

Identity and decision-making for sustainability in the context of small islands * *Identidade e tomada de decisão para a sustentabilidade no contexto de pequenas ilhas*

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ABSTRACT

This article focuses on the analysis of how identity and sense of place identified on small islands can be an opportunity to inform local population about transition to sustainability. Small islands are considered to be vulnerable territories but they are good candidates to undertake an innovative and successful transition to sustainability, and to become models for larger territories. A participative scenario building and multi-criteria methodology has been developed to explore preferences for sustainable development in the context of a small island. The article is the opportunity to analyse how Flores Island (Azores, Portugal) community perceives local sustainability issues, what is the role that identity can play in the transition to sustainability, and what is the point of view from regional decision-makers, civil servant and key informants interviewed in the project. Sustainability research findings and islanders' preferences concern three points: (1) islanders' low expectations of change, (2) preference for greener development, and (3) the potential role of identity and public participation in the transition to sustainability. Locals have shown awareness about sustainability issues and they have demonstrated willingness to play an active role in decision-making processes. The contributions from the research participants are also an opportunity to inform the relationship between tourism and the sustainability of the island.

Keywords: Sense of place, Flores Island, Azores, multi-criteria appraisal, foresight scenario.

RESUMO

Este artigo analisa a identidade e o sentimento de pertença observados em ilhas pequenas como uma oportunidade para melhor informar a população local sobre os processos de transição para a sustentabilidade. As pequenas ilhas são consideradas territórios vulneráveis mas também são bons casos de estudo para testar e realizar transições inovadoras e bem-sucedidas para a sustentabilidade, e tornar-se assim modelos para áreas maiores. A metodologia participativa de construção de cenários e análise multi-critério foi desenvolvida com o objetivo de explorar as preferências dos intervenientes para o desenvolvimento sustentável no contexto de uma pequena ilha. Este trabalho visa descrever e analisar a forma como a população da Ilha das Flores (Arquipélago dos Açores, Portugal) interpreta as questões ligadas à sustentabilidade local e qual é o ponto de vista dos decisores, funcionários públicos e informadores-chave regionais que participaram no projecto. Este estudo visa também estabelecer qual é o papel que a identidade pode desempenhar na transição para a sustentabilidade. Os resultados da pesquisa centram-se em três pontos: (1) as baixas expectativas de mudança dos islenhos; (2) a preferência para um desenvolvimento mais "verde"; e (3) o papel potencial da identidade e da participação pública no processo da transição para a sustentabilidade. Os florentinos mostraram uma forte consciencialização relativamente às questões de sustentabilidade e demonstraram vontade em desempenhar um papel ativo nos processos de tomada de decisão. As contribuições dos participantes evidenciaram também a forte relação entre o turismo e a sustentabilidade da ilha.

Palavras Chave: sentido de pertença, Ilha das Flores, Açores, análise multi-critério, cenários de futuro.

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1. INTRODUCTION

Comparing with continental territories small islands seem to be insignificant spaces, but at least 10% of the world population lives on small islands (Baldacchino, 2007). This figure alone justifies the study of islands, but islands can also provide useful lessons on sustainability issues for larger territories (Depraetere, 2008) (sustainability concept is treated in Section 2.1); islands are indeed considered to be ideal places to undertake innovative strategies for sustainability (Depraetere, 2008; Kerr, 2005; Gagliardi, 2009). This article focuses on small islands independently of their remoteness. An island is considered to be small when its area is less than 10,000km² and it has fewer than 500,000 inhabitants (Beller *et al.*, 2004). As clearly defined geographic units surrounded by water, islands provide the opportunity to define the spaces they contain. Their size enables their integral study (Kelman & Lewis, 2005; Gagliardi, 2009), and wakes “the myth of total knowledgability” (Péron, 2004). Small islands illustrate the limits of our planet as “finite natural ecosystem” (Daly, 1991). The management of coastlines on small islands is especially crucial due to the importance for these areas in human development and the environmental and security concerns that such development can create, indeed, as Saffache & Angelelli observe small islands are “largely coastal entities” (2010).

Small islands’ geographic specificities govern their societies and their economies (Rietbergen *et al.*, 2007). It is generally acknowledged that small islands suffer from structural constraints (Hache, 1998) and that they are associated to important economic and environmental vulnerabilities (Briguglio, 1995; Hache, 1998; UN, 1998a; UN General Assembly, 1988; Campling, 2006; Rietbergen *et al.*, 2007; Christofakis *et al.*, 2009; Fonseca *et al.*, 2011). Saffache & Angelelli (2010) identify three factors for vulnerability in the Lesser Antilles: small size, insularity and remoteness, and susceptibility to natural disasters. It is reasonable to consider that (in different degrees) these factors also influence other islands. Considering an extended literature review Campling (2006) proposes a list of economic and environmental vulnerabilities identified for small islands developing states (SIDS) (Table 1).

Table 1. Economic and environmental vulnerability in SIDS (adapted from Campling, 2006).

Tabela 1. Vulnerabilidades económicas e ambientais nos SIDS (adaptado de Campling, 2006).

SIDS economic vulnerability	SIDS environmental vulnerability
Small domestic market	Climate change/ sea level rise
Limited resources	Volatile biodiversity
Open to international trade	Limited land/urbanization
Vulnerable to external shocks	Natural resource depletion
Location/transport costs	Water/sanitation
Political sovereignty	Natural environmental disasters

The vulnerabilities pointed-out by Campling (2006) are directly related to their small size that limits economic growth and the availability of productive and natural areas. This increases the conflicts over their use and decreases their resilience over negative economic and environmental impacts (small domestic market, limited resources, volatile biodiversity, limited land/urbanization, natural resource depletion and availability of water and the consequent sanitary problems). The small size is also reason for their small population and consequent limited internal demand and production capacity, handicapping potential economies of scale, but also a higher relative dependency on the exterior and a poor degree of competition, increasing economic vulnerability. As well, due to their small population and economy, islands suffer from having limited political influence. Isolation increases also the dependency towards transport (location/transport costs) and it limits the alternatives to transport goods and people. Moreover because of their small economies islands do not have capacity to influence prices (open to international trade and vulnerable to external shocks). As well, small island states are especially sensible to climate change and natural environmental disasters (Briguglio, 1995; Pelling & Uitto, 2001; Kelman, 2010).

In what concerns socio-cultural characteristics, communities in small remote islands are deeply influenced by isolation and remoteness (Kotlok, 2005; Pitt, 1980). The dwellers of these islands are affected by the combination of small size and isolation but they also appear to be good candidates to undertake successful transitions to sustainability and they can benefit greatly from this transition (even though this pathway is not exempt of challenges). Small islands can surmount their “intrinsic handicaps” by deciding adapted strategies (Encontre, 1999), thus economic and environmental vulnerabilities should not be seen as fatalities (Armstrong *et al.*, 1998; Armstrong & Read, 2002; 2003). The challenge is then to define from a local and Regional (unless specified region refers in this article to an administrative division of a country) perspective the strategies better adapted for each island case.

The present research explores the case of a small island (Flores Island, Azores, Portugal) (Figure 1) informing, from local and Regional perspectives, the transitions to sustainability. This article reflects upon the role that identity, and islanders’ relation to the place, plays or can play, in decision-making for sustainability in small islands. The purpose of the present research was originally to explore the preferences for sustainable development in a small island. Identity was not initially considered as a theme of the research but the contributions from the research participants led to study the relation between identity and small islands and how it can play a role in the transition to sustainability. The novel methodology developed in the context of the research, ‘Participative foresight scenario mapping’ (this methodology, developed in Section 4: ‘Methodology: Participative foresight scenario mapping’, is an adaptation of multi-criteria mapping (Stirling, 1997)), was the opportunity to inform the potential pathways that a small island can undertake to build the preferred future, but it was also the opportunity to inform the potential role played by

identity in the transition to sustainability in small islands. The research was not an inquiry to the population but it was the opportunity to explore in depth the preferences of a representative share of the local population. The article follows a conventional structure of literature review (Section 2) where the themes of identity, sustainability and decision making in the context of small islands are going to be treated. The case study area is presented in Section 3. Sections 4 and 5 define respectively the methodology developed and used in the research and fieldwork and data analysis. Section 6 develops the research findings concerning the low expectation of change for the island of Flores (Section 6.1), the local and Regional preference for greener development for the island (Section 6.2) and the potential role of identity and public participation in the transition to sustainability (Section 6.3). Finally Section 7 concludes the article.

2. LITERATURE REVIEW

2.1. Islands, conceptual image of the world and identity

Institutional reflection on sustainable development began in the 1980s with reports from the International Union for Conservation of Nature and the United Nations (IUCN *et al.*, 1980; World Commission on Environment

and Development, 1987). The definition given by the World Commission on Environment and Development (WCED) in *Our Common Future*, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”, constitutes a benchmark reference. This definition clearly states the requirement of assuring continuity without handicapping the present generation; it also advocates development that ensures that future generations can enjoy the possibility of satisfying their needs. But sustainable development is a controversial term (Jabareen, 2004; Counsell and Haughton, 2006; Krueger & Gibbs, 2007; UN, 2010). The concept enables “possible interpretations” (Haughton, 1999) that difficult decision-making. One example of this is the debate around the preference for weak or strong sustainable development precepts. Agyeman *et al.* (2002) define weak sustainability as a situation where natural capital can be replaced by manufactured capital as long as the former is equal in value. On the other hand, strong sustainable development does not propose trade-offs between natural assets and economy (or at least limitations to these trades-offs) (Daly & Farley, 2004). One consequence of this is that optimal decision making requires a deep knowledge of the available natural capital. Small scales can be the opportunity to have a reasonable grasp

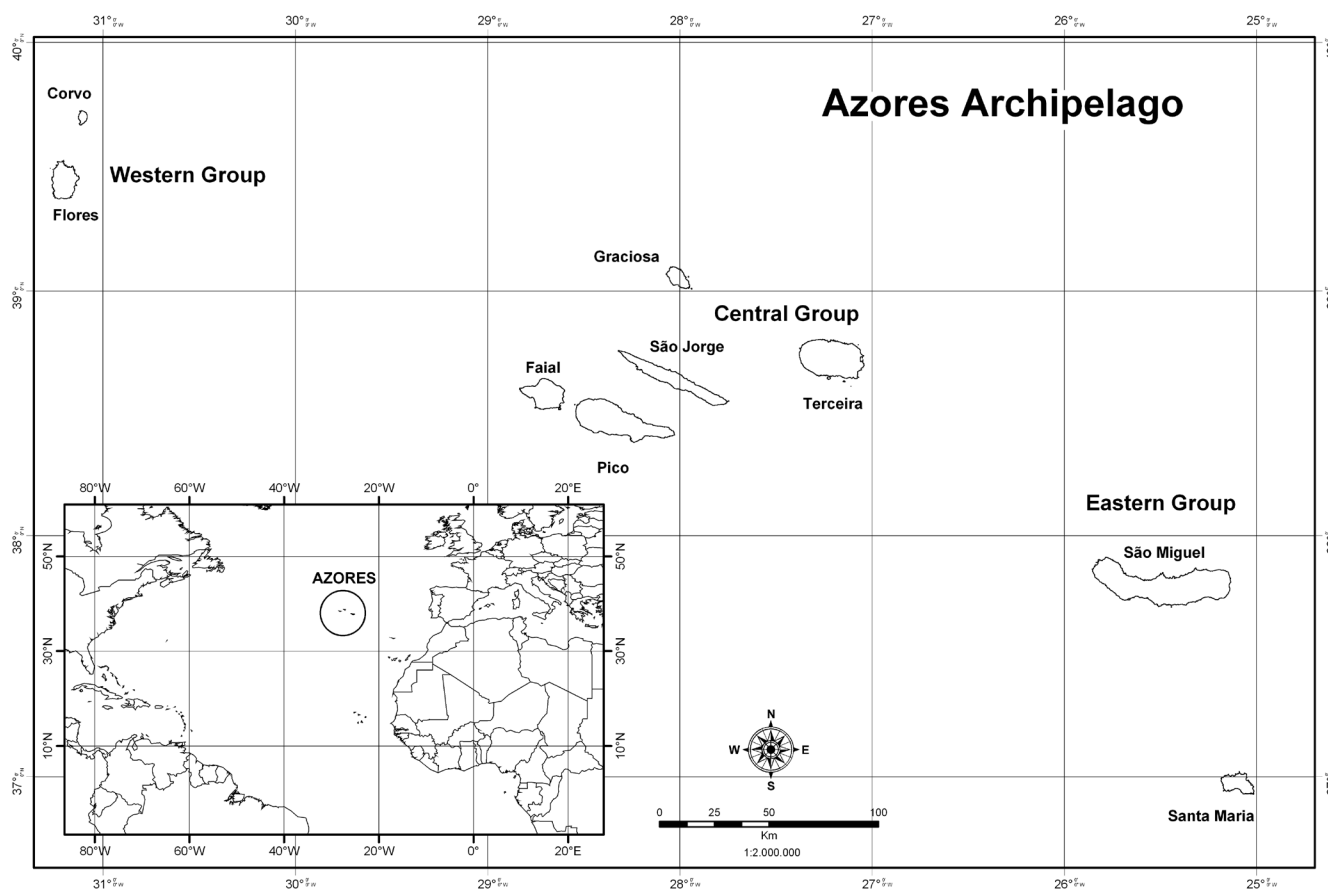


Figure 1. The Azores Archipelago and Flores Island (source: University of the Azores' Geographic Information and Land Planning Research Centre (2010)).

Figura 1. Os Açores e a Ilha das Flores (fonte: Centro de Informação Geográfica e Planeamento Territorial da Universidade dos Açores).

of the entire territory (and therefore a good understanding of the available natural capital), and to involve a wide range of stakeholders in manageable processes (see the role of local authorities in Local Agenda 21, conf. Section 2.2). In this context working on small islands allows this closeness and it is also the opportunity to develop holistic approaches for sustainability in manageable scales.

Islands' territories act as closed systems (Calado *et al.*, 2007) and their maritime boundaries are a constant reminder that Earth itself is a finite space with limited resources. Applying Boulding's analogy of "spaceship earth" the image of the 'spaceship island' can be used to illustrate their potential usefulness as models for sustainability; as Boulding (1993, originally published in 1966) states: "we can only find out about a closed system if we participate in it". Islanders' lives in "aquaria" (Putz, 2004) support the idea that islanders have the experience of living in confined territories. Therefore, even though small islands are not totally closed systems, islanders' isolation can be inspiring examples for other places (for example in the case of decision-making for sustainability). As Putz expresses on the Maine archipelago (US) and islands in general:

"there is still in the Maine archipelago, and on islands elsewhere, an intact vision of the world which differs from that of others and which offers not merely diversity and its advantages, but a sensibility about the world that the world could use, since citizens everywhere are coming to realize that the earth itself is an island. In this sense, mainlanders are the pre-Copernicans, and islanders are the most sophisticated, modern and up-to-date. Islanders know about islandness and all of us should have some of this imprinted on our consciousness" (Putz, 2004).

Remoteness and isolation have influenced remote islands' ecology explaining the existence of important rates of natural endemism (Chapuis *et al.*, 1994; Quammen, 1997, Francisco-Ortega *et al.*, 2000; Dumont *et al.*, 2010) but over the centuries isolation has also influenced local communities (Pitt, 1980; Kotlok, 2005). Islanders' identity, forged by centuries of "geographical separation", is considered central in these societies (Pitt, 1980). For Péron (2004) islanders' identity is characterised by a sense of "pride in being different". Erickson & Roberts define identity as: "the qualities which make an individual, or place capable of being specified or singled out, which make it unique and separate" (1997). For Bonaiuto *et al.* (2002) the study of the relation of place and identity is crucial in sustainability because specific pro-environmental attitudes are defined by the place directly concerned: "pro-environmental attitudes, just as other psychological processes, should be conceived as place-situated phenomena and therefore should be studied taking into account and dealing more directly with the places or situations they refer to or are embedded in". Place identity concept should be differentiated from place attachment concept. Place attachment is defined as "the affective link that people establish with specific settings, where they tend to remain and where they feel comfortable and safe" (Hernández *et al.*, 2007, p310), Morgan (2010) defines it as the "experience of a long-term affective bond to a particular geographic area and the meaning attributed to that bond". Place identity is defined as a process by which

people describe themselves in relation to a specific place (Hernández *et al.*, 2007); therefore this concept involves the relevance of the physical environment in the definition of individuals' identity. Moreover, for Erickson & Roberts (1997) place identity is an element of individual and collective self-identity.

Islands have a special attraction in western culture. They are often associated with the image of heaven/Eden/paradise or utopia (Ward, 1993; Connel, 2003; Kotlok, 2005). But this idyllic image is not necessarily shared by islanders themselves (Ward, 1993; Cambers, 2006). However this attractiveness is probably one of their main strengths that should be treasured (Baldacchino & Pleijel, 2010). Aware of this attractiveness, islanders can build 'intentional ideals' where individuals construct "intentional communities" from an initial situation (Miller, 2009), this should be understood as the situation in the moment when the community decides to undertake the construction of their intentional ideals. Whereas the world's economy is defined by movement and globalisation, islands have been defined as the "quintessential physical place" (Péron, 2004); in other words, for Péron, islands are the most obvious examples of clearly defined geographical units. Stratford (2008) also supports this vision: "in an age of hyper-mobility, islands provide spatial and temporal limits, and foster strong sense of identity". This strong sense of identity is translated into self-awareness. Islands provide "possible sources of identification and belonging within wider contexts of life" (Olwig, 2007) while creating a "sense of a place closer to the natural world and to neighbours" (Conkling, 2007). This idea is also shared by Soulimant who observes that island societies are characterised by a "feeling of belonging, a strong identity and the will of distancing itself from the others" (2011). Hernández *et al.* acknowledge that islands, like cities, "represent strong, stable and comprehensive environments" (2007). Depraetere (2008) proposes that islanders are characterized by having a "strong sense of place". This signifies that islands have a strong identity which is felt by islanders and visitors. This feeling is consequence of the combination of natural and cultural characteristics. Islanders' strong sense of place can be used as a "mobilising principle" against global dysfunctions and to plan opposition against unwanted situations (Hay, 2006). In a similar vein Uzzel *et al.* (2002) showed that communities with strong place identity are more willing to support environmental attitudes and behaviour, therefore they should be more incline to undertake transitions towards sustainability. Therefore place identity in islands should be an opportunity to implement sustainable behaviours among local population; islanders' relation to the place should not be a threat but an opportunity in these processes.

The Small Islands Voice participative project, aiming at informing sustainability on islands (the initiative was supported by the UNESCO and it involved 15 island states and territories) allowed Cambers (2006) to observe that islanders are aware of local issues and the importance of adapting their economic development to islands' limited resources (the following section develops the role of public participation in the transition to sustainability). This can be explained because resources are limited in small islands (Briguglio, 1995; Campling, 2006), and

the effect of human activity on the local environment is more visible (Depraetere, 2008). But this predisposition to pro-environmental attitudes might not be directly translated into pro-environmental behaviours (Kollmuss & Agyeman, 2002). However, considering islands' economic and environmental vulnerabilities already treated in the introduction (Campling, 2006), islanders' situation should benefit greatly from adapting sustainable ways of life. But the outcomes of decision-making and the process themselves might be challenged by islanders' aversion to change.

2.2. Requirements for decision-making in the context of islands

Participation in decision-making for sustainability is a pre-condition for policies' effective implementation (Agenda 21 Chapter 28.2a, 1992; Agyeman & Angus, 2002; Stiglitz *et al.*, 2009). Principle 10 of the Rio Declaration clearly states this idea: "environmental issues are best handled with the participation of all concerned citizens". Participative processes are undertaken all over the world to reach these goals (e.g. LA21). Local and Regional authorities are seen as the better positioned to lead decision-making for sustainability due to greater flexibility and awareness of local issues and challenges (Haughton & Naylor, 2008). Even though national scale is also crucial in decision making for sustainability (e.g. National Sustainable Development Strategies), the local scale is an opportunity to be closer to sustainability issues at stake as well as the answer(s) to these problems (Fidélis & Moreno Pires, 2009). Local Agenda 21 (UN, 1992) is a clear example of institutional support for initiatives to promote local participation in the resolution of sustainability issues. Another example of local participation is sustainable regeneration. Haughton (1998) describes sustainable (economic) regeneration as a long-term process, actively involving local population and combining economic, social and environmental concerns in a balanced way; such regeneration can be intended to address an unsustainable or vulnerable situation. Moreover the involvement and the acceptance of local population are considered to be relevant for the successful conservation of protected areas. Wells & McShane (2004) acknowledge: "among the key issues, there is now a broad consensus that most protected areas will have limited future prospects without the cooperation and support of local populations".

Therefore general public participation and acceptance is not exclusive to small islands but their characteristics seem to magnify these requirements. Kotlok's indications of the Cape Verde case are illustrative of these needs, that might not be island specific but that seem to be exacerbated in islands: "the island's development can only be conceived by local stakeholders who consider themselves the only individuals able to know their needs in what concerns development" (2005). Considering small islands' specific features, Péron proposes for each island an "appropriate socio-cultural plan" (2004) that respects each island's individuality and history and that is "human in character" (2004). In Péron's opinion, by respecting islands' myths and imaginaries, these locally sound plans are preserving the island's identity. She also proposes that development plans should be aware of local

environment and island's reduced scale in order to "exploit it in a more complex and intricate way" (Péron, 2004). Therefore islands' spaces should influence in depth decision-making processes (being inclusive of local characteristics and identity) and the outcomes (developing genuine policies respectful of local culture and environment). But Stratford (2008) warns about the existence of barriers to the implementation of policies for sustainability in islands: decision-makers very often prioritize other objective such as economic development goals, sacrificing island's unique characteristics. The following section will present the case study area to provide information to understand its current situation and why it was a good case study area to implement foresight scenario mapping methodology (conf. Sections 4 and 5).

3. CASE STUDY: FLORES ISLAND (AZORES, PORTUGAL)

The Azores are a Portuguese autonomous Region composed of nine islands (Figure 1). The total population was of 246,102 residents in 2011, for a population density of 106.4 inh./km². In what concerns the overall sustainability of the archipelago, the ecological deficit estimated for the entire archipelago was of -1,65 ha*hab⁻¹ in 2002 (SRAM, 2006). Although the image given to the exterior is that of a homogeneous Region, the reality is that each island is influenced differently by conditioning factors and each island might benefit from different opportunities (SRAM, 2006). Therefore adequate policies and projects for sustainability should be studied at the Regional and at an island level to preserve the Regional cohesion but also to develop policies coherent with each individual island.

Flores Island has an area of 141.7km² and is situated in the Azores' westerly point (39°31'28''N, 31°07'27''W). Its decreasing population consisted of 3,792 *florentinos* in 2011, this year the recorded population density was of 26.9inh./km², the second lowest in the archipelago. Flores hosts two councils: Santa Cruz and Lajes das Flores (2,288 and 1,503 inhabitants in 2011, respectively). The combination of its relatively recent settlement (15th century) and its uncouth geo-morphology has allowed the conservation of important patches of endemic habitats. Moreover, Flores and Corvo Islands are the two most remote islands in the Archipelago, and they are in the periphery of this European outermost Region. Following Taglioni's (2011) classification of islands Flores can be considered to be in a situation of hyper-insularity. The island was declared a UNESCO Biosphere Reserve in 2009; in addition to this, 32% of the territory is classified as Natura 2000 sites (Azores Government, 2013); therefore even if these declarations are not necessarily translated into good environmental practices they witness of the recognition of the natural value of the island. Its economy is mostly dependent on the tertiary sector; extensive agriculture (cattle farming) and fisheries are complementary activities for additional revenues. In the Azores the employment is actually mostly supported by the tertiary sector (62.2% of the total jobs), the secondary sector employs 25.4% of the population and the primary sector 12.4% of the jobs (this information is not disaggregated for each island) (SREA, 2005). In

what concerns energy production and renewable energies, Flores Island is currently of the Azorean islands with the highest proportion of electricity produced from renewable sources. Tourism is seen as a possible support of the island's economy in the future (Azores Government, 2007). From 1995 to 2011 the number of registered tourists grew from 2095 to 7426 (SREA, 2014) and the number of registered hotels and rural houses increased from two in 1995 to 16 in 2013. Even though these numbers are lower than what can be found in other touristic islands this growth might have had environmental and socio-economic impact. The tourist in the Azores values especially the landscape, nature and the quietness; the typical tourist to the archipelago corresponds to the image of the responsible tourist (which classification includes: ecotourism, alternative tourism, sustainable tourism and soft tourism) (SREA, 2007).

Although Flores is home of important protected areas, testifying of its environmental value and political will to preserve the natural habitat, there are actions to be undertaken in order to improve local sustainability and to increase local resilience. The dashboard of sustainability calculated for Flores Island in the context of the *PREDSA* report concluded that the island was overall (combination of economic, social and environmental scores) in a reasonable situation (SRAM, 2006), but action can be undertaken to increase these scores. Due to the island's double isolation (in the archipelago and within it), its reduced size and population, and the recent nomination of UNESCO Biosphere Reserve, Flores was considered to be a relevant case study area to undertake this novel research which methodology is presented in the following section.

4. METHODOLOGY: PARTICIPATIVE FORESIGHT SCENARIO MAPPING

Participative foresight scenario mapping methodology proposes a participative approach to develop and appraise with multiple criteria a series of potential future scenarios, in the present case study for Flores Island in 2030. The aim of the process was to explore in depth potential scenarios for sustainability in a small island, it was not set as an inquiry to the population and the results do not have statistical significance. The process is divided into two main phases (Figure 2): i) scenario development; and ii) scenario multi-criteria appraisal. The vision development phase comprises a two step process of semi-structured scoping interviews with decision-makers and key informants, followed by focus groups with lay citizens. The appraisal phase involved the decision-makers and key informants in the multi-criteria analysis of the foresight scenarios previously developed and *PREDSA* scenarios (*Hotelândia*, *Lactogenia*, *Ecotopia*, *Sociopolis* and *Infocracia*).

In the context of the research two foresight scenarios were created in two steps (the scenarios are developed in Section 5). Initial contributions from decision-makers and key informants (gathered in semi-structured scoping interviews) were combined to develop two draft future scenarios. The interviewees were asked about how they expect the island of Flores could be in 2030 and how they would like it to be, and which the main challenges to reach this vision

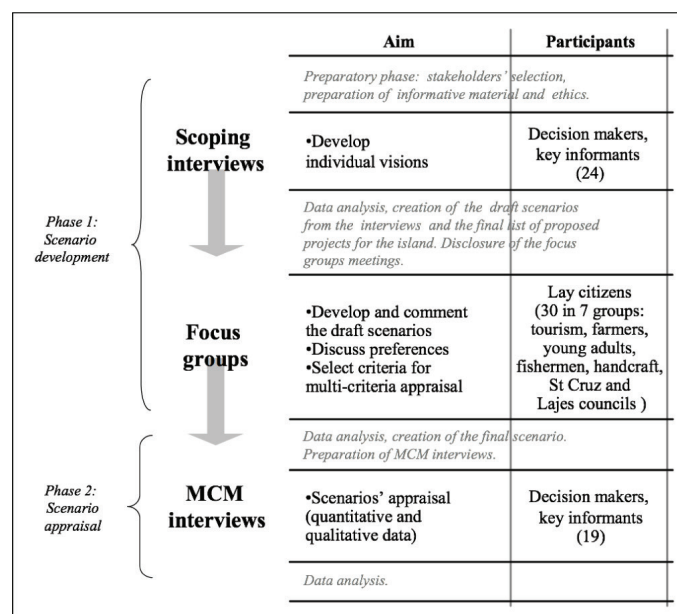


Figure 2. Participative foresight scenario mapping methodology.

Figura 2. Metodologia participativa para a criação e avaliação multi-critério de cenários de desenvolvimento futuro.

were. They were then asked to develop their points of view for the following themes: tourism, nature conservation, agriculture, forestry, fishery, industry and trade, information technologies, energy and education. In addition to this they had the opportunity to comment on the utility of Regional policies for the island.

In the second step of the scenario development phase these alternative visions were the opportunity to develop preferences in focus groups that involved local lay citizens (second step in the scenario development phase). This way the focus groups participants could comment about the draft scenarios and provide local insights into the visions. Seven focus groups were the opportunity to convene 30 lay citizens (see Figure 2). The two main contributions from participants were the comments made about the draft scenarios and the selection of the economic, social and environmental criteria later used in the multi-criteria interviews (Phase 2 of the methodology). The final versions of the scenarios (made of contributions from the scoping and the focus groups) were appraised later in the multi-criteria appraisal phase.

Multi-criteria analysis (MCA) processes have been valued for their ability to support decision-making by facilitating the comparison of different options or perspectives, in spite of their potential inherent multi-dimensionality (Martinez-Alier *et al.*, 1998). MCA have been used to assess projects and policies that have economic, social and environmental impacts (Gamper & Turcanu, 2007). The fact that MCA methods are multidimensional tools makes them particularly appropriate for dealing with sustainability issues. Multi-criteria mapping (MCM) (Stirling, 1997; Stirling & Mayer, 2000; Davies, 2006; McDowall & Eames, 2007) has been adapted for the present study to appraise the different scenarios in Flores Island. MCM aims at providing a more

open and transparent mean for environmental appraisal. MCM was first used to assess the perceived risks and benefits associated with genetically modified, conventional, mixed and organic agricultural systems (Stirling & Mayer, 2000). More recently, this appraisal methodology has been used in the field of hydrogen and energy futures (McDowall & Eames, 2007) and in a transnational appraisal of obesity policy options to tackle obesity (Stirling *et al.*, 2007). The deliberative mapping project (Burgess *et al.*, 2007) embedded the MCM method into a larger participative process involving lay and specialized stakeholders.

The MCM approach enables a more complete appraisal and produces a more detailed picture of the different alternatives existing in the field of study (Stirling & Mayer, 2000). Stirling (1997) identified the main challenges related to environmental appraisal exercises which are: the difficulty to predict the future and to understand natural and social phenomena; the existence of multiple points of view on the matter at stake; and different alternatives to reach the same goal increase the complexity of the decision-making. The MCM approach is realistic as it does not consist of an optimisation of a variable but the appraisal of different criteria for different options/scenarios (Stirling, 1997). MCM-Analysis software (Stirling & Champion, 2009) is used to produce graphs, also called *maps* (see Figure 3). The assessment method is relevant to support decision-making as it makes visible the convergence or divergence in the opinions and the identification of potential sources of uncertainty and risk. MCM has been used in cases where participants, mainly specialists, had technical knowledge on the subject in question, which is usually a very specific issue. In Deliberative Mapping participant lay stakeholders had been instructed about the subject in discussion (Burgess *et al.*, 2007).

One of the challenges of the present research was to understand the process when a varied sample of key informants and decision-makers are using this appraisal method for the assessment of multiple characteristics (criteria) of holistic development scenarios. In the present case the level of specialisation in different fields differs substantially from one interviewee to another; this specificity was related to the role of expertness in the assessment of holistic visions. The Participative foresight scenario mapping methodology was developed to facilitate a discussion of perspectives for Flores' sustainable futures.

5. FIELD WORK AND DATA ANALYSIS

Fieldwork took place in the second semester of 2009. It involved 26 Regional and local decision-makers and key informants in the scoping and the multi-criteria interviews (10 were Regional and 16 were *florientinos*) (see Table 2), and 30 local lay citizens in seven focus groups (fishermen, young adults, tourism, handcraft, farmers, Santa Cruz das Flores and Lajes das Flores, see Figure 2).

Following the method presented in the previous section, two holistic non-technical foresight scenarios, Balanced and Standard Development Scenarios (BDS and SDS respectively) (Table 3), were developed for Flores Island. The MCM interviews consisted of the appraisal of BDS and SDS scenarios alongside five institutional scenarios to bring

more substance and additional perspectives to the exercise (*Lactogenia*, *Hotelândia*, *Ecotopia*, *Sociopolis* and *Infocracia*) (SRAM, 2006), the summary of these scenarios is also presented in Table 3. The interviewees had to use at least 15 economic, social and environmental criteria (see Table 4) pre-selected by lay citizens in the focus groups. In the MCM interview the stakeholders were invited to give a pessimistic and an optimistic score to each scenario for each criterion, the difference between the lower (pessimistic) and the higher (optimistic) scores informs about the existence of uncertainty. This process involves the production of quantitative data presented in graphs such as Figure 3 which combines the data from the totality of the interviewees (additional graphs can be created following other characteristics of the interviewees, for instance: age, profession, location, gender).

6. FINDINGS

Contributions from the research participants reflect a low expectation of change for Flores (conf. Section 6.1). In addition to this sense of continuity the research participants identified BDS and *Ecotopia* as the preferred scenarios (see Figure 3, these scenarios have the highest overall optimistic and pessimistic scores). This shows a preference for greener development in opposition to more intensive and potentially aggressive models of development for the local environmental (SDS, *Hotelândia* and *Lactogenia*), and it implies the acknowledgement of the limits to growth imposed by the island (conf. Section 6.2). Some contributions informed on the role that identity, the concepts of Utopia and heaven, and public participation can play in these processes (conf. Section 6.3).

6.1. Foresight scenarios and low expectations of change

When asked how they envisioned the future of the island in 2030 research participants tended to say that the island was not going to experiment important changes. The main reasons given to this were the combination of three factors: the emigration of young generations, the low ambition of the remaining population and a certain aversion to change. The Regional specialist of rural tourism interviewed clearly stated this idea: "*the most competent emigrate. There is little capacity to understand the island's value and in consequence to innovate in profitable fields*" and "*changes are related with culture. And islands with a small population are very conservative, exactly because of this. They [locals] do not trust change*". Another participant, a member of an association, augured "*stagnation*" in the main sectors of activity: agriculture, fishery, trade and industry. One participant to a focus group declared that the population was indeed "*static*". Other factors that influence the low perspective of change were also identified. One factor was the existence of path-dependency: "*investments have been made and it is impossible to change them*" (local entrepreneurship support services). The other factor is directly related to the low potential of development of local industry (this sector is considered to be the only vehicle for deep change): "*about industry I do not see actually a lot of options*" (local museum representative) and "*I do not see great possibility for development [in industry]. Handicraft is an area that will always be complementary*" (Regional representative of local development association).

Table 2. Decision-makers civil servants and key informants interviewed.**Tabela 2.** Decisores, funcionários públicos e informadores-chave entrevistados no projeto.

Int.	Area of activity	Position	Civil servant/ independent	Flores/ Azores/ Portugal
1	Tourism	Representative of service	Civil servant	Azores
2	Entrepreneurship	Representative of service	Civil servant	Azores
3	Air and sea transport	Representative of service	Civil servant	Azores
4	Environment	President	Independent (NGO)	Azores
5	Entrepreneurship	Service employee	Civil servant	Azores
6	Environment	Representative of service	Civil servant	Azores
7	University (geography and economy)	Head of department	Independent (academic)	Azores
8	Agriculture	Representative of service	Civil servant	Azores
9	Culture	Library representative	Civil servant	Flores
10	Tourism	Guest house manager	Independent	Flores
11	Tourism	Restaurant manager	Independent	Flores
12 and 13	Environment (education)	Service employees	Civil servant	Flores
14	Local representative	St Cruz representative	Civil servant	Flores
15	Local representative	Lajes representative	Civil servant	Flores
16	Entrepreneurship	Local director of service	Civil servant	Flores
17	Youth association	Association representative	Independent (assoc.)	Flores
18	Environment	Service employee	Civil servant	Flores
19	Culture	Museum representative	Civil servant	Flores
20	Economy	Freelance consultant	Independent	Flores
21	Entrepreneurship	Association representative	Independent (assoc.)	Azores
22	Fishermens association	Association representative	Independent (assoc.)	Flores
23	Island association	Association member	Independent (assoc.)	Flores
24	Environment	Association managing director	Independent (NGO)	Portugal
25	Agriculture	Local director of service	Civil servant	Flores
26	Infrastructures and land transport	Local director of service	Civil servant	Flores

Table 3. BDS and SDS and institutional scenarios (summary).**Tabela 3.** BDS, SDS e cenários institucionais (resumo).

Scenarios	Description	
Standard development scenario (SDS)	Scenario of development through public investment in infrastructure, enabling a more intensive primary sector that will permit to export some agricultural products (bovine meat, milk and milk derivative products) and a more standardized tourism model (capitalising on the island's opportunities but not specifying a minimum environmental impact). Increase in economic activity (public and private) and employment.	
Balanced development scenario (BDS)	Scenario of the development through high environmental quality standards and valuing local patrimony associated with nature and living on the island. Careful investments are fundamental, as well as infrastructure aiming at valuing the island, prioritizing local population and thinking in tourism. They would also specify a minimum environmental impact, as well as conservation, improving and valuing the ecosystem services and reduction of external dependence.	
Institutional scenarios	<i>Hotelândia</i>	Based on tourism development and four driving areas: regional quality products, natural patrimony quality, cultural patrimony differentiation and air and sea transports.
	<i>Lactogenia</i>	Based on the excellence of farming development and four driving areas: regional quality products, farming potential, subsidies and EU policies.
	<i>Ecotopia</i>	Based on the protection and natural patrimony value and four driving areas: geothermic resources, natural patrimony quality, pressure on natural resources and geologic and tectonic risks.
	<i>Sociopolis</i>	Based on the development of social cohesion with youth population, EU subsidies and education as driving areas.
	<i>Infocracia</i>	Based on betting on information society and four driving areas: geostrategic position, youth population, Azorean Diaspora and outermost region's characteristics.

Table 4. Criteria used in the MCM interviews.**Tabela 4.** Critérios utilizados nas entrevistas MCM.

Economy	Society	Environment
Agricultural sustainability (19)	Employment creation (19)	Waste management (19)
Fisheries management and its sustainability (19)	Lifestyle and health (19)	Sustainability territory resources and ground use (19)
Wealth creation (19)	Healthcare services (19)	Biodiversity (19)
Tourism typology and profitability (19)	Cultural life and culture (14)	Appropriate water use (19)
Energy management (11)	Educational system (14)	Air contamination produced on the island (19)
Enterprise activity health (2)	Demographic evolution (10)	Landscape (1)
Sustainability and adaptation of the transport system (9)	Population reintegration (1)	Population involvement (1)
Government incentives (1)	Social exclusion (1)	Marine area protection (1)
Handicraft development (1)		

In brackets the number of times each criterion was used.

The criteria used only one time were proposed by the interviewees in the MCM interviews.

Therefore it seems that the opinion is that the island tends to immobility or at least low expectations of change. This point of view echo the conception of islands as places where change does not happen as fast as in other territories (Péron, 2004; Stratford, 2008). The contributions from the case study inform that the combined effect of depopulation (emigration of younger generations), the geographic factors that condition socio-economic development, pathway dependency, and a cultural rejection to change seem to limit the prospects of innovative decision-making and entrepreneurship that could invigorate the local socio-economic structures in Flores Island.

6.2. Preferences for greener development

The focus group participants and the participants to the multi-criteria interviews identified BDS (conf. Table 3 and Figure 2) as the most preferable scenario for the island. For instance participants to the focus groups stated clearly their preferences: “it [BDS] makes the island more natural and nowadays this is what it is valued”, “between these two scenarios [SDS and BDS] I clearly prefer the second [BDS]. The one that is more sustainable” or “Scenario 2 [BDS] is much better than scenario 1 [SDS]. In everything”. The decision-makers and key informants also advocated clearly, and almost unanimously, for BDS. For instance the civil servant representative of the local museum labelled it as the “ideal” scenario; a local restaurant manager thought that the scenario was “More adequate [...] considering the size of the island and the existing conditioning factors”. The local freelance economist observed that BDS: “corresponds to the idealized scenario for Flores Island”. The Regional entrepreneurship support services representative opined that: “[BDS] files down some of SDS problems, some of its ridges.” Another example is the statement made by one member of the ecology centre team: “I think that this scenario [BDS] is the most positive for the island in 2030”.

BDS also scored better than the other scenarios in the quantitative multi-criteria appraisal (see Figure 3). It is interesting to observe that *Ecotopia* scenario was overall the scenario that got the second best score. Even though institutional scenarios were not considered to be realistic, the fact that *Ecotopia* got high scores is consequent with the preference for BDS and it reinforces it. Therefore, even if uncertainty (length of the bars) is elevated, it is clear that quantitative appraisal is congruent with the qualitative preferences for BDS. The preference for such scenarios reflects a genuine awareness of sustainability requirements, and the benefits that such model of development could generate in a small island. These contributions reinforce Cambers’ (2006) observations about islanders’ awareness of sustainability issues. Depraetere’s statement provides an explanation about this proneness to acknowledge the issues derived from unsustainable practices on island: “Due to the strong sense of place that they engender, islands are the ideal spaces to experience the pernicious and dysfunctional chasm between these two separate ecos [economy and ecology]. Islands magnify the schizophrenic practices of these two types of ‘development’” (2008).

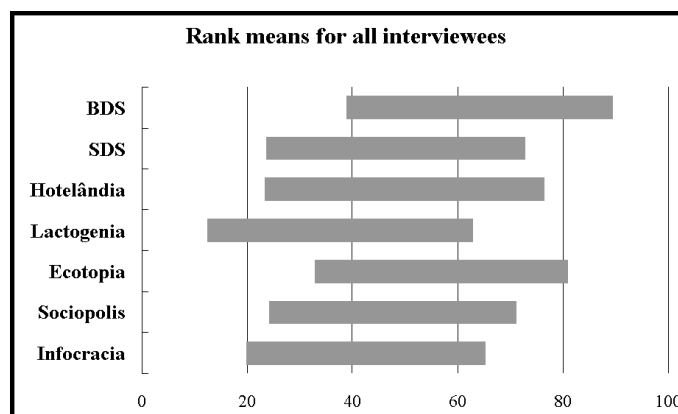


Figure 3. Quantitative appraisal of the scenarios.
Figura 3. Análise quantitativa dos cenários.

6.3. The potential role of identity and public participation in the transition to sustainability

In previous sections islands have been described as territories that have developed their own strong identity (Pitt, 1980; Stratford, 2008) and they are prone to be aware of the issues that can challenge local sustainability (Cambers, 2006). In the case of Flores, the research participants often described the island as a heaven (or a potential heaven) on Earth and they associated this image with the local environment (Table 5). One participant to the focus groups affirmed that: “I would like that this [Flores] was a paradise; it has all the conditions for that”. These contributions reveal the value given to local natural environment and the local quality of life. They also reflect that the persons involved in the project are aware of the potential the existent natural environment has in the sustainable development of the island and the relation between tourism and nature conservation.

Tourism appears to be one way of valuing and taking advantage of the island’s characteristics, and it is often associated with the local environment (conf. Table 5). The indications on tourism reflect that locals should promote the island’s unique identity, for instance taking advantage of the isolation: “the last sunset in Europe... it must yield a profit. [...] Remoteness as identity. I think that it is very important, even to give an image of limited accessibility. [...] To appeal the sense of adventure” (Regional representative of nature conservation association). Moreover it was acknowledged that visitors would value local efforts to implement sustainable development practices for instance about the use of renewable sources of energy: “it is an added value for all the people that visit it, for the tourist who says: ‘look, on this island they produce 50% of clean energy!’” (local Council representative). It is also relevant to observe that local preferences correspond to the preferences that the visitors to the Azores have for landscape, nature and the quietness (conf. Section 3). But it was also noticeable that an individual island in an archipelago has difficulties to differentiate itself from the other islands in the archipelago. Some comments

Table 5. References linking nature, the concepts of heaven and ‘green utopias’ and tourism to Flores.**Tabela 5.** Referências que relacionam a natureza, o conceito de paraíso e “utopia verde”, e o turismo para a Ilha das Flores.

“The natural heaven.” (Representative of an entrepreneurship association)
“Quality, life and quietness”. (Representative of regional agriculture secretary)
“Heaven in the westerly point of Europe.” (Local representative)
“Nature. Atlantic ocean.” (Local representative)
““The island” – copy/paste of Aldous Huxley’s concept. “Agritourism”: combine traditional agriculture with tourism.” (Local guest house manager)
“Nature conservation is good for us and it is good for tourism.” (Participant to farmers focus group)
“Preserved nature, sustainable tourism.” (Local freelance consultant)
“Wild. Nature tourism.” (Regional representative of the environment secretary)
“In what concerns the economy, main activities: senior tourism and nature tourism.” (University professor)
“Nature. Rural tourism. Renewable energy (wind, tidal, solar). Waste management system with reutilization.” (Local library representative)
“Tourism more developed. Increase nature conservation.” (Local representative of the environment secretary)
“Local environment is sustainable only if there is equilibrium between the primary sector, tourism sector and the environment.” (Participant to young adults focus group)

pointed out at the need to define a differentiated identity or trade-mark, and therefore identified it more clearly from the other islands: “each island [...] should find its own trademark and identity” (local freelance consultant) or “Flores should develop a trademark, a unique identity” (nature conservation association). These ideas were directly linked to tourism and traditional handcraft: the challenge is how to increase the island’s uniqueness and attractiveness.

But this differentiation and the transition to sustainability can be challenging, some research participants informed that one way of overcoming these difficulties is to involve the community in the project. In small islands public participation is relevant in order to develop policies that propose “appropriate socio-cultural plans” (Péron, 2004, conf. Section 2.2). In the present project this pre-requisite was directly related with Flores’ future sustainability: it will only be possible if the local community is actively involved in this process. The local restaurant manager clearly stated this point: “if in 2030 the population is involved, even if instead of 4000 people we are 2000 [...] I think that Flores will be sustainable”, and the Regional representative of natural areas conservation also stressed these requirements: “involving locals, and not only, people related to the different fields, try to understand... the different ways of thinking and try to reach a consensus on which is the best goal to reach”. But a local freelance consultant observed that individuals do not participate in decision-making process: “they [florentinos] do not have this tradition, public participation is very low”. The contributions from the interviewed local restaurant manager helps to understand this low level of public participation: “Maybe due to isolation, because of broken promises, they [florentinos] do not trust the system. And finally they become indifferent”. Therefore further efforts should be undertaken

to achieve greater participation and effectiveness in decision-making processes. Moreover, in the case of small islands in an archipelago effective local decision-making is required to avoid uninformed decision-making from external decision-making centres. The Regional rural tourism specialist clearly stated these points: “they [florentinos] rely on external decisions and normally external decisions are not thought because... [...] non-locals [decision-makers] hardly know the island”. This produces a negative dynamic of disenchantment and finally indifference among local population, leading the community to a negative spiral that reduces the potential for participation in decision-making but also entrepreneurship and innovation.

Whereas it was observed that there is a lack of participation in decision-making and distrust towards existing decision-making processes, it was also noticeable that the aspiration of island communities is to play a steering role in the decisions that concern their future. The main argument was that only locals know correctly the island. For instance a member of the local fishers’ organisation stated clearly that local fishers are the only able to define conservation areas: “It will not be the scientists [to decide optimal areas for maritime conservation] because they do not know anything about local fisheries, we do know”. The representative of the local library also stated clearly the same idea: “it is the people that live on the island that know better what the island needs”. This willingness to be taken in consideration and to play an active role can be understood as a desire to value and protect local identity and the elements that constitute it. But it seems that confidence in the decision-makers should be renewed in order to increase the active involvement of the lay population in decision-making.

7. CONCLUSION

The literature review has shown that insular communities suffer from economic and environmental vulnerabilities that challenge their development, however islands are also considered to be relevant case study areas to undertake projects for sustainability. Independently of the methodological contributions, the present project has brought light into some of the elements that constitute the identity of Flores Island. These elements were directly related to the value given to local environment. But it can be argued that this preference for BDS, and *Ecotopia* scenario can also be explained by a will to avoid changes which corresponds to the low expectation of change identified in the research. Green development, as proposed in this scenario, might have been seen by the participants as a way to guarantee the continuity of the existing way of life and it can be used as an argument to prevent deeper social and economic changes. But this preference for greener options is however an opportunity to foster sustainable behaviours among the concerned population.

Small territories face rapid depletion of their natural resources; the consequence of this is a fast materialisation of the negative side effect of unsustainable growth observable by the local population. Therefore islanders are potentially the first beneficiaries of efficient and sustainable use of the available land and, as observed by Péron (2004), adapted plans should be decisive in this process. Moreover the participation of the local community is essential to inform these policies in order to produce the “appropriate socio-cultural plan(s)” (Péron, 2004) adapted to each individual island and accepted by the local population. The case study as shown that local and Regional participants value positively Flores Island environment and that nature is usually used to identify and characterize the island. Moreover, islanders’ predisposition to understand and be aware of the threats associated to unsustainable practices should be a factor of success in these participative processes and in adapting “pro-environmental behaviours” (Kollmuss and Agyeman, 2002). Independently of the utility for sustainable land management, the international declaration of protected areas (e.g. UNESCO Biosphere Reserves or Natura 2000 sites) can work as a lever to foster local environmental practices in Flores Island. On the one hand they can help to reinforce the value that locals give to the environment and the image they have of their own island. On the other hand they can help to potentiate nature tourism sector, which is often seen as a key sector in the economy of small islands (McElroy, 2006). Tourism in Flores can play a relevant role in wealth creation and the preservation of the elements that constitute the local identity, which in this research was often related with the local natural environment. Therefore in Flores tourism seems to be an opportunity rather than a threat for local sustainability, but it is relevant to question if the current growth of the sector can modify this situation.

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