# Tourism Governance for Reaching Sustainability Objectives in Insular Territories – Case Study Dodecanese Islands' Complex, Greece

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**Abstract.** The steadily increasing number of people, travelling around the world for leisure purposes, has raised concerns as to their impacts on sustainability of destinations, affecting the quality of life of local population and the quality of visitors' experience. The higher the volume/seasonality/mass type of tourist flows and fragility of the destination the greater the impacts these flows cause, leading – under certain circumstances – to the "overtourism" phenomenon, i.e. surpass of destinations' carrying capacity in environmental, social, cultural, etc. terms. This phenomenon appears recently as a noticeable trend in several Mediterranean insular destinations; and calls for tourism governance – both horizontal and vertical – and policy interventions that: prioritize long-term sustainability objectives to the benefit of islands' communities and visitors; and engage local communities as integral parts and safeguards of destinations' assets. In this context, this paper explores the potential for sustainable tourism practices to grow in the Greek islands' ecosystem, using as a case study the Dodecanese Islands' complex. Towards this end, it draws upon an innovative methodological approach that integrates quantitative / qualitative research and policy analysis, while cross-cutting all spatial levels. Through this study, weaknesses of tourism governance structure in Greece are highlighted, while challenges and opportunities faced at the local level are also unveiled.

**Keywords:** Islands · Tourism governance · Sustainable tourism and regional development · Dodecanese islands' complex

## 1 Introduction

Tourism, as a means for leisure and experience gaining, has so far been part of the human nature and has evolved through time serving life purposes and goals' achievement; while significantly contributing to local, regional and national economies [1]. Nevertheless, the ever-increasing number of travellers willing to explore the world has, in many cases, led to tourism surges that go beyond the carrying capacity of hosting destinations [2]. This phenomenon is currently identified as 'overtourism' and is defined as "*the impact of*

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*tourism on a destination, or parts thereof, that excessively influences perceived quality of life of citizens and/or quality of visitors' experiences in a negative way*" [2: 4]; or the state where "hosts or guests feel that there are too many visitors concentrated to a destination and that the quality of life in the area or the quality of the tourist experience has unacceptably deteriorated" [3]. According to the aforementioned definitions, overtourism is clearly a matter strongly related to destinations' carrying capacity and fragility as well as the type of tourism; and has apparently negative impacts on the natural and social environment as well as the tourism experience itself.

Overtourism can be of critical concern when it comes to the highly attractive but also extremely fragile and spatially confined Mediterranean islands, i.e. top-rating world destinations, endowed by an outstanding natural and cultural wealth [4]. In fact Mediterranean islands act as magnets that attract, in most cases, excessive tourist waves that overcome carrying capacity constraints. This is "*the paradox of tourism in the islands"* [5: 133], where arrival of consistent tourist flows could alter their fragile ecological equilibrium, negatively affecting those natural and cultural resources that have initially aroused tourists' interest.

The overtourism phenomenon, especially in the fragmented insular contexts, is a complex and multifaceted issue, recently gaining the attention of the academic and policy community [6–11]. Thus concerns are raising as to the severe environmental (strain of the natural environment, leading to e.g. water scarcity, pollution, and damage to local ecosystems) and socio-cultural (e.g. breaking up of social cohesion, cultural degradation and identity loss, overcrowding, real estate disturbances) repercussions, rendering islands' sustainability objectives at stake.

Response to these challenges calls for the articulation of sustainable tourism pathways that prioritize long-term well-being of islands' hosting communities, while serving visitors' unique experiences [12–14]. This, in turn, implies adoption of holistic and integrated, place-based and community-centric planning approaches that address environmental protection, economic prosperity and social justice objectives in insular contexts [15–17]. Such objectives, although are at the forefront of discussion and a building block of tourism for more than two decades – e.g. Agenda for a sustainable and competitive European tourism [18]; European Agenda for tourism 2030 [19] – they still remain relevant. Thus planners and policy makers are still in need of confronting with such a "wicked" planning problem, i.e. sustainable tourism, particularly in fragile island compartments; and conceptualizing proactive and socially-innovative approaches that harness tourism benefits, while meeting challenges of the rapidly transforming tourism scenery in insular contexts.

In seeking to achieve sustainable tourism objectives, *tourism governance* seems to be a key dimension [20–23]. In fact tourism governance, within the frame of sustainability, is perceived as the set of processes, rules and stakeholders' empowerment and engagement in support of cooperatively sketching and implementing future tourism pathways of a destination in order for collective goals to be met [22].

Within such a context, this research work attempts to highlight *complexity* of tourism governance in seeking to achieve sustainable, culture-led tourism in insular regions. As a case study, the Dodecanese islands' complex in South Aegean Region, Greece is selected, namely an area of geopolitical importance, remarkable natural and cultural

beauty, diverse island-based tourism profiles as well as a quite distinct – in terms of tourism dynamism – and fragile insular territory of the Greek state.

Tourism governance issues in the specific Dodecanese islands' complex are explored in this work by means of the following research questions (RQ):

- RQ1: Does tourism governance at the national, regional and local level promote sustainable culture-led tourism practices? Or, stated differently, are relevant policies at the national, regional and local level coherent and coordinated towards a sustainable tourism perspective in this area?
- RQ2: What is the currently promoted Dodecanese islands' tourism model and how this conforms to sustainability objectives?
- RQ3: What is the real potential of those islands in support of a more people-centric and integrated tourism narrative, serving sustainability objectives?

In seeking to address these questions, this paper is structured as follows: in Sect. 2 the methodological approach is presented; Sect. 3 sketches the study region; Sect. 4 elaborates on the distinct methodological steps of this work; while finally in Sect. 5 results are discussed and conclusions are drawn.

## 2 The Methodological Approach

By focusing on the Dodecanese islands' complex, this research work aims at responding to the aforementioned research questions. In this respect, it attempts to shed light on *tourism governance* aspects at both the vertical – the Greek tourism policy context as a whole – and the horizontal (local) level. The former is carried out by policy analysis; the latter is grasped through the perceptions of representatives of the Dodecanese insular municipalities. In addition, the already visible social and environmental impacts of the aforementioned tourism governance model in the study region are explored in an effort to realize the linkages between these impacts and tourism governance failures.

More specifically, a blended *quantitative and qualitative* research approach is adopted, built-up as a 3-Component (3-C) methodological process (Fig. 1). This approach: highlights the context of the hierarchical multi-level – national, regional, local – tourism policy environment currently in force in Greece; explores the tourism potential of each single Dodecanese island for setting up more sustainable, culture-led, place-based and people-centric tourism narratives, as perceived by the representatives of local municipalities; and presents the social and environmental impacts of the prevailing tourism model, identified at the municipalities' level in Dodecanese islands. To this end are used policy analysis and quantitative and qualitative research methods, including a web-based questionnaire that is addressed to municipalities' representatives of Dodecanese islands.

In more detail:

- In *C1*, an overview of the currently in force policy documents, related to the tourism sector in Greece – national, regional and local level – is presented, highlighting challenges in tourism governance that can hinder or even promote decision-making and practices towards a sustainable tourism model; and demarcating the way these have affected the tourism model, featured in the Dodecanese islands' complex.

- In *C2*, is attempted a deeper insight into the current local practices forwarded by the Dodecanese islands' municipalities by elaborating on data collected through a *web-based questionnaire*. This aims at illuminating decision-making processes as well as nature/culture-related future alternative tourism practices that target more sustainable tourism outcomes.
- Finally, in *C3 a set of quantitative and qualitative indicators* is used to map the tourism profile of the Dodecanese islands' complex in particular, placing emphasis on issues related to the negative environmental and social impacts over these fragile insular spatial entities. Indicators used relate to tourism flows, tourism density, quality of life etc., in reference to local population and island size, in the effort to sketch the impacts of tourist flows on each single island of the Dodecanese complex.

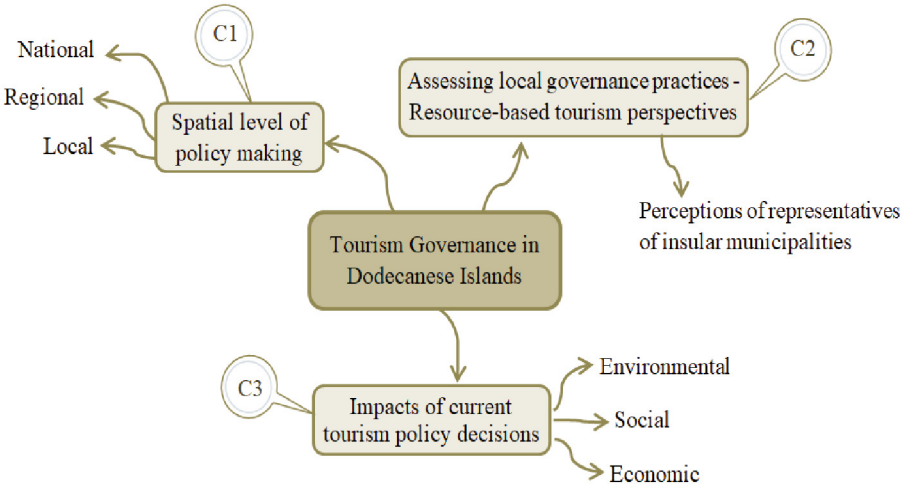



**Fig. 1.** Steps of the methodological approach, Source: Own elaboration

Realization of the aforementioned steps can shed light on key obstacles and issues that can either endorse or prevent steps towards sustainable tourism practices that set preservation of the local natural/cultural capital as well as local identity and social cohesion at the epicenter of the Dodecanese tourism narrative.

## 3 The Dodecanese Islands' Complex in Numbers

The case study area consists of a cluster of 15 inhibited islands and numerous smaller islets at the southeastern edge of the South Aegean Region. Dodecanese islands fall into the most distant ones from the mainland; are located next to the Turkey boarders and constitute a 'bridge' between Europe and the East, thus acquiring a certain geopolitical importance; display a diversifying tourism pattern far from their counterpart, i.e. Cyclades islands' complex as also part of the South Aegean Region; while also lag behind in terms of spatial and social cohesion.

Due to the geopolitical importance and the diverse roles Dodecanese Islands have played through centuries as part of the Mediterranean ancient sea routes as well as the prevailing commerce and intercultural exchange pattern, traces of different civilizations are still noticeable in these islands as remnants of cultural importance, e.g. by Ionians, Romans, Byzantines, Venetians, Ottomans and Italians [24]. As a result, a rich cultural heritage, with numerous archaeological sites, medieval castles, and churches is left behind which, in combination with the scenic natural environment, strengthens tourism attractiveness of these islands. Tourism is thus a major economic sector, displaying, however, significant interregional differences in both tourism demand and supply [6]. Rhodes and Kos are by far the most touristic islands of the Dodecanese complex, while islands like Leros, Astypalaia and Symi demonstrate a more relaxing, less crowded, and locally-adjusted tourism profile.

**Table 1.** Basic information of Dodecanese islands' complex – Population and tourist flows refer to the Municipality level, Source: Own elaboration from [25, 26].

| Municipalities of Dodecanese | Population (provisional data 2021) | Size ($km^2$) | Population Density | Island Category | Total arrivals (plane/boat) (2019) |
|---|---|---|---|---|---|
| Agathonisi | 203 | 14,5 | 15,04 | Very small | 3201 |
| Astypalaia | 1399 | 96,4 | 14,45 | Small | 22612 |
| Chalki | 476 | 26,99 | 16,92 | Very small | 0 |
| Kalymnos | 17797 | 111,1 | 160,51 | Medium | 98751 |
| Karpathos | 6416 | 324,1 | 21,30 | Medium | 121357 |
| Kasos | 1224 | 66,42 | 18,55 | Small | 5207 |
| Kos | 36986 | 287,2 | 127,41 | Medium | 1312054 |
| Leros | 7988 | 54,05 | 150,86 | Medium | 40827 |
| Lipsoi | 788 | 15,84 | 49,31 | Small | 13310 |
| Nisyros | 1043 | 41,2 | 25,19 | Small | 8097 |
| Patmos | 3217 | 34,14 | 94,48 | Small | 58099 |
| Rhodes | 124851 | 1401 | 89,30 | Medium | 2675365 |
| Symi | 2495 | 57,86 | 42,94 | Small | 185752 |
| Tilos | 745 | 61,49 | 11,86 | Very Small | 17179 |
| Megisti | 584 | 9.13 | 63.96 | Very Small | 4169 |

In more detail, the islands included in the Dodecanese complex and their main attributes in terms of size, population and tourism arrivals are presented in Table 1. Taking into account Spilanis and Kizos [27] categorization, distinguishing islands into: Very small ($\leq$750 inhabitants), Small (750–5000), Medium (5000–50,000), Large (50,000–500,000), and Very large ($\geq$500,000), in the Dodecanese cluster a percentage of 40% represents Small islands, 33% Medium-sized ones, while about 27% fall into Very Small

islands (draft data on population in 2021) [25]. In terms of tourism arrivals, reference to international and domestic tourists' travelling by boat and plane are used for the 2019 year (a year most representative of tourism flows before the pandemic outburst). According to those numbers, it is evident that all Dodecanese islands receive diverse, but also significant tourism volumes, compared to their size and population (Table 1).

## 4 Assessing Effectiveness of Tourism Governance in the Dodecanese Islands' Complex

In the following, results obtained out of the implementation of the aforementioned 3-c research methodology (Fig. 1) are presented.

### 4.1 The Greek Tourism Governance System (C1)

Tourism governance in Greece is the result of a multilevel spatial and developmental policy-making system, which determines the quality of the national tourism policy directions with regard to tourism sustainability and growth, including concerns related to remote, insular and peripheral regions. Decisive role in this governance system plays the Ministry of Tourism, being in charge of the tourism policy and development in Greece. The Ministry sets forward tourism legislation, approves the State's strategic tourism marketing plan, stimulates tourist investments, and focuses on the rise of quality and competitiveness of tourism products of Greece [28]. In doing so, it works in close collaboration with other interested Ministries (e.g. ministry of Environment and Energy); and tourism bodies, such as the Greek National Tourism Organization (GNTO) as the leader of the tourism marketing policy in Greece. Downscaling of tourism policy at the regional and local level is implemented through regional and municipal developmental and spatial plans, programmes and activities, following the national guidelines and being approved by both the Ministry of Tourism and the GNTO.

At the *national level*, GNTO's Marketing Plan 2019–2020 follows a region-based approach, showcasing the hidden attractions of each region and raising awareness of both domestic and inbound visitors in order for an even distribution of tourism flows in Greek regions throughout the year to emerge [28]. Despite the successful outcomes of tourism marketing campaign [29], however, the very essence of tourism planning at the national level seems to face significant challenges, mainly due to the fact that tourism policy directions are outdated at all spatial planning policy levels. This is mainly due to bureaucratic procedures, rendering reviewing and updating of current spatial policies a time-consuming process. In addition, a concrete and comprehensive insular policy is lacking, thus exacerbating sustainability and insularity concerns of respective areas.

In more detail, the current General Framework for Spatial Planning and Sustainable Development (GFSPSD) [30], already institutionalized since 2008, gives a rough direction towards the need to diversify the Greek tourism model, by emphasizing the role of *cultural heritage* towards this end. This, currently outdated, Framework is complemented by a set of sectoral spatial frameworks, including the one for tourism. The latter is under review since 2009, a fact that results in the lack of an effective, nationally-driven spatial and developmental tourism policy in the Greek scenery. In addition, an attempt

to establish a Special Framework for Coastal and Insular regions has failed to reach an institutional legitimization. A more optimistic flavour is added to the arsenal of the Greek tourism policy through recent legislations (Law 4582/2018 [31]; Law 4688/2020 [32]), addressing the development of thematic tourism products in alignment with contemporary tourism trends; and aiming at reducing acute seasonality. These recognize sea, spa, health, sports, rural, religious and MICE (Meeting, Incentive, Congress, Event activities) as key tourism growth opportunities. In addition, Law 4770/2021 [33] introduces an integrated maritime policy that favours Greek islands as unique and closely related to marine world places; and reflects on the particular social, economic and environmental challenges introduced by insularity.

Moving downward to the regional/local level, according to Law 3852/2010 [34], these administrative entities are in charge of planning and implementing regional and local developmental plans, funded by Regional Operational and Thematic Programs.

At the *regional level*, and more specifically the South Aegean Region, in which the Dodecanese islands' complex is incorporated, tourism planning is the outcome of the Regional Development Programme (RDP) 2021–2027 [35] and the, outdated since 2003 and currently under review, Regional Framework for Spatial Planning and Sustainable Development (RFSPSD) [36]. RDP is the most important funding mechanism when it comes to tourism policy at this level. According to currently funded projects, the focus is on cultural tourism that promotes more experienced-based, digital, green and inclusive tourism products, addressing already famous and of high importance island entities of both Cyclades and Dodecanese Island complexes [37]. The RFSPSD is the policy document that defines the spatial distribution of regional activities and land uses of the region, tourism included. According to RFSPSD's latest version [36], social and territorial cohesion objectives are of high importance. Achievement of such objectives calls for a place-based approach and locally-driven planning efforts. This is in line with the Shapley's [38] view, arguing that islands can create strong trans-island connections, owning to their uniqueness and specific developmental needs. To deal with this challenge, *four developmental units* are proposed in this RFSPSD's strategy, classifying islands into the: Group 1 - small and underdeveloped islands; Group 2 - islands with developing tourism activity; Group 3 - highly attractive touristic islands; and Group 4: islands facing severe demographic barriers and islets. Specific directions are given for each single group, providing guidance towards a sustainable tourism model and culture-oriented activities. In addition, special attention is placed on "overtourism" impacts, especially for islands of Group 3. According to RFSPSD, responsibility for implementing relevant directions is given to the local level, entitling local municipalities to draft action plans and proceed to action.

At the *local (municipality) level*, local administrations, including the insular ones, are endorsed to further elaborate on the guidelines set at the national and regional level through local development plans; and downscale strategic directions for guiding deployment of local tourism development trails in alignment with available resources and expectations/visions of local population. Such an effort is accomplished within the context of municipalities' *5-year Municipal Operational Plans (MOPs),* sketching, among others, pathways to tourism development. MOPs feature permanent internal procedures and planning processes, targeting the detailed recording, monitoring and assessment of

projects and actions that are planned and implemented by each Municipality and the legal entities thereof. Their ultimate goal is to achieve local sustainability objectives, in harmony with the directions of developmental planning at the regional and national level.

From this point of view, MOPs are extremely important – if not the most important – tools for achieving the goals of sustainable local development, tourism included. Focusing on the Dodecanese islands' complex, however, research results on MOPs' deployment is not endorsing. In fact, only 27% of the municipalities of Dodecanese islands own a MOP, dated before 2014; 20% of them have reached only the first stage of completing the MOP; and almost 46% of them never had and are not even in the process of developing such a plan. Only one municipality – island of Kos – has published an updated MOP in 2022 [39]. This situation leads to the conclusion that sustainable development plans/directions are not tightly addressed in islands' municipal agendas, raising thus questions as to how the tourism activity is actually planned in these entities and how the decision-making process is directed. Thus, despite the well-defined strategic policy directions at the regional level, local municipal entities seem to lack capacity, knowledge and human resources for deploying concrete action plans in support of a more sustainable, culture-led tourism narrative in Dodecanese islands. Taking into consideration the Greek islands' tourism brand – 3S / Sea, Sun, Sand – such a deficit seems to put sustainability objectives of these islands at risk, rendering those islands crowded destinations or destinations suffering from overtourism. Examples are the medium-sized islands of Rhodes and Kos, owing a distinct tourism identity, where qualitative and quantitative upgrade of the prevailing tourism model is, among others, endorsed, thus questioning carrying capacity constraints of those islands [40].

### 4.2 Key Insights into Tourism Governance at Dodecanese Islands' Municipal Level (C2)

For further deepening insight into *local governance practices* for initiating culture-led tourism pathways, in the C2 component of the methodological approach a web-based questionnaire survey is conducted, addressed to municipalities of all Dodecanese islands. A high response rate (80%) is reached in this respect, engaging 12 out of the 15 municipalities in total. Missing are the municipalities of Patmos, Megisti and Rhodes Islands. Out of the above 12 islands taking part in this survey, 27.3% fall into the 'Very Small' category, 45.4% in the 'Small' one and 27.3% in the 'Medium'.

Among the various research questions incorporated in this survey, of key relevance for this work are those identifying the:

i) Disposal of a culture-led tourism development plan as part of a local strategic plan and related MOP; and a means for strengthening islands' position in the tourism map as well as the governance procedures followed in the development of such a plan.
ii) Current penetration and future potential of nature- and culture-related tourism forms.

Key results out of this web-based questionnaire research have as follows.

i) *Culture-led tourism plans and related governance scheme in Dodecanese Islands*

Municipalities' representatives have provided feedback as to the existence of an island's culture-led tourism plan as well as the governance scheme adopted in articulating this plan, i.e. engagement of local administration, community and stakeholders in such a process. In addition, they expressed their statement as to the popularity of respective islands as tourism destinations. Out of the 12 islands engaged in the web-based research, 9 islands fall into the category of "Popular Tourism Destinations"; while 3 of them (Agathonisi, Tilos and Kasos) are considered by the local representatives as less popular ones.

**Table 2.** State of tourism attractiveness, disposal of cultural/tourism plan and community engagement in Dodecanese islands, Source: Own elaboration based on e-questionnaire responses

| Popular/Touristic Destinations | Culture-led tourism plan and governance scheme | | | |
|---|---|---|---|---|
| Yes | Own a Cultural/Touristic Plan | | | |
| | Yes | | No | |
| | 44.4% | | 55.6% | |
| | Community engagement | | | |
| | Yes | No | - | - |
| | 75.0% | 25.0% | - | - |
| No | Own a Cultural/Touristic Plan | | | |
| | Yes | | No | |
| | 100.0% | | - | |
| | Community engagement | | | |
| | Yes | No | - | - |
| | 100.0% | 0% | - | - |

From islands falling into the popular tourism destination category (Table 2), more than half of them (55.6%) do not dispose a concrete culture-led tourism plan, implying that the tourism pattern in these islands lacks a holistic, integrated and strategic developmental view for properly downscaling policy directions provided at the national/regional levels, while meeting local visions and expectations. The rest of them (44.4%) dispose such a plan, with 25% of such plans being the product of a 'top-down' approach, lacking thus concern about community engagement in relative planning processes; while 75% of them is the outcome of a 'bottom-up' approach. Quite interesting are results relative to less popular Dodecanese islands where, surprisingly, all of them dispose a culture-led tourism plan, being additionally a product of community engagement. This fact is interpreted as an effort to establish a more strategic tourism planning approach to gain a position in the Dodecanese tourism map.

In order to deepen insight into the substance and the means of community engagement in culture-led tourism participatory planning processes, respective information is

requested by municipalities' representatives. Relevant responses reveal two diverse and of high importance issues, namely: i) a significant knowledge deficit as to the meaning and the very essence of participation and co-creation in cultural tourism planning, being rather confused with citizens' participation in local cultural events; ii) adoption of a more passive community engagement model by use of consultation procedures, in alignment with established processes at the national level, lacking however the more active – co-design and co-decide – dimensions of participation. Worth mentioning is that only 2 out of 12 island Municipalities, namely Symi and Karpathos, declare to have "Tourism Boards", acting on a voluntary basis in support of municipality's processes over local sustainable tourism decisions.

ii) *Current and future perspective of alternative forms of tourism in Dodecanese*

Responses of the Dodecanese islands' representatives as to the current state of alternative tourism forms unveil that most of these islands have already undertaken steps towards such tourism pathways. More specifically, in 66.7% of the islands explored, alternative tourism forms are currently integral parts of the local tourism scene. In fact, a wide range of such tourism forms is already in place (Fig. 2), with the most prevailing ones being the: gastronomic tourism (in 21.1% of insular municipalities), cultural tourism (in 13.2%) and nature tourism (in 13.2%). These are also in compliance with already well-established aspects of the Greek tourism narrative, which places the beauty of the Greek landscape, the cultural wealth and the local gastronomy at the heart of the tourism product. However, the abundance of natural and cultural resources of Dodecanese islands [36] demonstrates much wider opportunities than the current penetration of such tourism forms witnesses. That said, the share of cultural tourism in insular municipalities is perceived rather low (13.2%), compared to the real potential of these islands, both in land and at sea. In fact cultural tourism is currently present in small island municipalities, like Agathonisi, Karpathos and Kalymnos, namely islands already acknowledged for their qualitative tourism offer. On the contrary, mass tourism and crowded Dodecanese island destinations, such as Kos, prioritize conference and gastronomic tourism, i.e. alternative forms that best fit to the accommodation and transportation facilities that the larger, mass tourism destinations display. However, there is still enough room for these islands as well for promoting more peaceful, alternative tourism forms in the less crowded parts of their territory, a choice that also offers a means to relieve overwhelmed places of these islands.

Municipal representatives' aspirations as to the future potential of alternative forms of tourism are also requested in the web-based questionnaire research. In this respect, representatives' responses fully converge towards a visionary future end state of their islands, serving sustainable, all year round and resilient tourism forms. They consider alternative tourism forms a highly relevant option for serving sustainability objectives in insular contexts. Cultural tourism, as well as the gastronomic one, namely a form closely related to local food culture and traditional production, seems to be the prevailing forms, gathering 20.9% and 18.6% of responses respectively (Fig. 2). In fact, future aspirations of those participated in the web-based questionnaire research as to the preferable tourism forms are tightly interwoven with the natural and cultural wealth of insular regions. This is also endorsed by the predominance of fishing tourism (14.0%), closely linking

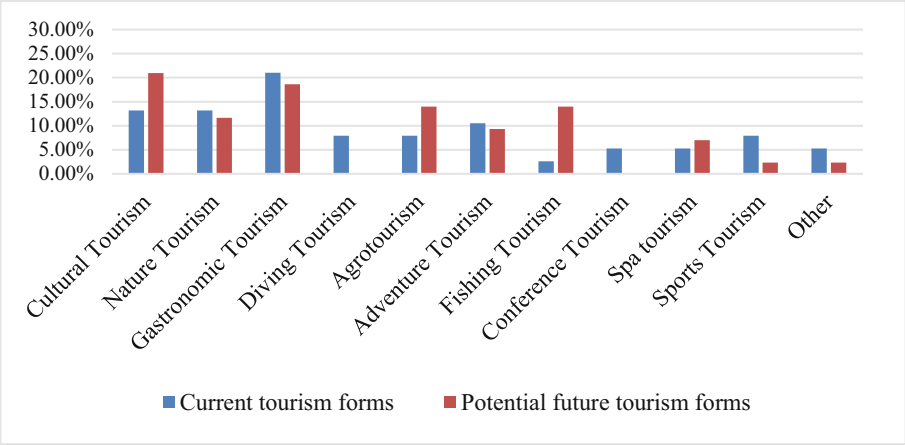


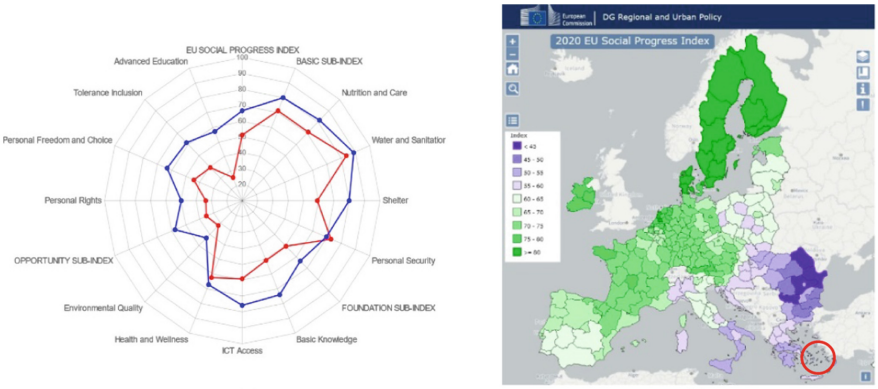

**Fig. 2.** Current and potential future tourism forms according to local representatives' views in Dodecanese insular municipalities, Source: Own elaboration, based on responses of municipality representatives through e-questionnaire research

the islands' spectacular natural environment and proximity to the marine one; and the agrotourism (14.0%), reflecting acknowledgement of the local agricultural traditional schemes and values.

### 4.3 Impacts of Tourism on the Dodecanese Islands' Complex (C3)

South Aegean Region, in which the highly acknowledged Dodecanese and Cyclades island complexes administratively belong, possesses a distinguished position in the Greek tourism geography. This is also witnessed through statistical data, displaying the share of this region in hotel beds, owning the highest percentage among the Greek regions in 2019 (26.1%) [26]. That said, South Aegean Region lies in the heart of the tourism activity in Greece, a position that seems to steadily keep in the future as well [41]. Due to this position, South Aegean Region owes the 2nd largest Gross Domestic Product (GDP)/capita in 2019 – following the Attica Region – rising to 18.655 €/capita, also larger than the national rate of that year (17.092 €/capita) [42]. The contribution of tourism is remarkable in this respect. However, having in mind the prevailing mass pattern of the tourism model, critical concerns are raised as to the social and environmental impacts of the Region's developmental profile. Such concerns are clearly demonstrated by the European Social Progress Index for the year 2020 [43], assessing the social progress of European regions at the NUTS2 level. This is calculated by use of twelve components (Fig. 3a) incorporating a total of fifty-five comparable social and environmental indicators, purposefully excluding economic aspects. According to this Index, South Aegean Region performs significantly low, namely it belongs to the ones displaying the lowest performance (highlighted with light purple in Fig. 3b); and scoring with the lowest grade (51.31) both in Greece (country average: 56.5) and the Mediterranean regions as a whole. A deeper insight into indicators composing the European Social Progress Index reveals the low performance of the South Aegean Region in

e.g. advanced education opportunities, social inclusion, and basic knowledge and ICT access, namely critical aspects for empowering societal groups in the currently dynamic and competitive environment.




(a) (b)

**Fig. 3.** EU Social Progress Index in EU NUTS2 regions: a) Indicators' scoreboard showing performance in the EU (in blue) and South Aegean (in red) regions; b) Mapping of the spatial distribution of the index in all EU regions, Source: [43]

These deficits in the social and environmental realm are also confirmed by the Regional Policy Monitor Report [44], indicating the region's performance towards Sustainable Development Goals (SDGs). In fact, South Aegean Region has so far failed to achieve nine SDGs (namely SDGs 1, 2, 3, 4, 6, 9, 10, 11 and 16); with more than 30% of its inhabitants being at risk of poverty or social exclusion. Minor challenges are also reported in the achievement of two more SDGs before 2030 (namely SDGs 8 and 15), while a better performance is noticed as to the SDG 14.

Considering the significant interregional inequalities among islands of the South Aegean Region as well as the different profiles and tourism load of the island destinations this region incorporates, an effort to identify impacts of tourism on each specific island is carried out. Towards this end, a set of indicators are used (see Table 3) for assessing – directly or indirectly – the social and environmental impact of tourism activity on each single island of the Dodecanese complex.

In more detail, indicators used have as follows:

- *Tourism Intensity* [Total tourist accommodation (beds) / resident]. Tourist accommodation reflects the actual bed capacity of each island, including both commercial (hotel beds, camping spots) as defined by the Greek National Statistic Service 2019 data [26] and Airbnb beds capacity, using the most recent data (2022) from the Inside Airbnb Platform [45]. This number is divided by the permanent population (2021 provisional data by ELSTAT) to implicitly show societal pressure emanating from tourism activity on all Dodecanese islands. The higher the score the highest the impact and the more overcrowded the destination.

**Table 3.** Data about the tourism reality of the Dodecanese Island complex, Source: [25, 26, 45]

| Municipalities of Dodecanese Islands | A. Tourism Intensity | B. Tourism Density | C. Tourists / residents ratio | D. Population density adjusted to tourism flows | E. Change in population density due to Tourism (%) |
|---|---|---|---|---|---|
| Agathonisi | 0.21 | 3.19 | 16.77 | 252.15 | 1577 |
| Astypalaia | 1.68 | 24.22 | 17.16 | 247.92 | 1616 |
| Chalki | 1.25 | 21.19 | 1.00 | 16.92 | 0 |
| Kalymnos | 0.23 | 36.81 | 6.55 | 1051.12 | 555 |
| Karpathos | 1.45 | 30.96 | 19.91 | 424.24 | 1891 |
| Kasos | 0.22 | 4.03 | 5.25 | 97.47 | 425 |
| Kos | 1.72 | 219.29 | 36.47 | 4647.37 | 3547 |
| Leros | 0.32 | 48.37 | 6.11 | 921.91 | 511 |
| Lipsi | 0.82 | 40.30 | 17.89 | 882.23 | 1689 |
| Nisyros | 0.55 | 13.77 | 8.76 | 220.77 | 776 |
| Patmos | 1.46 | 137.50 | 19.06 | 1800.76 | 1806 |
| Rhodes | 1.03 | 91.65 | 22.43 | 2002.90 | 2143 |
| Symi | 0.74 | 31.76 | 75.45 | 3240.05 | 7445 |
| Tilos | 1.52 | 18.02 | 24.06 | 285.28 | 2306 |
| Megisti | 0.70 | 44.91 | 11.51 | 736.36 | 1051 |

- *Tourism Density* (Total tourist accommodation (beds) / island's surface). This indicator is calculated as the actual number of bed capacity in each island, including both commercial (hotel beds, camping spots) [26] and Airbnb beds capacity (2022) [45] divided by the island's surface (area in $km^2$) [26]. Its value is used as a proxy for the environmental impact of tourism activity on the island (e.g. expansion of the built environment due to tourist accommodation and other infrastructure), representing land consumption for serving tourist activities. This indicator becomes particularly important in case of insular municipalities, taking into consideration scarcity of the land resource.
- *Tourist / resident ratio*. This indicator is the ratio of the total number of tourist arrivals (plane and boat - 2019 data) divided by the total permanent 2021 population [25]. Its value reflects the pressure exerted on local infrastructures, natural and cultural resources, local identity and cohesion, built environment, etc.
- *Population density adjusted to tourism flows*. This indicator is featured by the sum of the total tourist arrivals (2019 data) plus the local population (2021 provisional data), divided by the island's size [26]. It provides a "population density adjusted to tourism flows" figure, which reflects the impact of tourism on the rising of population density.

- *Change in population density due to tourism.* This change is calculated by subtracting from the "Population Density adjusted to tourism flows" the island's "Population Density" (see Table 1). It displays the actual change of population per square kilometer in the timespan of a whole year; useful for realizing the potential strain that tourism can put on local resources and infrastructures, as well as the environmental and cultural impacts that may arise from high tourism volumes.

Interpretation of the values presented in Table 3 leads to the following conclusions:

- *Tourism Intensity*: small islands like Astypalaia (1.68), Tilos (1.52), Karpathos (1.45) and Chalki (1.25), although less known destinations of South Aegean Region, display high scores. Small island's size and population show that tourism activity can severely impact the natural/cultural resources and the social structure.
- *Tourism Density*: a totally different outcome is presented when it comes to this indicator, where the pressure on the natural environmental and landscape by the deployment of tourism accommodation (beds) is assessed. In fact, already famous Dodecanese tourism destinations are leading the scores, e.g. Kos (219.29), Patmos (137.50) and Rhodes (91.65), reflecting the outcome of their mass tourism profile.
- *Tourist / resident ratio*: this is an estimate of how many times the population of the island increases due to tourism over the timespan of a whole year. Through this indicator, the pressure exerted on the island's infrastructure becomes apparent, e.g. increase in water demand, pressure on drainage and waste management systems, to name but a few. A quite unique and of high concern example is the island of Symi, with its annual population being increased by around 75 times due to tourism arrivals. Next follows the island of Kos (score 36.47), followed by the islands of Tilos, Rhodes, Karpathos and Astypalaia (scoring approx. around 20). It is interesting to see that scores of top tourism large islands like Rhodes that incorporate large settlements, services, airport etc., are similar to those of the (very) small islands of Tilos and Astypalaia, which apparently cannot deal with that kind of tourism pressure.
- *Change in population density due to tourism*: calculation of this indicator is more effective for interpreting the impacts of tourism on island contexts. According to its values, Symi seems to suffer from an excessive population density change due to tourism (74.45%), testing durability in societal an environmental terms. Same holds for the island of Tilos, where performance in this indicator confirms concerns as to the impact of tourism on very small islands of the Dodecanese complex.

## 5 Discussion and Conclusions

Good governance is considered as the "missing link" in order for sustainable tourism outcomes to be attained, by: moving forwards from policy directions to real actions [46]; and downscaling from the national to the local level. Having this in mind, in this paper the multi-level tourism governance in Greece is sketched, exploring linkages at both the vertical – interactions among the national, regional and local policy making – and the horizontal level – interactions among stakeholders within the island context. Such an exploration aims at assessing whether current governance structures act in a supporting or demoralizing manner in insular regions in their effort to pursue a sustainable tourism model; and is accomplished in this work by a combination of qualitative and quantitative

research. The former gets insight into a range of policy documents currently in force; while the latter attempts to quantify social, environmental and economic impacts of the prevailing tourism model in the Dodecanese islands' complex, as a rough proxy of the effectiveness of the present tourism governance structure.

Results obtained show that tourism governance in Greece follows a hierarchical – top-down – structure, with the Greek state owning a dominant role and displaying rather weak bonds with the regional and the local level in articulating the national tourism policy. At this level, a strong tourism marketing campaign is shaped, empowering the Greek islands' position in the international competitive tourism arena. However, the lack of nation-wide updated developmental and spatial plans as a means to embed contemporary challenges (e.g. climate change, overtourism) to specific strategic tourism directions as well as the absence of monitoring schemes for regularly adjusting these directions in alignment with the type, volume and distribution of tourism flows, renders most Greek destinations, islands included, quite fragile against uncontrolled tourism development and highly vulnerable to contemporary risks. The well-established mass model – the 'myth of Greece' – for many decades, as witnessed by the island municipalities of the Dodecanese complex, has placed a remarkable burden on the local level. Islands' local administrations, being in charge of implementing strategic tourism choices in their territory lack, in most of the cases, relevant capacity and human resources; and thus fail to articulate local developmental and spatial plans embedding tourism and properly specializing state's strategic policy directions. As a result, tourism development in those islands is currently formed in a fragmented and transient manner, mainly driven by private initiatives that focus on economic benefits and leave aside sustainability and resilience objectives.

Both the web-based questionnaire (C2) and the quantitative research (C3) show a rather uncontrolled tourism development stream that has already negative repercussions on social and environmental dimensions of the Dodecanese islands' complex. Indicators used to assess economic and mainly social and environmental impacts reveal that highly-rated island tourism destinations, e.g. Kos, Patmos and Rhodes, but also very small islands, e.g. Chalki, Astypalaia, Tilos, Symi, although quite different in terms of tourism attractiveness, all score pretty high in tourism density and intensity. This reveals a certain vertical governance deficit, coupled with barriers applying to horizontal governance schemes at the local (islands) level. The latter is featured by the lack of a collaboratively-built, strategic tourism plan, seeking to conform to sustainability concerns and contemporary challenges of tourism development. Such deficits in insular contexts can definitely result in cultural deterioration, social disruption, loss of community identity and a sense of disconnection between local residents and visitors.

Last but not least, culture, as a currently driving force for competing in the tourism arena and a comparative advantage of insular regions, is integrated into Dodecanese islands' tourism products in a rather traditional way, lacking the leading role this should have in these land compartments [47]. The value of culture as a key pillar in Dodecanese islands' branding is however realized by municipalities' representatives; and forms a main part of the future vision of tourism in their islands. Cultural tourism forms, as well as alternative tourism products, promoting islands' connection with the maritime world (e.g., fishing tourism), are given priority in this vision. However, capacity constraints in

terms of human resources, both in quantitative and qualitative terms; power relationships, serving economic interests of tourism to the detriment of social and environmental concerns; incomplete implementation of developmental and spatial tools; and, most importantly, lack of a commonly-shared and cooperatively built future vision of islands as peaceful and inclusive destinations seem currently to be the main barriers that need to be overcome. Successful confrontation of these barriers implies the necessity for tourism governance improvements at both the vertical and especially the horizontal level, rendering island communities the 'key actors' in shaping a desirable future development of their land, within which tourism follows a fair and sustainable pattern and spreads its benefits sectorally, spatially and temporally.

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