

## **Sustainable local development on Aegean Islands: a meta-analysis of the literature**

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**ABSTRACT:** Sustainable local development is central to debates on socioeconomic and environmental change. Although the meaning of sustainable local development is disputed, the concept is frequently applied to island cases. Studies have recently been made of many local development initiatives in different contexts, with various methods and results. These experiences can provide valuable input on planning, managing, and evaluating sustainable local development on islands. This paper provides a literature review of positive and negative examples of sustainable local development for the Aegean Islands, Greece. Out of an initial 1,562 papers, 80 papers made the final selection based on theme, empirical approach, and recency. The results demonstrate a wide thematic variety in research topics, with tourism, agriculture, and energy being the most frequent themes, while integrated frameworks are largely absent. The literature includes a wide range of methods, from quantitative approaches with indicators and indexes to qualitative assessments, which blurs overall assessments in many instances.

*Keywords:* Aegean islands, economy, environment, sustainable local development, meta-analysis

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### **1. Introduction**

Sustainability and sustainable development are notions that are widely used today in areas of research, policies, monitoring, and planning (Spilanis et al., 2009). Despite widespread agreement that ‘sustainable development’ is the desired goal of all policies and human societies, it is unclear how the general definitions can be translated into concrete and measurable policy goals. Moreover many issues need to be addressed to make sustainable development operational, such as the appropriate geographical scale for action and the development of effective tools that will help achieve sustainability (Kondyli, 2010).

Methodologically, islands are ideal ‘laboratories’ for studying and measuring sustainability, with easily discernible limits and defined flows (Spilanis et al., 2009; Rodríguez et al., 2008). On the other hand, Huang et al. (2008) and Grydehøj and Kelman (2017) demonstrate the existence of “eco-island traps”: small island communities are typically characterized by environmental, economic, and social vulnerability in practice. Many of these islands face particular economic and social development challenges, nowadays exacerbated by environmental issues due to anthropogenic activities. In fact, all of the characteristics of islands can also be perceived as a strategic opportunity for sustainable development or a chance to re-define and re-frame it. This is the starting point for the present paper: Islands are and/or can be attractive, and they are and/or can be sustainable (though not necessarily self-sufficient since, within current economic paradigms and applications, many islands cannot be sustainably developed; see Baldacchino & Kelman, 2014). Yet this is not achieved by isolating islands from the global socioeconomic system, but instead by incorporating them into the system on terms that are sensitive and sympathetic to their islandness and their local development. According to Baldacchino and Kelman (2014), we need to move beyond the mono-dimensional characterization of so many threatened island ‘paradises’.

This paper uses a meta-analysis of the literature on approaches to and case studies of sustainable development on Aegean islands to provide insight into what has ‘worked’ and what ‘has not worked’ as well as what has received attention within the literature. Ultimately, we wish to contribute towards re-framing sustainable development for islands.

## **2. Methodology**

### *2.1. Research approach*

With the goal of selecting case studies on different aspects of sustainable local development for the Aegean islands and of critically examining positive and negative aspects of these case studies, we followed a three-step approach.

First, we defined the title and the keywords for the search of documents dealing with sustainable local development in the Aegean Islands. The notion of sustainable local development has a history going back nearly two decades and has increasingly been translated into operational policy guidelines and measurable indicators. Examples are agricultural sustainability, urban sustainability, and transport sustainability (Girard & Nijkamp, 2009). The terms used in the English language in the literature review were ‘Aegean Island’ OR ‘Aegean’ in article title, abstract, and keywords. The search was undertaken in early 2015 and yielded 1,562 documents. The search was done in the Scopus database and in the ‘Archipelago’ repository (<http://archipelago.aegean.gr/>, operated by University of the Aegean), in which mostly Greek researchers have submitted research. Specific locations or islands were not searched for due to widely different Latin transliterations of Greek island names (e.g., Thera, Thira, Santorini for the island of Santorini; Lesvos, Lesbos, Mytilene, Mytilini for the island of Lesvos; Samothraki, Samothrace for the island of Samothraki) and the large number of islands involved. This final list is partial and refers to a fraction of the papers in existence; nevertheless, we believe it provides an accurate and representative selection for the type of broader geographical analysis in sustainability approaches that this paper provides. Out of these documents we selected: (a) papers that referred to specific case studies of Greek Aegean islands; (b) papers with a timeframe of the 20<sup>th</sup> and 21<sup>st</sup> centuries. The final number of papers selected was 196.

In the second stage, we read the abstracts of the papers in order to identify sustainable local development approaches, resulting in a further narrowing of the

selection to 80 papers. In the third stage, we studied full texts of the selected papers and classified the approaches under seven main themes. These were: the three dimensions of sustainable development: economy (with five sub-themes), society (with two sub-themes), environment (with five sub-themes); integrated approaches to sustainable development/sustainability; and three more issues very important for islands: accessibility, transport, and attractiveness (Table 1). The final list of themes was derived by initial classifications from the keywords and the themes of each paper, which we afterwards categorized according to thematic relevance. These seven main themes (categories) were not exclusive, and each paper could be classified under more than one theme and/or sub-theme.

**Figure 1:** Location of the case study Aegean islands (Region Notio Aigaio = South Aegean, and Region Vorio Aigaio = North Aegean)



Source: translated from Spilanis & Kizos, 2015.

## 2.2 The case studies area

Constantakopoulou (2007, p. 2) writes:

The Aegean, according to Aelius Aristeides, has the best position in the world: it is located in the middle of the *oikoumene* and in the middle of the Greek world. Indeed, the history of the Greek world is in many ways the history of the Aegean sea. The Aegean sea, however is dominated by its islands; it is no coincidence that in the Ottoman period the Aegean sea was also called ‘Adalar Denizi’, Sea of islands.

Geographically, the Aegean islands occupy a space defined by the island of Crete in the south, mainland Greece in the north and west, and mainland Turkey in the east, a total land area of approximately 19,000 km<sup>2</sup> (Karampela et al., 2015). Greek sovereign land includes islands and islets scattered across the Aegean and Ionian Seas, of which only 114 islands are inhabited.

## 3. Results

The terms that were found in the literature include not just ‘sustainability’, ‘sustainable development’, and ‘sustainable local development’, but also various sub-themes, for example, sustainability of energy, of agriculture, sustainable tourism development. The ability to exchange positive and negative experiences, knowledge, and practices could provide positive results for managing sustainable local development. The most papers are related to environmental aspects of sustainable development (41%), followed by those related to economy (35%), with the least reference to sustainability/sustainable development in a general sense (4.4%), and accessibility (5.2%).

**Table 1: Frequencies of themes and sub-themes of the 80 selected papers**

Themes	Sub-themes	Number of papers	Total Percentage
Economy	General	7	5.2%
	Tourism	23	17.0%
	Agriculture	14	10.4%
	Marine	2	1.5%
	Employment	1	0.7%
Society	General	8	5.9%
	Social capital	3	2.2%
Environment	General	22	16.3%
	Resources	3	2.2%
	Landscape	12	8.9%
	Energy	15	11.1%
	Water	3	2.2%
Sustainable development / sustainability		6	4.4%
Accessibility		7	5.2%
Transport		8	5.9%
Attractiveness		1	0.7%
Sum		135	100.0%

Source: authors

The articles were also classified according to the geographic area that they include. Most of the papers (81) refer to case studies of specific islands (see [Figure 2](#)), including 36 different islands of the Aegean Sea ([Table 2](#)), and 54 of the papers refer to multiple Aegean islands and chains, such as the Dodecanese, the Cyclades, and the Northern Aegean region. Most references are to large administrative units, usually due to a lack of local data (especially in economy themes). In accordance with the typology of the Aegean islands adapted from Spilanis and Kizos (2015), findings also indicated that the papers most frequently examine case studies of ‘medium-sized’ islands (see [Table 2](#)). In contrast, references for the North Greek coastal islands of Thasos and Samothraki did not exist during the timeframe of our literature review.

Energy seems to be the most-analyzed topic concerning sustainable development for Aegean islands. Case studies of ‘medium’, ‘small’, and ‘very small’ islands showed that the estimation of energy efficiency and the production of secure and environmentally friendly energy sources are important topics for sustainable local development.

Lesvos island appears to be the most-used case study, either as a part of the North Aegean islands NUTS II region or as a single study area. This is related to (a) the location of the island (Lesvos is the biggest island in the Northern Aegean and therefore has more services available locally), and (b) the establishment of the University of the Aegean on various islands (Lesvos, Chios, Samos, Limnos, Syros, Rodos) provides the opportunity for more local research.

**Table 2: Typology of the case study Aegean islands according to size and population.**

Area/ Population	Very big (>500,000 inhabitants)	Big (500,000- 50,000 inhab.)	Medium (5,000- 50,000 inhab.)	Small (750-5,000 inhab.)	Very small (750> inhab.)
Very big (>1,000 km <sup>2</sup> )	Crete	Lesvos, Rodos			
Big (500-1,000 km <sup>2</sup> )		Chios			
Medium (100-500 km <sup>2</sup> )			Samos, Ikaria, Limnos, Paros, Andros, Naxos, Kalymnos, Kos	Skyros, Ios, Milos	
Small (100-50 km <sup>2</sup> )			Santorini, Mykonos, Syros, Leros	Sifnos, Astypalea, Tilos, Symi	
Very small (50 km <sup>2</sup> >)			Skiathos	Oinousses, Fournoi, Nisyros, Antiparos,	Ag. Efstratios, Psara, Donoussa,

				Patmos	Thirasia, Chalki, Gavdos, Antikythera
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Source: Adapted from Spilanis & Kizos, 2015.

In Table 3, the content of the papers, their most important issues, and their findings are presented per sub-theme in more detail. The sample includes few methodological papers, and most papers in our sample are case studies of one or more sub-themes in one or a few islands, especially for energy, tourism, and environment.

**Table 3: Presentation of the papers' content for themes and sub-themes.**

<b>Theme / sub-theme</b>	<b>Most important issue(s) presented</b>	<b>Most important findings</b>
Economy	<ul style="list-style-type: none"> <li>▪ methodological tools with composite indexes that go beyond GDP per capita, comparing the state and attractiveness of island administrative units (59); applying an expanded version of the DPSR approach on Paros and Kos (58); or using systems analysis to integrate all three sustainable development dimensions (24);</li> <li>▪ socio-economic impacts (for designated food products (72); for Greek return migration to East Aegean islands (47); for telecommunications connectivity and cost (6));</li> <li>▪ the effectiveness of development policies (56) for European Regional Development Fund projects.</li> </ul>	<ul style="list-style-type: none"> <li>▪ For tourism: lack of clear and operational definitions of sustainable tourism lead to confusion about its practical meaning and how it can be achieved (55).</li> <li>▪ The monoculture of tourism on quite a few islands affects all other economic activities, but alternative forms of tourism in general were of limited analysis (e.g. (1); (55); (51)); with a special mention in agrotourism (20), where networking and synergies are lacking.</li> </ul>
Tourism	<ul style="list-style-type: none"> <li>▪ tourism supply (tourism identities (34); spatial transformations and tourism carrying capacity (61); regional tourism development and policy (66); women's cooperatives and their contribution to local development (73); the 'nature' of agrotourism in Greece (20); and hotel employees' and postgraduate students' representations of 'tourism development' (31));</li> <li>▪ tourism demand (where residents and/or visitors' views on different issues are studied: on environmental impacts of eco-tourism (53); on cultural tourism services (51); on quality of services (38); on the image of a tourist destination (62); on <b>tourism</b> infrastructure (64); on the cementation of beaches (77), while (39) and (1) discuss travel patterns, motivations, activities, norms, beliefs, appearance, and forms of social interaction);</li> <li>▪ impacts of tourism activity on many different issues ((55) provide an overall assessment method; (54), (69), and (60) of tourism infrastructures &amp; facilities on the environment; (48) analyses the extraordinary case urban</li> </ul>	<ul style="list-style-type: none"> <li>▪ Islands' branding, destination image, and identity with few references (34); (62).</li> <li>▪ Information technology has</li> </ul>

Theme / sub-theme	Most important issue(s) presented	Most important findings
Agriculture	<p>sprawl in Mykonos; (67) study impacts of tourism employment on taxation; (75) propose alternative impact scenarios (80); and (27) impacts on agriculture).</p> <ul style="list-style-type: none"> <li>▪ different cultivation practices (soil fertility (74), comparisons between island and continental practices (30); and the role of ‘traditional’ olive plantations on economic, social, and environmental farm household characteristics (16));</li> <li>▪ products and local / rural development ((72) presents a designated cheese product; (11) Chios mastic; (22) compare designated and ‘conventional’ olive oils; and (73) the economic performance of women cooperatives);</li> <li>▪ tourism vs. farming activities ((27) discuss maintenance or abandonment of olive tree cultivation and population changes with presence or absence of tourism; and (20) present the relation between agrotourism and farming activities);</li> <li>▪ the rural landscape ((5) discuss the correlation between terrace construction and changing human population; and (21) the landscape changes in olive plantations at different levels).</li> </ul>	<p>been considered as a factor that can potentially reduce seasonality (39).</p> <ul style="list-style-type: none"> <li>▪ Alternative policies to improve the effectiveness of the application of a new tax policy are suggested (75); and measures that can lead to balanced tourism development (67).</li> <li>▪ Agriculture is declining, but there are still some positive and successful production examples. The absence of consensus and common management among the different actors across the supply chains is noted as both a problem and constraint (22).</li> </ul>
Marine	<ul style="list-style-type: none"> <li>▪ supply ((76) discuss diversity and population density of sponges);</li> <li>▪ demand ((44) analyze consumers’ behaviour towards organic aquaculture products).</li> </ul>	
Employment	<ul style="list-style-type: none"> <li>▪ regional tourism inequalities (reasons, degree of intensity, etc.) according to the rate of hotel and restaurant employment, which in Greece represents a big percentage of total employment in the field of tourism (67).</li> </ul>	
Society	<ul style="list-style-type: none"> <li>▪ ‘social’ indicators ((58) identify five factors including the number of active inhabitants; unemployment; job positions; incomes; population size and age structure; while (24) considered population size, age structure, and social cohesion, related with welfare, equity, and collective action);</li> <li>▪ society and tourism (ecotourism and how it can improve welfare locally (53));</li> <li>▪ return migration (47);</li> <li>▪ marriage, family formation and dissolution, and life styles (14);</li> <li>▪ telecommunications (6);</li> </ul>	<ul style="list-style-type: none"> <li>▪ Although many papers argue that regional governance, partnership building (15), participatory planning (4), consensus-building (50), and the critical role of social agents (13) are</li> </ul>

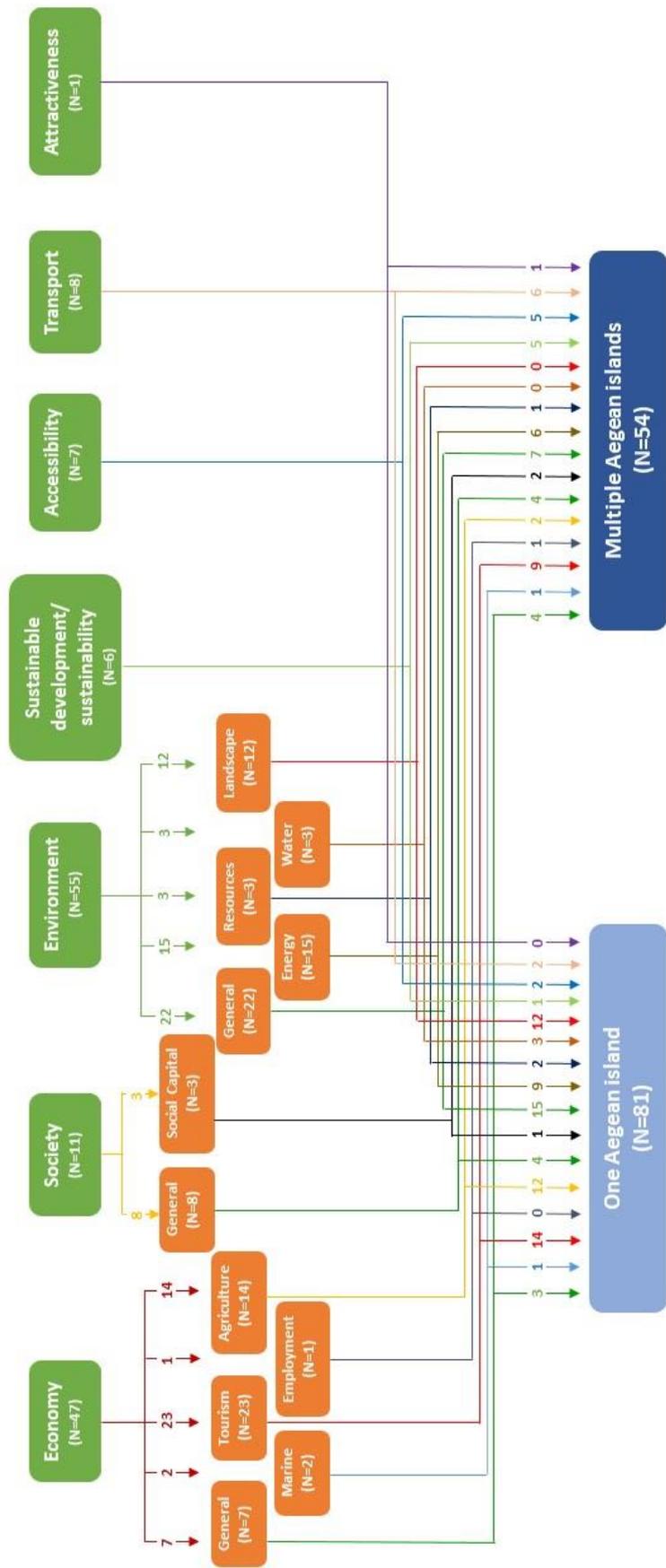
<b>Theme / sub-theme</b>	<b>Most important issue(s) presented</b>	<b>Most important findings</b>
Social capital	<ul style="list-style-type: none"> <li>▪ the critical role of social agents and non-state actors in policy-making and new forms of regional governance (15); (13).</li> <li>▪ forms in rural settlements (78);</li> <li>▪ regional governance (15); and</li> <li>▪ consensus-building, or new ‘intellectual, social, and political capital’ (50).</li> </ul>	<p>important for sustainable local development, few offer insights or prescribe solutions.</p> <ul style="list-style-type: none"> <li>▪ Overall poor Greek cooperation and networks experience, especially at the regional level (20), directly linked to the lack of information and intermediary institutions that promote dialogue and participation of different social groups in planning procedures (15).</li> <li>▪ Societal aspects of renewable energy (and water) systems on islands are recognized as equally important as technical aspects, therefore ensuring participation of local stakeholders (41); (9) already from the early stages (4) is very important.</li> </ul>
Environment	<ul style="list-style-type: none"> <li>▪ methodological tools, including indicators (58); nutrient cycles of ecosystems (2); runoff and soil erosion modeling (3); vegetation analysis (7), environmental scenarios (10); landscape modeling (12); qualitative assessments (16);</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tourism seen with double role: exerting pressures (54), but also</li> </ul>

Theme / sub-theme	Most important issue(s) presented	Most important findings
	<p>(18); and composite indicators in a policy context (24);</p> <ul style="list-style-type: none"> <li>▪ environmental technology and management, including land-cover change (58), land-use patterns and visibility (52), landscape composition and configuration (8), soft computing methods for erosion risk (17);</li> <li>▪ abandonment (70); (48); (42); (54); (27); (71);</li> <li>▪ products, including consumers' behaviour towards organic aquaculture products (44) and natural sponges (76).</li> </ul>	<p>'alternative' forms potentially positive for local development (55); (20); (39);</p> <ul style="list-style-type: none"> <li>▪ Housing pressure higher on islands with more tourism, but also on islands of smaller size (54);</li> </ul>
Resources	<ul style="list-style-type: none"> <li>▪ diversity and population density of sponges (76);</li> <li>▪ aquaculture products (44);</li> <li>▪ beach sediment cementation (77).</li> </ul>	<p>'second home' sprawl rather limited with exceptions such as Mykonos (48);</p>
Landscape	<ul style="list-style-type: none"> <li>▪ landscape changes (63); (70); (48); (42); (5); (8); (13); (21); (23);</li> <li>▪ landscape analysis (52); (71); (12).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Modeling can help in determining relationship of agricultural practices and Mediterranean ecosystems (3);</li> </ul>
Energy	<ul style="list-style-type: none"> <li>▪ renewable energy sources for islands (32); (33);</li> <li>▪ scenarios for non-interconnected islands (19) and for other islands (4);</li> <li>▪ simulations of hybrid systems (28);</li> <li>▪ regional considerations (35);</li> <li>▪ effective financing (41);</li> <li>▪ reports on pilot energy projects (40); (29); (45);</li> <li>▪ and the very important issue of wind farms locations (65); (36) and their local acceptability (9).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Locally focused policies, such as agri-environmental measures can provide solutions to sensitive areas, such as the Aegean islands (23);</li> </ul>
Water	<ul style="list-style-type: none"> <li>▪ hybrid energy water desalination systems (28);</li> <li>▪ photovoltaic micro-hydraulic systems (29);</li> <li>▪ financing issues (41).</li> </ul>	<ul style="list-style-type: none"> <li>▪ In most islands there is a high potential for renewable energy sources (32); with high investment for installation, but this should be treated with minor importance when economic and social impacts</li> </ul>

<b>Theme / sub-theme</b>	<b>Most important issue(s) presented</b>	<b>Most important findings</b>
		<p>are also counted (29);</p> <ul style="list-style-type: none"> <li>▪ Many barriers to renewable energy, including grid infrastructure, complex licensing system, local reactions, and lack of financial advantages (33); (35).</li> </ul>
Cross sectoral	<ul style="list-style-type: none"> <li>▪ measurement tools (58); (24);</li> <li>▪ consensus-building (50);</li> <li>▪ tourism and sustainable development (61); (55);</li> <li>▪ energy and sustainable development (33).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Agricultural sustainable systems seem to depend on economic effectiveness rather than social and environmental (16);</li> <li>▪ Despite interest in developing sustainability indicators (58), few studies compare sustainable development of specific areas for different time periods (24).</li> </ul>
Accessibility	<ul style="list-style-type: none"> <li>▪ measurement issues ((57) use available transportation, frequency, and travel time) and the ‘imagined’ accessibility that telecommunications offer (6);</li> <li>▪ market concentration in coastal shipping and its impacts on accessibility (25);</li> <li>▪ and more technical approaches on managing supply and demand with spatial information systems (37), choice (46); (43) and travel decisions (26).</li> </ul>	<ul style="list-style-type: none"> <li>▪ High levels of transport market concentration affect severely accessibility and seasonality (57) and for local sustainable development, as extra costs, direct and indirect, are a permanent factor that burdens all</li> </ul>
Transport	<ul style="list-style-type: none"> <li>▪ supply (25); (37) and</li> <li>▪ demand (46); (26); (1); (49); (68); (43).</li> </ul>	

<b>Theme / sub-theme</b>	<b>Most important issue(s) presented</b>	<b>Most important findings</b>
		activities on and of islands (43); (57); (26).
Attractiveness	<ul style="list-style-type: none"><li>▪ only in (59) with the use of indicators and overall indexes for island administration units.</li></ul>	<ul style="list-style-type: none"><li>▪ Lack of decisive information to support local development decisions.</li></ul>

**Figure 2: Classification of themes, sub-themes, and one or multiple Aegean islands.**



#### **4. Discussion**

The analysis presented here contributes a number of interesting and important results concerning sustainable local development not only for Aegean islands, but also for islands in general. The analysis also highlights gaps in the literature and widely covered topical areas.

Tourism stands out as the area with the best coverage. The literature covers various aspects of tourism well but is weak in terms of so-called ‘alternative’ forms (e.g., Andriotis, 2013; Spilanis & Vayanni, 2003). Despite the obvious finding that tourism is very important as an economic, social, and environmental activity, the literature does not analyze in depth or even discuss implications, differences, and specificities of tourism on islands, whether the practice of tourism and its impacts are related to islandness (Pons & Rullan, 2014). The related issue of ‘second home’ development and urban sprawl is important in terms of land cover (Kizos et al., 2017), but the relevant analysis in the literature is very limited and concerns just a few islands (e.g., Salvati, 2013, for Mykonos; Spilanis & Karayiannis, 2009, for the Cyclades). Relatively ‘new’ and very popular subjects in the tourism literature (Kladou et al., 2015; Liang, 2014; Moore, 2015) also receive little discussion (Nazou, 2009; Styliadis et al., 2008).

Another well-covered issue is energy and water provision, for which islandness is indeed very important and influences the research and discussion approach. Apart from mostly technical contributions, interrelationships between economic and especially social aspects of energy issues are neglected (with the exception of Dimitropoulos & Kontoleon, 2009; Manolakos et al., 2004; Oikonomou et al., 2009; Patlitzianas & Kolybiris, 2012). This is an important omission, as ‘success’ or ‘failure’ of such systems is often an issue of local consensus, engagement, and participation (Mondol & Koumpetsos, 2013). For us, this seems to be one of the areas on which future research should focus.

Human and social capital also receives very few references. Many approaches recognize that ‘networking’ and ‘cooperation’ are particularly important for islands, where human resources are often limited, and within different social groups (e.g., tourists and locals; Vousdoukas et al., 2009; Tampakis et al., 2012). The limited Greek experience in networking and partnership-building is also highlighted (Getimis & Demetropoulou, 2004), as are the critical role of social agents (Galani-Moutafi, 2013) and non-state actors in policy-making, new forms of regional governance, partnership-building (Getimis & Demetropoulou, 2004), participatory planning (Balaras et al., 1999), and consensus-building (Sapountzaki & Wassenhoven, 2005). What seems to be missing are assessments of the ‘quantity’ and ‘quality’ of human and social capital, an important omission for us.

Transport and accessibility are also popular themes and are unsurprisingly determined by islandness. Travel times and travel costs of alternative modes of transport play a significant role in choices (Polydoropoulou & Litinas, 2007; Spilanis et al., Kizos & Petsioti, 2012), along with the travelers’ features (such as income, age, education, and occupation; Levy & Panou, 2010; Polydoropoulou & Litinas, 2007).

Cross-sectoral papers include efforts at integrated measurement of sustainable development with composite indicators and indexes. Despite interest in the development of sustainability indicators, their actual use as tools that can inform policy makers and help formulate policies seems very limited (Kondyli, 2010; Spilanis et al., 2009; Spilanis et al., 2013). Again, here, the particular theme is open for further

research and applications that should provide ‘digestible’ information to policy-makers and suggest not only measurement instruments and tools, but also feasible applications.

Finally, an issue that we consider important is the lack of comparisons within islands (see, e.g., Armstrong et al., 2014) and between islands and similar continental areas. According to Baldacchino (2004, p. 278):

There is no better comparison for an island than another island. There may also be no better comparison for a mainland than an island, since the processes and dynamics that occur habitually on a mainland may be enhanced and exacerbated in an island setting.

Furthermore, in many areas like the sustainable local development, studies are also strengthened and enriched by an ‘island-mainland’ as well as an ‘island-island’ comparison or dialectic (such as cultural history, electricity generation, waste management, or price differentials; Baldacchino, 2006). These would allow more realistic comparison of economic and social issues and would also shed more light on certain issues pertaining to islandness that the literature seems to take for granted or simply ignores (see e.g., Spilanis et al., 2012, for availability of everyday services). Some references that attempt to take these issues into account are revelatory: comparisons within islands (Kondyli, 2010; Salvati, 2013; Nazou, 2009); and islands and similar settlements in continental Greece (Kizos & Iosifides, 2007; Polymeros et al., 2014; Spilanis et al., 2012).

Moreover, “islands are not islands, in the sense that they are not closed unto themselves. [...] The conception and expression of island identity, as well as its size, are part of an ongoing dialectic between the geographic and the political” (Baldacchino, 2004, p. 273-4). This is exactly what DeLoughrey (2001, p. 23) usefully labels “a system of archipelagraphy, a historiography that considers chains of islands in fluctuating relationship to their surrounding seas, islands and continents” (see also Pugh, 2016; Stratford et al., 2011). Constantakopoulou (2007, p. 2) gives island networking an important role in the history of the Aegean, emphasizing that “islands were understood as distinct ‘closed’ worlds, ideal locations for the extraordinary and the bizarre, but at the same time they were also perceived as parts of a complex reality of interaction.”

In our literature review, we reinforced the statement made by several authors that in “the field of island studies, the archipelago remains one of the least examined metageographical concepts” (Stratford et al., 2011, p. 118; see also Pugh, 2013). The Aegean is one of the most famous archipelagos in the world but rarely identified as such. According to Karampela et al. (2015, p. 46-47):

For the Aegean islands in general, an international image and brand already exists, as an archipelago. But, despite historical, geographical, climatic, linguistic, landscape and other similarities, there remain considerable differences in perception, representation and imagination within this ancient archipelago [...] Within the archipelago, the image of smaller islands is overshadowed by that of larger ones or of the archipelago itself.

Figure 2 displays this island focus in the literature review with 81 cases for one Aegean island versus 54 cases for multiple islands. This highlights the necessity of moving beyond thinking of islands as ‘closed’ worlds and instead thinking of them in terms of islands interactions, archipelagos, and aquapelagos. Reframing the

Archipelago allows for a broader discussion and overcomes the geographical challenges presented by the scattering of islands, which is recognized as key to the sustainable development (Dean, 2016). Hayward (2012, p. 6) refers to the special nature of archipelagic planning and emphasizes “the aquapelago as an entity constituted by human presence in and utilization of the environment (rather than as an ‘objective’ geographical entity),” terms that are missing from our literature review. Research addressing aspects of the relationship between fisheries and societies perhaps represents the most obvious area; see the approach of Hayward (2011). Also, “islands and archipelagos pose unique challenges for tourism policy. While tourism development in islands is well studied, little attention has been given to archipelagos and their special challenges” (Bardolet & Sheldon, 2008, p. 900; see also Baldacchino & Ferreira, 2013; see also Baldacchino, 2015, for archipelago tourism and Grydehøj, 2008, 2011, for the place-branding process that has been undertaken in the Shetland archipelago).

## **5. Conclusion**

In this paper, we wished to provide foundations for a reappraisal of sustainable development on/for islands with the use of specific case studies (thematic and cross-sectoral) for a specific area of islands, namely the Aegean. This is the only review paper with meta-analysis focused exclusively on Aegean islands. It thus joins other meta-analyses of island studies literature with different topical focuses, such as Baldacchino (2004), Depraetere (2008), Fletcher (2011), Grydehøj et al., (2015), Lewis (2009), and Mezzana et al. (2012). One of our most important findings refers to the difficulty of handling the conceptual, methodological, and empirical diversity found in the literature. Sustainable development remains an arena of contested, contrasted, and sometimes contradictory meanings and operationalizations (Abson et al., 2014; Fischer et al., 2007; Fredericks, 2013; Landerretche et al., 2017; Mori & Christodoulou, 2012; Parris & Kates, 2003). But, at the same time, this diversity should be also welcomed as evidence of plurality and as an indication that, just as there are many ways of studying aspects of sustainable development, there also seem to be many alternative pathways towards achieving it. Our examples clearly indicate this.

This article can serve as a basis and a tool for future research because it highlights gaps in the literature concerning Aegean islands: (a) cross-sectoral approaches, (b) social aspects of sustainable development, and (c) links between environmental aspects and economic and especial social aspects. In the words of Baldacchino (2006, p. 10), “Island studies’ need/should not be focused only on islands themselves, but also on relations between islands and mainlands. [...] Seeing islands as part of complex and cross-cutting systems of regional and global interaction should be one of the strengths of island studies.” Baldacchino (2006) thus emphasizes the potential for studying archipelagoes (see also Depraetere, 2008) as well as the opportunities islands provide for comparisons and alternative models of development. This itself highlights the archipelagic characteristics with which the literature on sustainable local development should be engaged. According to Koutsouris (1998), the local is the opposite of the global, being at the same time the victim of the global. In the era of globalization, schematically speaking, business becomes global and reactions arise at the local level. Globalization both standardizes and homogenizes as well as highlights and invigorates local initiatives and identities (Baldacchino, 2004; Hay, 2006).

Despite the contribution of this paper, there are some limitations. The study uses the Scopus database, which despite being authoritative (Sainaghi et al., 2017) is

not exhaustive of all the possible publications relating to sustainable local development on Aegean islands, especially chapters in edited volumes that are not yet fully integrated into scientific databases. Similarly, we do not include textbooks, 'grey' literature, and sources in Greek in our sample. Notwithstanding these limitations, our sample is valid within its scope, and will help to identify salient longitudinal themes in its field for the purposes of this paper.

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