clear responsibilities to specific persons (Mindelo) or departments (Redondo) to coordinate the project, or the assignment to sector departments with weak transversal influence and distant from the Mayors' influence (Aveiro) demonstrate a lack of interest in these indicator systems. This determined the indicators' institutional sensitivity and the lack of capacity and interest in internalizing routines and procedures for data collection and analysis. The lack of ownership municipal employees have of the indicators has left them with no motivation to overcome the several obstacles of such a demanding technical challenge (see Table 3).

Many interviewees, from several case studies, recognised that the complex and bureaucratic way Portuguese local authorities work, as well as the malfunctioning and lack of communication between services, departments and municipal employees also impeded the successful operationalization of the indicator systems. This was further aggravated by the consequent lack of articulation of actions and programmes between sectors and the lack of transparency in the processes. In addition, the unwillingness to disseminate data within and between departments further undermined sector coordination inside local councils (see Table 3).

Another issue raised in the interviews was the lack of training on sustainable development issues. Training programmes in local councils focus on basic management/administrative, procedural or legal aspects, where sustainable development issues are not particularly

relevant. Working with sustainability indicators has not changed this reality, which, to some extent, determines the need for external expertise and support.

A final key obstacle observed by three interviewees was the absence of financial incentives, formal support and/or guidelines from the central government. This was felt as a major hindrance in steering new local practices or strengthening the (few) existing ones. Furthermore, almost all interviewed municipal employees indicated as a major obstacle the non-existence of national platforms or networks to promote awareness, support debate, sharing of knowledge and experiences on local sustainability indicators.

From this, it was possible to assess that because the systems were not updated or monitored, they were of no concrete use. Even if there was recognition that some data was available, indicators were ignored and, consequently, they had little chance to influence policies or decision-making at any level (administrative, technical or political). Moreover, conceptual changes caused by the indicators were very superficial as they were unable to add further concerns to local sustainability debates. As the design of the indicators was too centred on external experts' perspectives and technical concerns, they were unable to empower other groups, to foster debate, to raise awareness or to encourage behavioural changes, within and outside the local council (see Table 3).

Insert Table 3 here

In conclusion, evidence shows that projects in these case studies were only developed to respond to a specific stage of a broader strategy, but have not received political commitment, financial support or interest from municipal employees.

4.2.2. Major outcomes and uses of successful local sustainability indicators

In contrast with the case studies presented in the previous section, the successful experiences of implementing sustainability indicators in Oeiras, Oporto, Mora and Palmela

have received political support and substantial and stable funding. They were mainly developed not to monitor a particular strategy or local plan, but as projects on their own, aimed at evaluating and monitoring local sustainable development.

They were empowered by the feeling of ownership (attitudes, behaviours, beliefs, motivations and personal involvement) of the coordination teams, as well as by the high level of awareness and training on sustainable development issues of those teams (see Table 3). Their perseverance and dedication enabled them to overcome many problems and obstacles (proclaimed by many as inhibiting any possible initiatives to build and update local indicators) with innovative solutions, with simple and original actions and sometimes with costly procedures for data-gathering: "sometimes, we have to make things up, for instance, internships or other solutions to overcome some of these flaws [to obtain information] (…) and to face our difficulties" (Interview 30).

In fact, one of the key factors for indicators' effective operationalization appears to be the setup of coordination teams composed of municipal employees (specifically allocated to work with the indicators) with external expert inputs and support. This allows the coordination teams to establish routines and procedures to collect and analyse information and to enhance the capacity to internalise and institutionalise these processes.

The most positive outcomes from the institutionalisation of these indicators can be summarised in three critical aspects. First, the development of SI has improved not only the availability of new data at the local level, but has also brought new information capacities, and standardised and integrated data collection and analysis procedures for decision-making.

A second critical outcome was the fact that the development of indicators has provided room for new internal working relationships among municipal employees, for more coordinated actions between different departments, and more integration and coherence

between different areas at the local council. It also allowed new ways of working or networking to evolve, which facilitated planning and decision-making towards sustainable development, as indicators were placed in departments with a strategic organizational position, directly supervised by the Mayor (except in the case of Oeiras). This major outcome gains strategic importance since sector (horizontal) integration is one of the most important criticisms to Portuguese local government systems.

A third aspect is related to the capacity of some projects to stimulate new networks outside the local council with the improvement of communication channels with other Portuguese municipalities (Oeiras and Oporto), the enforcement of several informal networks with governmental and non-governmental local actors to supply local data (Oporto and Palmela) and to foster several international contacts (mainly Oporto and Palmela).

In addition to these institutional and cultural changes, an assessment of the uses of these indicator systems provides other perspectives. Most of the uses were related to instrumental uses (see Table 3). Although indicators remain mostly inside the local council sphere and at lower and technical levels of decision-making, a number of examples of instrumental uses can be summarized: from changes in evaluation or regular monitoring procedures (e.g., in evaluation procedures of environmental education strategies in Oeiras), to the incorporation of indicators into planning activities (e.g., the development of a Social Diagnosis or of a Sustainable Strategy for Oporto or the Education Charter for Palmela), or the influence of administrative and technical procedures (e.g., for the management system of Mora), to the comparisons with other cities (e.g., at the European level in Oporto, at the national level in Oeiras).

Regarding conceptual uses, they were mostly found within the indicator coordination teams and to a lesser extent within some departments at the local council level. Nevertheless, few conceptual uses were found within the local council and local

community levels (see Table 3). Coordination teams in Oporto and Palmela recognised how useful the experiences had been to learn about local problems and challenges of sustainable development and to think about facts and issues never raised before (e.g., the contrast between quantitative and qualitative data concerning criminality in Oporto). In Mora, responses included better understanding of environmental problems. In Oeiras, it provided an opportunity for debate among municipal employees and with several other local councils involved in the indicator project (since the indicator system is part of a national network project named ECOXXI – see Table 2 or Moreno Pires et al., 2014) and for raising awareness of local needs.

Symbolic uses were mainly evaluated through interviews with elected politicians in Mora and Oeiras (since in Oporto and Palmela it was not possible to interview politicians) and through several discursive elements provided by municipal employees about the elected politicians' attitudes or positions in their local council. They were categorised as symbolic, political or tactical uses, when legitimizing actions through indicators, persuading others of a particular view of problems and their solutions, supporting a pre-determined position or serving political discourse purposes (Hezri and Dovers, 2006; Rosenström, 2006; Hezri, 2004; Gudmundsson, 2003). Nevertheless, there was little evidence of their use at the highest policy levels, although indicators were constantly requested for many political meetings or debates (see Table 3). Only in Mora, did politicians state that indicators would be used to prepare the next electoral programme (which they did). The findings may, therefore, provide an incomplete picture since it was not possible to interview many elected politicians.

Once the users have been identified, it is unambiguous to state that the local government sector is the main actor influenced by the indicator project. The uses are therefore limited to

520 governmental spheres and have played a limited role in steering local governance
521 arrangements. We further explore the reasons in the next subsection.
522
523 **4.2.3. Main obstacles to the steering governance capacity of sustainability indicators**
524 The experiences of Oeiras, Oporto, Mora and Palmela also faced some obstacles that
525 prevented indicator implementation and use from further steering governance
526 arrangements. They were ineffective in generating synergies to disclose the indicators to
527 the local community, although it was not a neglected issue. Communication strategies had
528 been mainly targeting local council departments (even if effective internal disclosure of the
529 indicator system as a whole was not done), lacking external visibility and strategies to reach
530 the general public (except in Oeiras and in the first years of Oporto's project) (see Table 3).
531 Consequently, indicators were ineffective in raising public awareness about sustainability
532 to inspire behavioural changes, collective action and value shifts or to generate new
533 debates, discussion forums or participative mechanisms to embrace the challenges of local
534 sustainability. If results are not disseminated they cannot be used by actors other than local
535 governments.
536 Another fragile aspect was the non-involvement of local stakeholders in the design of the
537 indicators; participation of external actors was minimal (see Table 3). Participation was
538 reduced to internal procedures for experts and public officers to discuss indicators, which
539 reflects a traditional governmental approach, distant from the concept of governance. Broad
540 participation of local actors was not even recognised as an issue, as we have seen.
541
542 **5. Discussion**
543 The national survey findings allowed answering the two first research questions of this
544 paper. The first one regarded the number of local councils that implemented SI systems and

when. It was possible to characterise a general picture of few and recent local experiences with SI in Portugal, though with some evidence of slow progress. The second research question considered the driving forces and general features of those systems. The great majority of the experiences was mostly driven by LA21 processes, an expression of the recent increasing number of LA21 strategies in the country after 2005 (Fidélis and Moreno Pires, 2009) and in close relation with the findings of Nogueiro and Ramos (2014). Those systems are quite broad in scope with important roles of evaluation, decision-making support and monitoring of local plans and trends. Responses tend to stress different target groups and communication channels for the indicators, but most information was not easily confirmed in the websites of those local councils.

Through the analysis of the seven case studies it is possible to gain knowledge on the diversity of governance factors that have contributed to (un)successful experiences at the local level (third research question) and how this is related to the different types of uses assessed from the indicator systems (fourth research question).

Table 3 briefly summarizes these empirical findings and makes possible to understand the factors contributing to the (un)success of experiences while stressing the patterns that need to be challenged in order to improve the use and steering potential of SI in governance for sustainable development. Whereas the *nature of the indicator system* is positively assessed in all the case studies – revealing good attempts to cover broader issues of local development, supported by long-term visions and relatively good coherence among the roles defined for the indicators, their intended aims and target groups (see Table 2) –, the same can not be assumed for other criteria. Regarding the criteria of *political commitment*, *sensitivity to change*, *feeling of ownership* and *funding* they clearly impact on the ability of the indicator system to be institutionalized and therefore used, showing that negative contributions of these criteria lead to the negative capacity to maintain these systems and to

570 no instrumental or symbolic uses. Similar conclusions are stressed by Cassar et al. (2013)
571 pointing to a general lack of support of the indicators and a general lack of local
572 commitment to sustainable development. This finding is particularly important since
573 Lyytimäki et al. (2014) stress that few studies have addressed the use, and particularly the
574 non-use, of sustainability indicators. The relationship between those governance factors and
575 the non-use of indicators is perceptive in the Portuguese scenario.
576 At the same time, the current lack of approaches at the local level targeting bottom-up
577 initiatives or involving different actors does not reflect the recent trend in the literature (and
578 practice) of cross-fertilisation of approaches in other countries (Holden, 2013; Holden,
579 2011; Reed et al., 2006; Gahin et al., 2003). As such, the room for manoeuvre of indicators
580 to challenge new networks, to foster new interactions and resource linkages within the
581 community were fragile. In fact, *multi-stakeholder* processes and *participation mechanisms*
582 are transversal negative factors in all the case studies. There has been a trend to develop
583 and use SI to improve information systems for decision-making and efficiency of local
584 governments, driven by a rational and technical perspective of indicators (also assessed by
585 a positive evaluation of the *link to local plans or strategies* and the majority of instrumental
586 uses found). This has also led to assume expert knowledge as the only required type of
587 knowledge to develop indicator systems. The search for more efficiency without broader
588 stakeholder involvement can weaken the credibility and legitimacy of the indicators,
589 diminish the probability of multiple uses (Hezri and Dovers, 2006) and, above all, the
590 efficacy and accountability of local governments while acting alone towards sustainable
591 development. The steering potential of indicators to negotiate with other partners, to
592 communicate across social groups or to promote effective collective action is significantly
593 diminished in Portugal, leading to a weak capacity of sustainability indicators to change
594 values (conceptual use) or to promote multiple and different uses.

595 Regarding *government coordination* in almost all projects, indicators have not been linked
596 to concrete regional or national strategies, goals or targets. Relationships between
597 neighbouring local councils in regional issues (such as sustainability indicators) are
598 uncoordinated, not allowing synergies and common efforts towards more harmonized
599 actions. Interviewees underlined how difficult it is to work in inter-municipal partnerships
600 and how this obstructs policy learning, effective coordination and tactical, symbolic or
601 political uses. They highlighted the lack of interest for SI by the majority of the Portuguese
602 municipalities, a cultural deficit of evaluation procedures and rivalry between local
603 councils. The lack of political commitment to support regional projects, the general
604 malfunctioning of regional development agencies and, the non-existence of administrative
605 regions that could enforce regional coordination for sustainability were also mentioned.
606 Some of these features were emphasized by Mascarenhas et al. (2010) when analysing local
607 councils in the Portuguese region of the Algarve.
608 Finally, as noted by Nogueiro and Ramos (2014), *training* and awareness-raising initiatives
609 regarding sustainability are weak and can be crucial to stimulate political commitment and
610 foster community debates on these matters. Moreover, learning through *links with*
611 *(inter)national networks* is important, since almost all of the experiences are developed in
612 relative local isolation, strongly focused on the particular context of their municipality, with
613 little effort to learn from participating or being involved in national or international
614 networks.
615

616 **6. Conclusions and recommendations**

617 SI processes in Portugal have a minor expression in local contexts with a small number of
618 experiences identified at this level of action. Nevertheless, the case study research on the
619 earliest experiences in the country allowed to assess several local governance factors and

patterns that need to be challenged to improve the use and steering potential of sustainability indicators. Moreover, applying both conceptual frameworks of Moreno Pires and Fidélis (2012) and Hezri (2004) to the case study research improved the understanding of how implementation processes of SI affect the number of possible users and the different types of use that result from them. This shows how relevant for research on the role of sustainability indicators is to investigate the relationship between the type of uses and the type of governance factors around implementation processes by using both conceptual frameworks in an integrated and complementary way. To test this approach in other contexts outside Portugal would foster a critical debate on the steering role of indicators for governance towards sustainable development.

In the Portuguese case, it was possible to assess that SI systems have not contributed significantly to strengthening the dialogue between different levels of government, to the expansion of new networks, to bringing new local actors to decision-making processes or improving communication with the local community regarding sustainable development issues and therefore promoting few conceptual changes and value shifts on different stakeholders together with few symbolic uses. Nevertheless, some experiences have demonstrated how they critically challenged and changed local government capacities and did contribute to shaping policy integration with new institutional arrangements across departments, new working routines, new data collection and analysis cultures and several instrumental uses within local councils. The major challenge remains in the transposition and dissemination of these efforts outside the local government sphere to create more room for SI to steer Portuguese local governance for sustainable development. Two recommendations stemming from the evidence presented in this paper are that local authorities need greater support from the National Government to carry out such initiatives and that a network or common platform needs to be created for local governments and civil

society to exchange knowledge, foster training programmes and to enable learning from other experiences.

Finally, evidence shows that most of the obstacles to the implementation and use of local SI in Portugal are related to a lack of political commitment and vision, as well as to the malfunctioning of local governments, more so than the complex obstacles of governance for sustainable development.

Note:

1. Alfândega da Fé; Alter do Chão; Armamar; Arraiolos; Aveiro; Cantanhede; Caminha; Castro Daire; Fornos de Algodres; Guarda; Guimarães; Loulé; Manteigas; Matosinhos; Mora; Moura; Odivelas; Oeiras; Oleiros; Palmela; Ponta Delgada; Porto; Redondo; Santa Comba Dão; São João da Madeira; Tavira; Trofa; Vila Franca de Xira; Vila Real; Vila Real de Santo António.

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788

789 **List of Captions**

790 **Table 1 –** Conceptual framework to evaluate the role of sustainability indicators in local
791 governance contexts

792 **Table 2** – Comparative features of the sustainability indicator systems in the case studies

793 **Table 3** – Summary of the empirical findings for each criterion and case study

794 **Fig.1 –** Map of Portuguese Municipalities: Local Councils that responded to the

795 questionnaire

796 **Fig.2** – Local sustainability indicator systems by NUTSII region

797 **Fig.3 –** Local sustainability indicator systems by main driving-forces

798

Table 1 – Conceptual framework to evaluate the role of sustainability indicators in local governance contexts

Governance Element	Criteria	Aim
1. Nature of the indicator system	***Scope***	Broad scope indicators. Effort to integrate several areas of sustainable development (across time and space)
	Timeframe	Stable indicators within a long term vision of sustainable development
	Coherence	Coherence between the function, aim and target group of the indicators
2. Assigning overall responsibility	***Political Commitment***	High support and commitment from the Mayor or the executive political board
	Sensitivy to Change	Indicators not vulnerable to political shifts (strong institutionalisation)
3. Government coordination	***Sectoral Coordination***	Strong horizontal coordination and integration of activities and policies within local government departments (promoted by the indicators)
	Regional Coordination	Strong vertical integration with other government levels in indicator-related projects or sustainable development policies
	Training	Different training programmes regarding indicators and sustainable development issues
4. Stakeholders' involvement	***Multi stakeholder***	Broad involvement of different stakeholders outside the local government
	Participation Mechanisms	Large number of mechanisms/techniques to promote the participation of different stakeholders
	Feeling of Ownership	Strong feeling of ownership by the stakeholders
5. Link with local plans or strategies	***Performance***	Strong integration of the indicators in the targets of local plans/strategies
	Funding	Solid local budgets and stable funding schemes
6. Link with (inter)national networks	***Learning***	Close involvement in other national/international indicator-related projects
7. Communication with society	***Communication***	Broad and different communication channels

Source: Moreno Pires and Fidélis (2012), p. 610.

Table 2 – Comparative features of the sustainability indicator systems in the case studies

Municipality	Redondo	Mindelo	Aveiro	Oeiras	Oporto	Mora	Palmela
Population[1]	6 676	3.402[3]	73.100	172 021	216 080	5 231	62 820
Name	Sustainability Indicators of Redondo	Sustainability Indicators of Mindelo	Matrix of Local Sustainable Development Indicators	ECOXXI	Monitoring System on Urban Quality of Life	Indicators of the Integrated Management System	Indicator Set for Land-Use Monitoring of Palmela
Date[2]	2005	2005	2005	2005	2003	2006	2004
Last Updated	2005	2005	2005	2007	2011	2011	2011
Driving-Force	Local Agenda 21	Local Agenda 21	Local Environmental and SD Plan	ECOXXI project	Urban Audit Project	Management Systems	Land-use planning and monitoring
Main Goals	To monitor the actions proposed by Agenda 21 Action Plan and assess progress towards SD for the whole municipality.	To monitor evolution of local environmental conditions as well as the impact of the implementation of the LA21 Action Plan for local sustainable development.	To assess the plan performance and the local authority actions and to evaluate the city environmental conditions. To help to define - and monitor - clear targets or tendencies for each action	To participate and to be part of a national programme for local authorities regarding the development of SI. To evaluate local sustainable development policies and consolidate an information system for planning and decision-making.	To set up a permanent information infrastructure to identify and monitor evolutionary trends, to determine technical intervention strategies and to support decision-making, as well as to be a potential platform for the discussion of urban problems and the development of concerted strategies among different actors.	To monitor targets, goals and the general policy of the IMS; to provide background information for decision-making and to disclose information to several stakeholders (mainly internal but also some external)	To set up an information infrastructure to support decision-making and monitor cultural, economic, social and environmental territorial dynamics, as well as citizens' satisfaction level in certain domains and the quality and efficacy of municipal management and administration. At a second level, it is meant to inform citizens about local trends.
Target Group	Not explicitly defined. It is implicit that all sets are for all stakeholders involved in the LA21 process (citizens, local organisations, local decision-makers).	Local population, local organisations and companies, as well as local councils.	The intention of the strategic plan is clearly directed to citizens and other city stakeholders, but target groups for the indicators are not explicitly defined.	ABAE, citizens in general and the local authority (officers and politicians)	Oporto local council, different local actors/institutions and citizens	Mainly decision-makers and officers. For some specific indicators there are specific target groups (such as workers, citizens, suppliers, local parishes, etc.)	The most important target group is the local council and its internal structure. At a second level, indicators are to be provided to other local actors/institutions and citizens.
Dimensions of SD	Divided in 4 subsets with different dimensions. They cover the areas of territory and institutions; population and social conditions; economic activity; environment and energy	Mainly focused on Environment and Land-use Planning. The DPSIR model is used to support the conceptual framework	Divided in main areas of environmental and social issues. The initial PSR model was abandoned	Broad scope, involving several environmental and institutional issues and also to a lesser extent social and economic issues. Use of the PSR model.	Broad scope, involving four main areas: Environmental Conditions; Collective material conditions; Economic conditions; and, Society	Basic environmental issues and limited social themes	Broad scope, involving six main areas: *Social Cohesion; Collective Facilities; Economic Structure; Municipal Management and Administration; Land Use Planning; Population and the Environment.*

Type of Indicators	List (divided in Subset1: 83 performance indicators; Subset2: 5 indicators to evaluate the global action plan performance; Subset3: 72 SD indicators (using the PSR framework); Subset4: 10 European Common Indicators.	List (divided in 16 quantitative and 2 qualitative indicators)	List (divided in 1 qualitative and 42 quantitative environmental indicators and 31 quantitative social indicators)	List (defined by ABAE)	List (divided in 9 environmental , 22 from collective material conditions, 17 economic and 20 social quatitative indicators and a qualitative assessment of the citizens' perception of quality of life in the city for one year - 2003)	List (divided in Safety and health of workers (13 indicators) and Environment (23 indicators)	128 quantitative indicators and two qualitative surveys of the citizens' perception of quality of life in the city (2004 and 2008).
Nº of Ind.	170	18	74	23	68	36 (in 2006)	128
Responsibility for the Project	Team of experts and LA21 Strategic Commission 21	Team of experts, LA21 steering-group, and ultimately, the ENGO itself.	The Environment Division of Aveiro's Local Authority	The Environment Department of Oeiras Local Council	Studies and Planning Unit of Oporto's Local Council	Working Group and IMS Responsible	Unit for Studies and Quality of Palmela's Local Council
Stakeholders involved	Broad range of actors in the LA21 process but a very expert-based work around the indicators, with almost no actors involved apart from experts	Broad range of actors in the LA21 process but a very expert-based work around the indicators, with almost no actors involved apart from external experts and the coordination group.	A very expert-based work around the indicators at first, and then with the involvement of different public officers from the local council	Indicators were defined and given externally by the ECOXXI project	A very internal work around the indicators with the involvement of experts and different public officers from the local council	A very internal work around the indicators with the involvement of experts and different public officers from the local council	A very internal work around the indicators with the involvement of experts and different public officers from the local council
Communication Strategy	Not considered nor defined.	There should be a revision of the indicators selected in the Action Plan every two years. However, no mechanisms were developed to collect any data. The indicators were never updated or disclosed.	There was a precise timetable for indicators' collection and report from 2006-2010 but was never accomplished. There was a short reference to the need for the dissemination of 'information', but the way it should be carried out was not clear, nor if they are for external or only for internal management purposes.	ABAE national publication and dissemination of the final index; dissemination on the local media and within departments by the local authority.	Strong communication channels (reports, website, seminars and conferences) during the first years of the project (2002-2004) but lack of feedback mechanisms since 2005. The project was under revision and the enforcement of the communication strategy was one of the biggest aims.	There was not a defined communication strategy in general. Instead, there are several mechanisms to report some indicators (mainly the ones required by law).	The internal communication strategy was enforced by the channels created by the indicator infrastructure and reinforced by an organizational restructuring in 2007. Ineffective tools to communicate with citizens. The project aimed to enforce an external communication strategy.

[1] in 31/12/2008 (Source: INE, 2009)
[2] Census 2001 (INE, 2001)
[3] Year of Establishment

Table 3 – Summary of the empirical findings for each criterion and case study

		Indicators Systems Never Updated			Indicator Systems Updated			
Governance Element	**Criteria**	**Redondo**	**Mindelo**	**Aveiro**	**Oeiras**	**Oporto**	**Mora**	**Palmela**
1. Nature of the indicator system	***Scope***	Moderate	Strong	Strong	Moderate	Very Strong	Strong	Very Strong
	Timeframe	Very Strong	Very Strong	Very Strong	Weak	Very Strong	Moderate	Very Strong
	Coherence	Weak	Strong	Weak	Strong	Strong	Very Strong	Strong
2. Assigning overall responsibility	***Political Commitment***	Very Weak	Moderate	Weak	Weak	Strong	Very Strong	Very Strong
	Sensitivy to Change	Very Weak	Very Weak	Very Weak	Very Weak	Strong	Strong	Strong
3. Government coordination	***Sectoral Coordination***	Very Weak	Strong	Weak	Moderate	Moderate	Very Strong	Very Strong
	Regional Coordination	Very Weak	Very Weak	Very Weak	Moderate	Moderate	Weak	Moderate
	Training	Weak	Moderate	Moderate	Very Strong	Strong	Moderate	Strong
4. Stakeholders' involvement	***Multi stakeholder***	Weak	Weak	Weak	Weak	Weak	Weak	Weak
	Participation Mechanisms	Weak	Weak	Weak	Weak	Weak	Weak	Weak
	Feeling of Ownership	Very Weak	Weak	Weak	Strong	Very Strong	Very Strong	Very Strong
5. Link with local plans or strategies	***Performance***	Moderate	Moderate	Moderate	Moderate	Moderate	Strong	Moderate
	Funding	Very Weak	Very Weak	Very Weak	Strong	Very Strong	Very Strong	Very Strong
6. Link with (inter) national networks	***Learning***	Weak	Weak	Weak	Very Strong	Very Strong	Weak	Moderate
7. Communication with society	***Communication***	Very Weak	Weak	Weak	Moderate	Strong	Weak	Very Weak
Instrumental Use		Very Weak	Very Weak	Very Weak	Moderate	Strong	Strong	Strong
Conceptual Use		Weak	Weak	Weak	Moderate	Moderate	Moderate	Moderate
Symbolic Use		Very Weak	Very Weak	Very Weak	Very Weak	*	Strong	*

Note: see Section 3.2. for the explanation of the qualitative scale adopted (Very Weak, Weak, Moderate; Strong; Very Strong).
* Difficult to assess

Fig.1 – Map of Portuguese Municipalities: Local Councils that responded to the questionnaire

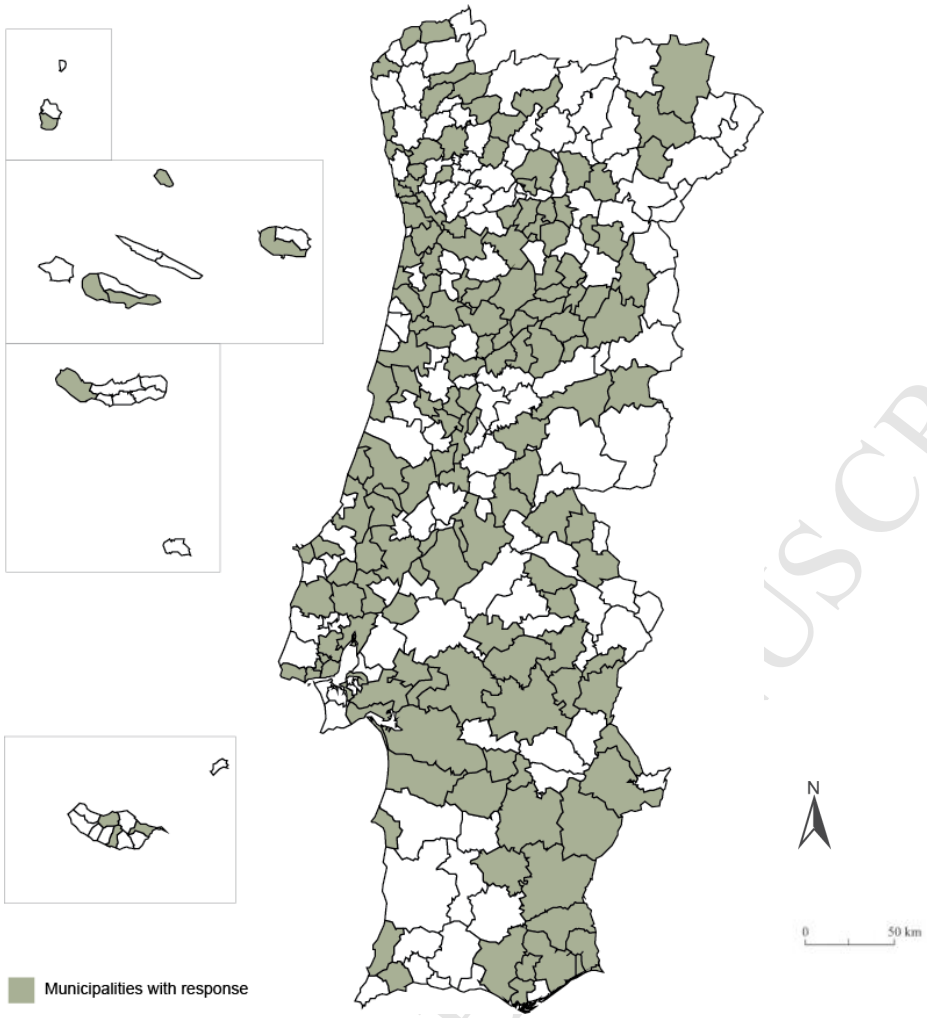


Fig.2 – Local sustainability indicator systems by NUTSII region

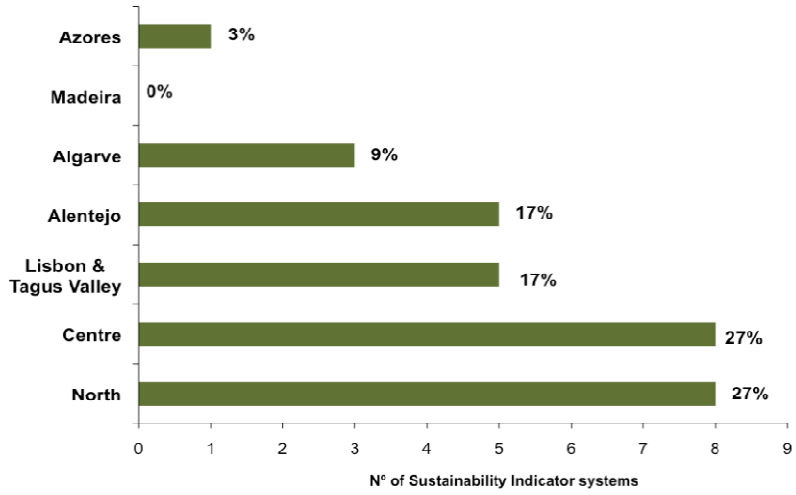
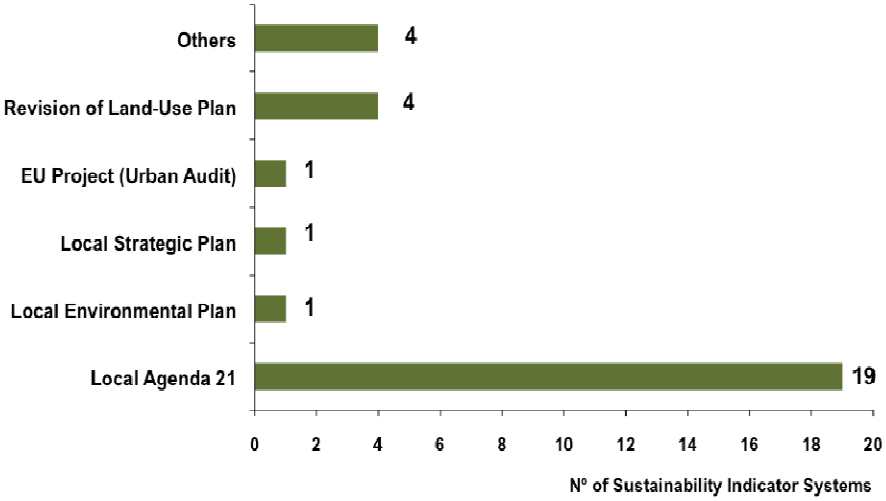


Fig.3 – Local sustainability indicator systems by main driving-forces



Local sustainability indicators in Portugal: assessing implementation and use in governance contexts

Highlights:

1. A survey maps Portuguese implementation of local sustainability indicators;
2. In-depth and comparative analysis was done for 7 Portuguese case studies;
3. Implementation and use of indicators are limited by governance factors;
4. Evidence shows lack of political commitment and poor stakeholder involvement;
5. Indicators improve governments' efficiency, but less local governance.

Survey questions

Local Council of _____ Date_____
Contacts of Respondent:
Name_____ Organizational Role _____
E-mail _____ Tel. _____

1. What type(s) of Indicator System(s) exist in the Local Council?	**Yes**	**No**
Environmental _____	☐	☐
Social _____	☐	☐
Economic _____	☐	☐
Quality of Life _____	☐	☐
Sustainable Development (integrated system targeting multiple areas of development)	☐	☐
Other(s) (specify): _____	☐	☐

If the answer was NO for the *Quality of Life* and/or *Sustainable Development* Indicator Systems and there is no other multi-sector indicator system in the Local Council the questionnaire ends here.

2. Date of establishment of the Indicator System (month/year):
_____/_____

3. What areas are assessed in the Indicator System?
Health _____ ☐
Criminality _____ ☐
Poverty _____ ☐
Population _____ ☐
Jobs, Income and Consumption _____ ☐
Economic Activities _____ ☐
Education and Training _____ ☐
Participation and Culture_____ ☐
Justice _____ ☐
Institutions _____ ☐
Ar, Water or Waste _____ ☐
Energy _____ ☐
Nature Conservation _____ ☐
Green Spaces _____ ☐
Urban Environment _____ ☐
Transports and Mobility _____ ☐
Land Use _____ ☐
Forest _____ ☐
Other(s) (specify) _____ ☐

4. The implementation of the Indicator System was driven by the:
Implementation of Local Agenda 21 _____ ☐
Preparation of an Environmental Municipal Plan _____ ☐
Preparation of a Municipal Plan/Strategy (specify): _____ ☐
Implementation of an Environmental Management System _____ ☐
Implementation of a Quality Management System _____ ☐
Participation in the Social Network Programme _____ ☐
ECOXXI Programme_____ ☐
European Common Indicators' initiative _____ ☐
Participation in European Union Project (specify)) _____ ☐
Other(s) (specify): _____ ☐

5. Is the Indicator System being updated regularly?
Yes _____ ☐
No _____ ☐ Last update (month/year) _____

5.1. If YES, with what frequency is data collected?
Every day _____ ☐
Several times a year _____ ☐
Annual _____ ☐
Other (specify): _____ ☐

6. The main goals for the establishment of the Indicator System were:

Monitoring of a Plan/Strategy ☐
Monitoring of a specific problem (specify) ☐
Legal Requirements ☐
Establish comparisons (spatial/temporal) ☐
Assess current conditions (diagnosis) ☐
Planning and decision-making requests ☐
Education and awareness raising ☐
Communication/Information disclosure to the population ☐
Other(s) (specify) ☐

7. Who is responsible for the Indicator System?

A municipal employee ☐
A department (specify) ☐
A multi-departmental team (specify) ☐
Other(s) (specify) ☐

8. What are the main data sources for the Indicator System?

Local Council ☐
INE (National Statistic Institute) ☐
Public Organizations ☐
Private and/or Non-Governmental Organizations ☐
Media ☐
Other(s) (specify) ☐

9. Who is the target group for the Indicator System?

Local Council municipal employees ☐
Local political decision-makers ☐
General population ☐
Various activity sectors (economic, cultural agents, etc.) ☐
Other(s) (specify): ☐

10. How are Indicators communicated and disclosed?

Intranet ☐
Local Council Website ☐
Reports/Publications (paper version) ☐
Media ☐
Other(s) (specify) ☐