TOWARDS AN INTEGRATED PARTICIPATORY MARINE/COASTAL AND TERRITORIAL SPATIAL PLANNING APPROACH AT THE LOCAL LEVEL – PLANNING TOOLS AND ISSUES RAISED

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Abstract

Future development of coastal and island communities is nowadays marked by two evolving trends, namely the rapid urbanization and the increasing interest in sea-related activities. Coping with these trends as well as other challenges faced in these areas (climate change, coastal erosion etc.) lies at the heart of policy concern, while has also opened up new fields of research work and concern as to the methodological aspects that can support an integrated planning view of terrestrial and marine environments and their interactions. By drawing on knowledge acquired from relative studies at a macro-regional level, this paper attempts to shift to the local level; and structure an integrated methodological approach enabling the concurrent confrontation of territorial and maritime planning issues and policy making. The paper places emphasis on testing well-established planning tools (MICMAC and MACTOR models) that are capable of perceiving, in a structured way, the integration of land and marine environments into one system as well as integration of views, interests, stakes etc. of land and maritime stakeholders. Implementation of this framework in an island region – Zakynthos Greece– designates the value of these planning tools in: feeding the planning process with valuable knowledge, emerging from the study of interaction of land and maritime subsystems as well as of respective stakeholders; and effectively supporting implementation of subsequent planning stages for building up more informed policy decisions.

Keywords: Blue growth, Integrated marine and land spatial planning, Policy, MICMAC and MACTOR models, Island regions.

JEL classification: R00, R11, R14, R50, R58.

1. Introduction

"How inappropriate to call this planet earth when it is quite clearly ocean"
Arthur Clarke

The rapid *urbanization* of coastal areas, resulting in high concentration of population and a rising competition for land, is a remarkable trend of recent decades in the European Union (EU), especially in the Mediterranean Region (Stratigea et al., 2017). This trend is nowadays further intensified by the increasing *interest in sea-related activities*, e.g. fisheries or shipping, offshore renewable energy, maritime tourism (recreational boating and cruise ships), mariculture etc., which were set up by the Blue Growth Strategy of EU; and have resulted in a more intensive use of the marine environment. At the same time, coastal areas are confronted with a range of contemporary challenges e.g. *climate change* resulting in sea level rise, acidification, coastal erosion, increasing water temperatures, and frequency of extreme weather events, etc. (Giannakopoulos et al. 2005; Lionello et al. 2008; Stratigea et

al., 2017), rendering them *areas at risk*, severely threatening both land and maritime activities.

The above *trends*, but also *risks*, have generated the necessity for setting up marine and coastal management strategies and policies in order to: assure the sustainable exploitation of coastal and marine resources; cope with conflicting interests in land and maritime environments; and avoid their environmental decline (Cohen, 1995).

Taking into consideration the growing interest in the sustainable management of marine resources, as this was highlighted by the Blue Growth (BG) Strategy of the EU, but also other policies targeting innovation and new job creation, new research and methodological issues in the field of *spatial planning* arise. More specifically, effective implementation of the BG Strategy requires *Marine Spatial Planning (MSP)* as a tool for the sustainable management of marine resources, implying the spatial delineation of maritime uses in such a way that emerging *conflicts* can be properly handled; while *synergies* among various stakes in the marine environment can be promoted.

In conducting MSP studies, it should be taken for granted that a marine management area can be substantially affected by human activities that are: *upstream* emanating from the drainage area of the adjacent coastal region (e.g. agriculture); and *downstream* emerging from the open ocean. Indeed, as Dahl (2009:62) argues, *"pressures on the resources of the marine management area may be greater from activities outside the marine area than from activities inside it."* This fact illustrates the importance of drawing the spatial boundaries of analysis broader than the boundaries of the marine management area.

Most of MSP case studies conducted so far refer to a *macro-regional level*. However, when shifting to a more *local level*, e.g. an island region or a small-scale coastal community, successful MSP needs to take into account potential territorial developments and related policies as well as future visions and respective planning objectives in the terrestrial part along with their impact on the marine part and vice versa. Towards this end, there is a need for assessing the influence of territorial policy decisions and development choices or paths on marine resources and ecosystems, as well as the impact of various maritime policies (e.g. aquaculture development) on the terrestrial in general and the coastal in particular, part of a region. This, in turn, calls for building up an *integrated spatial planning approach*, i.e. an *inter-sectoral and land-sea cross-cutting approach* [COM(2008)395] that can effectively manage terrestrial, coastal and maritime activities and their interactions in a sustainable way; and achieve greater *coherence* between different sector- and space-related policy areas, since actions in one policy area may have positive or negative, intended or unintended, effects on other policy areas of concern [COM(2008)395]. Such an *integrated approach*: touches upon different sectors in land, coastal and maritime environments, different levels of governance, a variety of land- and marine-based stakeholders, etc.; and establishes the ground for identification of *synergies* and exploration / management of *conflicts* both within land or marine environments in isolation, as well as in between them.

The present paper elaborates on such an approach, taking as a case study example an island region, *Zakynthos – Greece*. In this specific case study, valuable marine ecosystems and terrestrial compartments are under severe pressure due to the high concentration of mass coastal tourism activity. The *goal* of this paper is to streamline an *integrated methodological framework* and *test well established planning tools* falling into certain steps of this framework, which have so far been successfully used for territorial but also sectoral planning purposes. These can pave the way towards *better informed and integrated policy directions for future sustainable territorial and maritime development*, taking into account specificities of land and marine environment as well as their interactions.

The *structure* of the paper has as follows: first it sheds light on MSP in EU, in order more insight to be gained on the evolving interest and value attached to European Seas and coastal areas as 'laboratories' of growth and development; this is followed by a short discussion on the experience gained by the exploration of a number of MSP studies at a macro-region level, illuminating, among others, methodological aspects as well as aspects of stakeholders' engagement, as a critical issue in MSP; shifting to the local level, an integrated methodological approach is presented, which aims at testing land-based planning tools for conducting a structural and a stakeholders' analysis in the specific case study (island of

Zakynthos – Greece); finally, some conclusion are drawn based on the experience gained from this work.

2. Maritime Spatial Planning in the European Context

The effort of *coastal and maritime resource management and protection* in the EU can be first traced in 1975, when 16 Mediterranean countries and the European Community adopted the Mediterranean Action Plan (MAP, 1975), the first-ever Regional Seas Programme under UNEP's umbrella. In 1995, the Action Plan for the Protection of the Marine Environment and the Sustainable Development of Coastal Areas in the Mediterranean (Action Plan, 1995 - MAP Phase II) (UNEP(OCA)/MED IG.6/7) was adopted by the Contracting Parties in order to replace the 1975 MAP with some amendments. The Contracting Parties are now 22 (Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, the European Community, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey). The amended Convention, recorded as "Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean" has entered into force on 9 July 2004.

Following this effort, the European Commission has so far conducted several attempts in order to communicate that the integrated management of coastal zones requires a *strategic, coordinated and concerted action at the local and regional level*, guided and supported by the appropriate national framework. Towards this end, the European Parliament in *2002* (Fig. 1) recommends a *strategic approach* with regards to the implementation of *Integrated Coastal Zone Management in Europe* (2002/413/EC), partitioned by:

- *An ecosystem approach* aiming at the preservation of the integrity and functioning of the natural resources of both marine and terrestrial components of the coastal zone;
- A *climate change oriented approach*, recognizing threats emerging from this challenge;
- An approach serving, among others, the *protection* of coastal settlements and their cultural heritage as well as the smooth functioning of the socio-cultural system in local communities;
- An approach that can effectively serve the creation of *sustainable economic opportunities* and broaden *employment options*;
- An approach ensuring unobstructed *accessibility* of land by the public and maintenance or promotion of remote coastal communities;
- An approach that is rested upon the *conflation of actions* undertaken by all authorities in order the *sea-land interaction* to be properly managed.

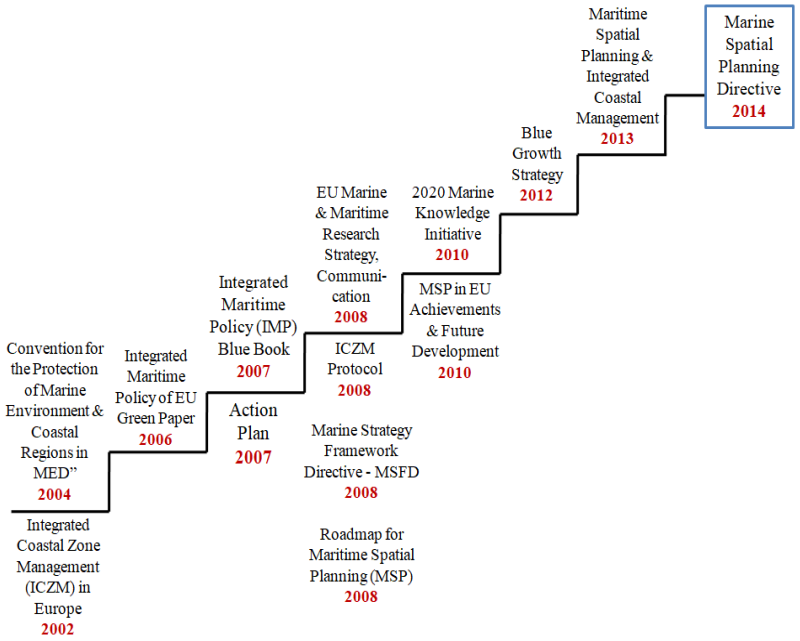
In *2005*, the Commission puts forward the Communication "Towards a Future Maritime Policy for the Union: A European Vision for the Oceans and Seas" [COM(2006)275 final of 7.6.2006, Vol. I], aiming at setting out planned objectives for the future of the EU maritime policy. This was followed by the Green Paper "Towards a Future Maritime Policy for the Union: A European Vision for the Oceans and Seas" in *2006* [COM(2006)275 final of 7.6.2006, Vol. II - Annex].

In *2007*, the Commission announces a proposal on the *Integrated Maritime Policy (IMP)* of EU, known as the *Blue Paper on "An Integrated Maritime Policy for the European Union"* [COM(2007)575 final of 10.10.2007]; and a corresponding *Action Plan* [SEC(2007)1278 of 10.10.2007]. The first one emphasizes the need for creating optimal conditions for the sustainable growth of maritime sectors and coastal regions; while ensuring that the environmental objectives of EU will be met. The second declares the development of a *Marine and Maritime Research Strategy*, which will adopt a new cross-thematic approach, supporting infrastructure, education and capacity building.

At the same time, under the Barcelona Convention (1976) and the EC Recommendation 2002/413/EC, European Commission sets up the Report to the European Parliament and the Council on the *"Evaluation of Integrated Coastal Zone Management in Europe"* [COM(2007)308 final]. The last one highlights the need for establishing a more concrete *coastal management process*, as the effort carried out so far follows a more sectoral approach.

In this respect, European Commission provides directions towards a more *integrated coastal planning*.

Figure 3: Paving the way towards the Marine Spatial Planning (MSP) Directive in EU



Source: own elaboration

In *2008*, a Commission Communication on *"European Marine and Maritime Research Strategy"* [COM(2008)534] was launched, proposing concrete measures and mechanisms to improve marine and maritime research in order the challenges and opportunities presented by the oceans and seas to be properly addressed. Meanwhile, the *Integrated Coastal Zone Management (ICZM) Protocol was signed* (Conference of the Plenipotentiaries, 2008), and urged the Member States to facilitate a thorough rational planning of activities for the sustainable development of coastal zones, preserving the integrity of coastal ecosystems, landscapes and geomorphology. ICZM aims to coordinate the application of policy processes that affect the coastal zone. In order to promote synergies' creation between the Energy Policy and the Integrated Maritime Policy at the EU level, the European Commission set up, in *2008*, the Communication on *"Offshore Wind Energy"* [COM(2008)768]. This Communication identifies the challenges of offshore wind energy exploitation in Europe. Both policies target the economic development and environmental protection through a more thorough exploration of the geopolitical value of Europe's Oceans and Seas for serving energy *security, competitiveness and sustainability objectives*.

Furthermore, in *2008*, the *Marine Strategy Framework Directive (MSFD)* (Directive 2008/56/EC) established a framework for community action in the field of marine environmental policy. The MSFD aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020; and protect the marine resources that are linked to marine-related socio-economic activities. It is derived from three previous policy achievements: the Commission Communication about the Thematic Strategy on the Protection and Conservation of the Marine Environment [COM(2005)504 final]; the Proposal for a Directive establishing a Framework for Community Action in the field of Marine Environmental Policy (Marine Strategy Directive) [COM(2005)505 final]; and the Commission's Staff Working Paper on the Impact Assessment [SEC(2005)1290], accompanying the Community Thematic Strategy on the Protection and Conservation of the Marine Environment. The key elements for the establishment of this Strategy were the integration of: a *dual EU/regional approach*, a *knowledge-based approach*, an *ecosystem-based approach* and a *co-operative approach* into the existing EU policy. The MSFD is the main environmental pillar of the IMP that provides a clarity platform for the successful development of all maritime activities, by paying due attention to their cumulative impacts.

The optimization of the use of marine space and the need for a better coordination among marine sectors as well as the properly planned distribution in the marine environment has

motivated, in 2008, the design of a *"Roadmap for Maritime Spatial Planning (MSP): Achieving Common Principles in the EU"* [COM(2008)791 final].

The *Communication on MSP* [COM (2010)771 final], in 2010, further notices that this must be applied in alignment with the international law, making explicit reference to UNCLOS. At the same year, the Council adopted the Decision to ratify the Protocol on Integrated Coastal Zone Management to the Barcelona Convention [Council Decision 2010/631/EU]. This EU Decision follows the signature of the Protocol adopted by the Council on 2008 [Commission Directive 2009/89/EC].

IMP has set the ground for the development, in *2012*, of the Blue Growth Strategy [COM(2012)494], focusing on the sustainable exploitation of marine resources as a driving force and a new source of economic prosperity for EU. Significant initiatives of Blue Growth Strategy lay in the five priority areas: sustainable exploitation of the diversity of marine life; new offshore challenges; exploitation of deep sea resources – deep sea mining; ocean observation technologies/systems; socio-economic aspects.

In *2013*, the European Commission launched a legislative procedure for the adoption of a Directive establishing a framework for MSP and ICZM [COM (2013)133 final]. The last one was further amended at the same year with a new Communication paper [COM (2013)133 – C7- 0065/2013 – 2013/0074(COD)], where the European Parliament has added a number of national sectoral objectives that had not been included in the first step; and had set the minimum requirements for MSP, by adding the activities related to exploration and extraction of raw materials (other than gas and oil); while incorporating potential fishing and military training areas, marine and coastal tourism and cultural heritage protection sites.

In *2014*, the European Commission applied the Directive 2014/89/EU, establishing a framework for Maritime Spatial Planning (MSP) in order the sustainable growth of maritime economies and the rationale use of marine resources to be achieved. MSP objective is to balance sectoral interests and achieve sustainable use of marine resources in line with the EU Sustainable Development Strategy. MSP is considered as a *key instrument* for the implementation of the EU Integrated Maritime Policy. It supports coordination of actions of public authorities and stakeholders; and targets optimization of marine space use to the benefit of economic development and environmental protection of maritime environment. This Communication sets out *key principles for MSP* and aims to encourage the establishment of a common approach among EU Member States. Furthermore, it stresses the importance of *proper planning* as the bedrock of all marine-based activities for value creation, by establishing *synergies* between different maritime sectors.

The *Marine Strategy Directive, the Water Directive, the Habitats Directive and the NATURA 2000 network* constitute the environmental pillars of MSP. The new *Fisheries Regulation* (Regulation 1380/2013) along with existing instruments addressing regional specificities, have laid the foundations for the incorporation of fisheries activities in MSP.

Along with MSP, other important horizontal policy tools of IMP constitute the Marine Knowledge and the Marine Surveillance. In *2010*, a Commission Communication on *Marine Knowledge 2020* [COM(2010)461], intended to improve the use of scientific knowledge on Europe's seas and oceans through a coordinated approach to data collection and assembly. In *2013*, the EU Regulation 1052/2013 established the *European Border Surveillance System* (EUROSUR), in order to detect, prevent and fight cross-border crimes and ensure the protection of migrants' lives. Finally in *2014*, a Commission's Communication on the *Common Information Sharing Environment* [COM(2014)451], intended to improve the efficiency and cost-effectiveness of maritime surveillance by enabling appropriate, secure and efficient data sharing across sectors and borders throughout the EU.

3. Methodological Aspects of MSP in Europe

The scope of this section is twofold, namely to: gather experiences on the *methodological aspects* and the way these are treated in a range of MSP studies, implemented at a *macro-region level* in the European territory; and elaborate on the issue of *stakeholders' engagement* that are raised in such studies. Both will constitute valuable input in the subsequent part of the paper, taking an integrated view of territorial and marine spatial planning, addressing the *local level*.

3.1. Gathering experiences on methodological aspects from existing MSP studies

A range of MSP studies have so far been conducted in European Seas (Adriatic, Baltic, Mediterranean), in the context of transnational cooperation among a number of states. At the core of these studies lies the use of MSP as a *development tool* for the sustainable exploitation of marine resources. Methodological approaches, adopted by these MSP studies, depict certain similarities but also differences. These are shortly presented in the following, being the outcome of elaboration of the four studies below:

a. Marine Spatial Planning – A Step-by-step approach towards ecosystem-based management (Dahl, 2009 – UNESCO study);
b. BaltSeaPlan Project – Planning the future of the Baltic Sea – providing general directions for MSP in Baltic countries (Zaucha and Matczak, 2011);
c. PlanCoast regarding a number of participating European / Balkan countries (Schultz-Zenden et al., 2008); and
d. ADRIPLAN Project – MSP in the Adriatic – Ionian Region (ADRIPLAN, 2015)

A cross-cutting issue of all the above studies is the adoption of the European policy framework on MSP and ICZM and its implementation through a typical planning process, relevant to the one of territorial planning. These studies, as happens with the majority of MSP exercises, although they carry out an exhaustive research of the marine environment and respective biophysical processes, they lack the *human dimension of MSP* as argued by Dahl (2009), in the sense of enriching the pure listing and mapping of activities they accomplish by knowledge on *"processes (e.g., community and territory), connections (e.g. within and across communities, economies), space (e.g., territories, cultural perceptions), and scales (e.g. local, regional, national scales of society)"* (Dahl, 2009: 56) (ADRIPLAN, 2015).

Common to certain studies [see (a) and (d) above] is the implementation of a *pre-planning stage*, elaborating on a range of issues. However, different aspects are falling into this pre-planning stage in the different MSP studies. For example in the study (a), this stage is concerned with the: establishment of a skilled MSP team; development of a work plan defining key work products and resources leading to timely delivered outputs; setting up of the boundaries and time frame for analysis and management as well as of the principles guiding the development of the marine spatial management plan; and identification of goals and objectives to be served (Dahl, 2009). As opposed to that, pre-planning stage of study (d) sketches the planning regulatory framework; analyses strategic documents; identifies management area's boundaries and relevant stakeholders; defines operative tools (data portal, website); etc. (ADRIPLAN, 2015).

Since MSP is a *future oriented activity*, of crucial importance is also the way that different studies define and analyze future states – *where we want to go* – i.e. define alternative spatial sea use *scenarios* as the means for identifying potential future demand and spatial organization of maritime uses. The scope of these scenarios is to envision desirable future states and enable proactive decision-making in order these to be reached (Stratigea and Giaoutzi, 2012a and 2012b). Most of the studies identify such conditions by means of a certain projection of current state to the future, taking into consideration different streams, e.g. policy directions [study (b) above]; interests and future plans of stakeholders [study (c) above]; vision already in place [study (d) above]. Study (a) provides a more comprehensive approach. This elaborates on a range of future scenarios, reflecting different spatial delineations of projected trends and predicted new needs, in order these to be assessed and the most prevailing one to be selected, providing thus more options for decision-making.

The above discussed studies differ also as to the level of *stakeholders' engagement* they adopt. This level ranges from involvement only at the stage of identifying and managing conflicts to a more substantial one, taking place throughout the various stages of the planning process. Generally speaking, study (a) provides a more structured and well established process for stakeholders' identification and engagement than the rest of those explored, properly elaborating on *who* to engage, at *which* stage of the planning process and *how*. This implies that different stakeholder groups, with varying levels of interest and entitlement, can take part in different steps of the MSP process.

Last, but not least, it should be stressed here the lack of *citizens' engagement* in the above mentioned studies, although civic engagement constitutes nowadays an issue that is rated high in the political agenda and it is met in a considerable number of MSP (Jarvis et al., 2015; Strickland-Munro et al., 2016) and ICZM (Kearney et al., 2007; EC, 2010) case studies. The marine uses are mainly addressing needs of economic actors and related activities, within an environment that is completely different from the terrestrial one in the sense that is lacking the: concept of a definitely bound territorial entity; attributes of the built environment; private property characteristics; well-established forms of jurisdiction and planning authority; etc. These shortages as well as the spatial scale of the above mentioned studies – macro-regions – does not make so evident the role of the civic society in the studies explored. It should be mentioned though that shifting to the *local level* gives substance to this role, since marine space is **inextricably** linked to the terrestrial one, offering prosperity, recreation and other options to local population and, as a consequence, the right to engage and have a 'saying' on the way this will be developed.

3.2. Elaborating on stakeholders' engagement

The issue of stakeholders' engagement in planning is rising in importance. General guidelines can be given in such a context, addressing territorial and marine planning endeavours. These guidelines, however, need to be properly adjusted in order to reflect local peculiarities and conflicts, participation culture, gap identified between current and end state that needs to be filled, policy priorities, readiness in terms of technical and technological aspects, etc. (Stratigea 2015).

But what exactly is meant by stakeholders and what is the difference when talking about stakeholders' engagement in terrestrial or marine planning exercises?

The concept of stakeholder does not have a clear cut definition yet. On the contrary, a range of definitions can be found in the literature, originating from the business but also other scientific fields. As such can be indicatively referred the following:

- Stakeholders are those groups that can affect or be affected by the actions, objectives and policies of an organization. Some examples of key stakeholders are creditors, directors, employees, government (and its agencies), owners (shareholders), suppliers, unions, and the community from which the business draws its resources (Business dictionary, www.businessdictionary.com).
- Stakeholders are "*people or small groups with the power to respond to, negotiate with, and change the strategic future of the organization*" (Eden and Ackermann 1998:117).
- Stakeholders are *"... all those who are affected by a change"* (Bryson 2004:22). This wider definition is more compatible with notions of democracy and social justice, implying a redistribution of power to the benefit of less powerful groups of society.
- *"Any group or individual who can affect or is affected by the achievement of the organization's objectives"* (Freeman1984:46).

Delineation of stakeholders in a certain planning study is of decisive importance for its outcomes, as it largely defines who counts and what for (Mitchell et al., 1997). This becomes more crucial when *spatial planning studies* are concerned; as such studies deal with managing conflicts and creating synergies in space by means of *land use plans*, accommodating all societal groups' perspectives. This implies the need for adopting more inclusive stakeholders' approaches (Lewis, 1991).

Shifting to the Maritime Spatial Planning (MSP) context, of interest is the stakeholders' definition provided by Ehler & Douvere (2007)and Pentz et al. (2012), stating that stakeholders can be individuals, groups and/or organizations who:

- are affected or will be affected by MSP decisions;
- are tightly linked to the marine resources managed by MSP;
- can have or raise legal claims over MSP areas and inherent resources;

- can have a seasonal or geographic interest in the area concerned; and finally
- can have a special interest in the management of the area of concern.

Stated in a compact way this is formulated as "*individuals, or groups, or organizations, that are (or will be) affected, involved or interested (positively or negatively) by MSP measures or actions in various ways" (*Pentz et al., 2012: 4).

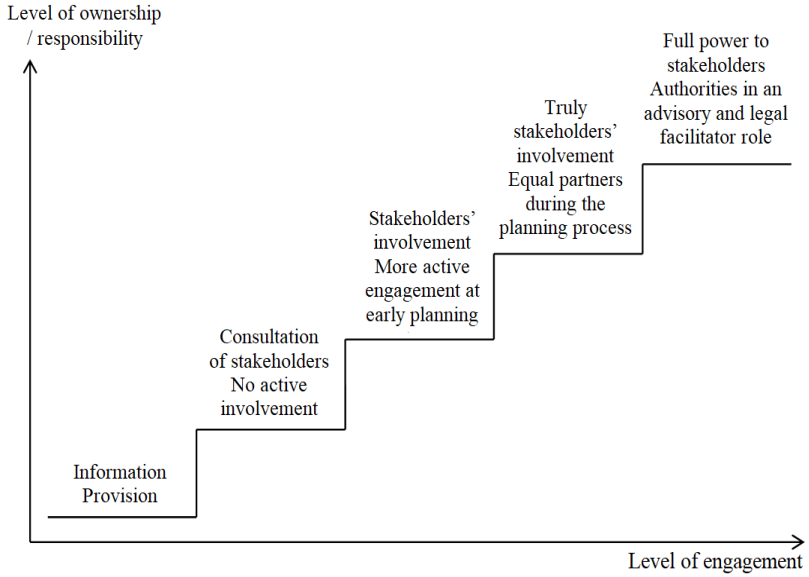
The value of stakeholders' engagement in MSP is largely recognized and can follow several streams. This has been well presented by Dahl (2009), stating that stakeholders' engagement: supports a better *understanding of complexity* of the marine environment concerned in terms of space and time; encourages *ownership and voluntary compliance* to the spatial plan produced, promoting trust between stakeholders and decision makers; deepens *mutual understanding* of problems and challenges inherent in the specific marine area; disentangles own *sectoral interests*, perceptions etc., thus better orienting coordination of policies; establishes the ground for *synergies' creation* and the perception of *new options and solutions* not previously evident; enriches *knowledge and information* of planning team, thus improving *capacity* to reach local expectations through planning outcomes.

This value has also been stressed by the OECD study (2004), which elaborates on the way stakeholders' engagement can affect MSP, stating that this influence can take the form of:

- *a substantial effect* i.e. affecting the substance of MSP and leading to better and more acceptable, and therefore easier to implement, planning outcomes;
- *a procedural effect* i.e. affecting the planning process per se by means of taking advantage of the MSP process for maturing stakeholders' knowledge as well as enhancing mutual understanding of different perspectives and views and thus influencing conflicts' resolution; and
- *a contextual effect* i.e. affecting the context of MSP itself by enriching information exchange among those engaged in the process, improving strategic capacity of decision makers, steering democratic processes and affecting mutual trust and respect.

The engagement of stakeholder in a planning process, both terrestrial or marine, can scale up from information provision to full power of stakeholders in the final decision (Fig. 2) (Stratigea, 2015). Different tools for interaction / communication among stakeholders can be used at the different levels of stakeholders' engagement, ranging from simple face-to-face workshops, structured by use of classical participation tools, to more ICT-enabled interaction through e.g. PPGIS tools (Panagiotopoulou and Stratigea, 2017).

Figure 4: Level of stakeholders' engagement



Source: Own elaboration from Stratigea (2015)

Speaking of stakeholders' analysis, certain differences appear concerning the groups involved in the *terrestrial* and the *marine* part in relative planning studies (onshore vs offshore stakeholders), depicted in Table 1.

4. Shifting to the Local Level – Integrated Methodological Approach and Case Study Results

Based on the European but also the global experience gained through the study of relevant transnational MSP endeavours, the focus of this section is on the use of this knowledge in order a methodological framework for *integrating territorial and marine spatial planning at the local level* to be sketched. The need for ensuring *coherence between terrestrial and marine strategies and plans*, as well as their consistent implementation is stressed in COM(2010)771, stating the need for placing attention to the spatial development of the transitional space from land to sea, as part of the Integrated Coastal Zone Management (ICZM) process. The proposed framework argues that, when working at the local level, this should be further expanded to incorporate the terrestrial part of case study concerned and related policies; and assure *coherence and coordination* between land and maritime planning objectives and policies.

Table 1. Differences between terrestrial and maritime stakeholders

Maritime stakeholders	Terrestrial stakeholders
Nature / number of stakeholders	
Mostly limited to associations, NGOs and public agencies / lower number of stakeholders	More wide context of participation / larger number of potential stakeholders
Complexity	
Higher	Lower
Ownership status of area of spatial planning concern	
Mostly in the public domain	Public and private domain
Dependence on legal acts	
Dependence on international legal acts, which are usually less specific as to whom and how to engage	Dependence on national legal acts, which are more clearly defining relative stakeholders and type of engagement
Quality and quantity of information	
Poor spatial information – marine data often scattered across different organizations, institutions and administrative levels	Richer spatial information
Political influence	
Usually top-down, from governments and ministries	Both top-down and bottom-up

Source: Pentz et al., (2012)

In the proposed *integrated methodological approach*, emphasis is placed on two specific steps of the planning process, namely the one elaborating on the *current state* of the study area in order to identify land and marine uses and features, and explore key drivers of change of this specific spatial system; and the one related to *stakeholders' analysis* in order interests of both the *communities* and the *economic sectors* of the study area to be accommodated in this approach. This in turn, incorporates an effort to study the area of concern as an *integrated spatial system*, composed of both terrestrial and coastal/marine interacting parts; while taking into consideration all different stakes and related stakeholders, i.e. territory- and marine-related stakeholders. The paper attempts to apply the rationale of this approach and supportive planning tools in an island region, Zakynthos Island – Greece.

4.1. The study region

Zakynthos belongs to the Ionian Sea island complex. The region constitutes a powerful node of tourist development at a regional (Region of Ionian Islands), but also national and

international level, with tourism being the prevailing sector of the local economy. Of importance is also the agricultural sector, with highly extroverted local qualitative production. *Key mid-term objectives* (2015-19) of the region are the sustainable exploitation of local resources, using as pillars the agricultural and tourism sectors; the upgrading of the local production system in alignment with the Regional Innovation Strategy for Smart Specialization (RIS3); and the environmental upgrading of the area through the development of related infrastructure (e.g. waste management, renewable energy infrastructure).

Zakynthos area disposes unique natural habitats, nurturing protected or rare flora and fauna species (e.g. *Carreta carreta* sea turtle) (Fig. 3a), as well as valuable natural beauties and cultural resources (Fig. 3d and 3e respectively). Based on these resources, mass (coastal and seasonal) as well as alternative forms of tourism activities are flourishing in the area. Population distribution designates a certain pattern (Fig. 3b) with highly dense populated compartments lying in coastal and marine protected areas. The same holds for tourist developed areas and related accommodation infrastructure, with almost half of this infrastructure (50% of hotel and 47% of rooms for rent) deploying in the Gulf of Laganas (Fig. 3c), where the National Marine Park of Zakynthos is located. Such a pattern is definitely placing a certain burden on the fragile ecosystems of the southern east part of the island (Fig. 3a – NATURA 2000 sites), with the western north part being less populated and tourist developed, mainly due to its rocky and steep morphology.

Figure 5**:** Special attractions - attributes and population / tourist accommodation distribution in Zakynthos Island

a. Zakynthos protected areas (Source: http://www.oikoskopio.gr/map/)

b. Density of population (2011)

c. Distribution of tourist accommodation in Zakynthos island
Source: own elaboration

d.Natural configurations – beauties of Zakynthos Island
Source: www.web-greece.gr

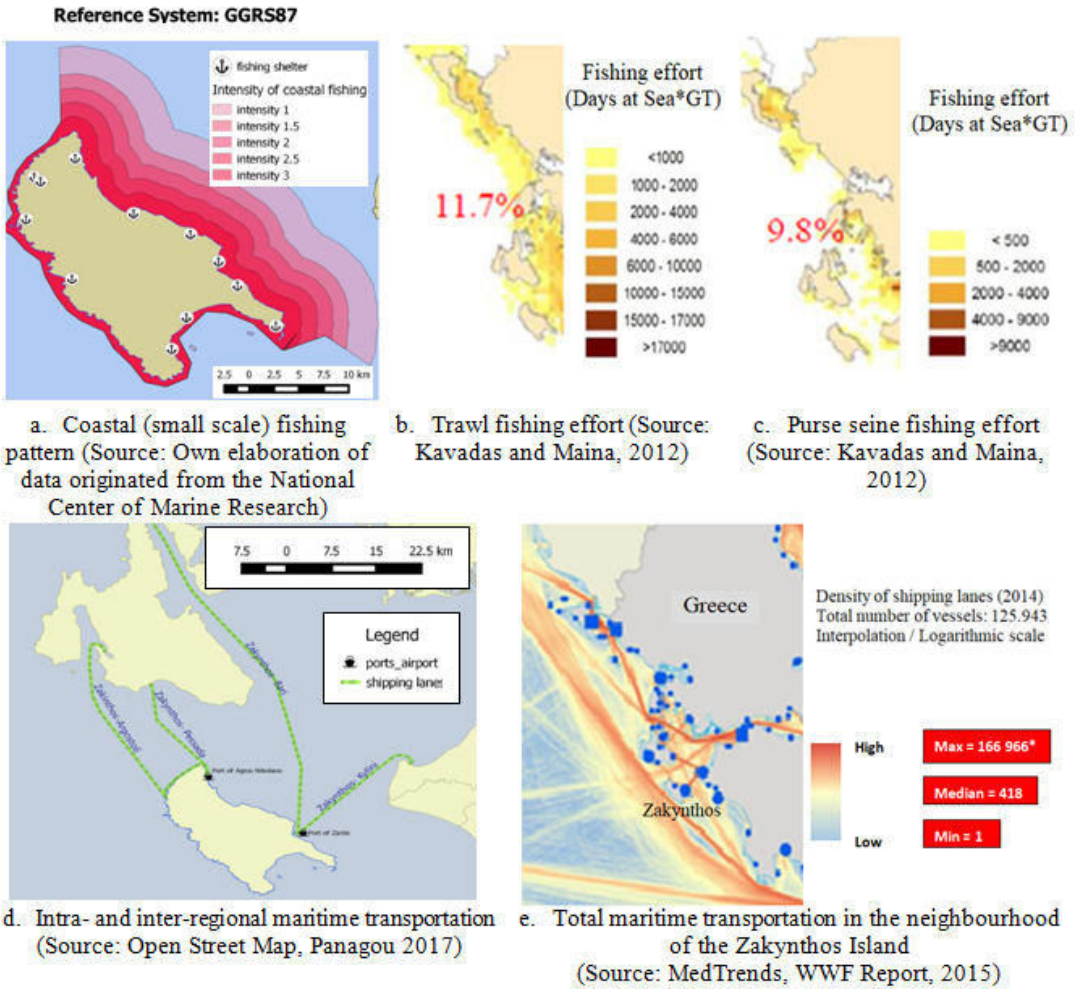
e. Museum of Byzantine and MetaByzantine Art

With regards to *maritime activities* (Fig. 4), the following can be noticed:

- *Fishing*: *coastal fishing* expands up to the 6 miles from the coast, depicting a descending activity as distance from the coast grows (Fig. 4a); Purse seine and trawl fisheries are mainly taking place along the eastern part of the island (Fig. 4b) (Fig. 4c). From these figures it is evident that fishery sector is mainly activated at the northern and southern east part of the island, where also the largest part of mass tourism activity is located.

- *Maritime transportation*: the island of Zakynthos (Port of Zakynthos) is regularly connected with Peloponnese (Port of Kylini), while maritime connections also exist between the Port of Zakynthos and Bari-Italy (from – to). Moreover, Zakynthos is seasonally connected to Kefallinia through the port of Agios Nikolaos in the northern part of the island (Fig. 4d). Apart from these connections, the island of Zakynthos lies in the middle of a rather crowded area in terms of maritime transportation, taking place in the Ionian – Adriatic Sea (Fig. 4e).

Figure 6: Maritime activities (fishing and transportation) in Zakynthos Island



a. Coastal (small scale) fishing pattern (Source: Own elaboration of data originated from the National Center of Marine Research)

b. Trawl fishing effort (Source: Kavadas and Maina, 2012)

c. Purse seine fishing effort (Source: Kavadas and Maina, 2012)

d. Intra- and inter-regional maritime transportation (Source: Open Street Map, Panagou 2017)

e. Total maritime transportation in the neighbourhood of the Zakynthos Island (Source: MedTrends, WWF Report, 2015)

4.2. The proposed methodological approach

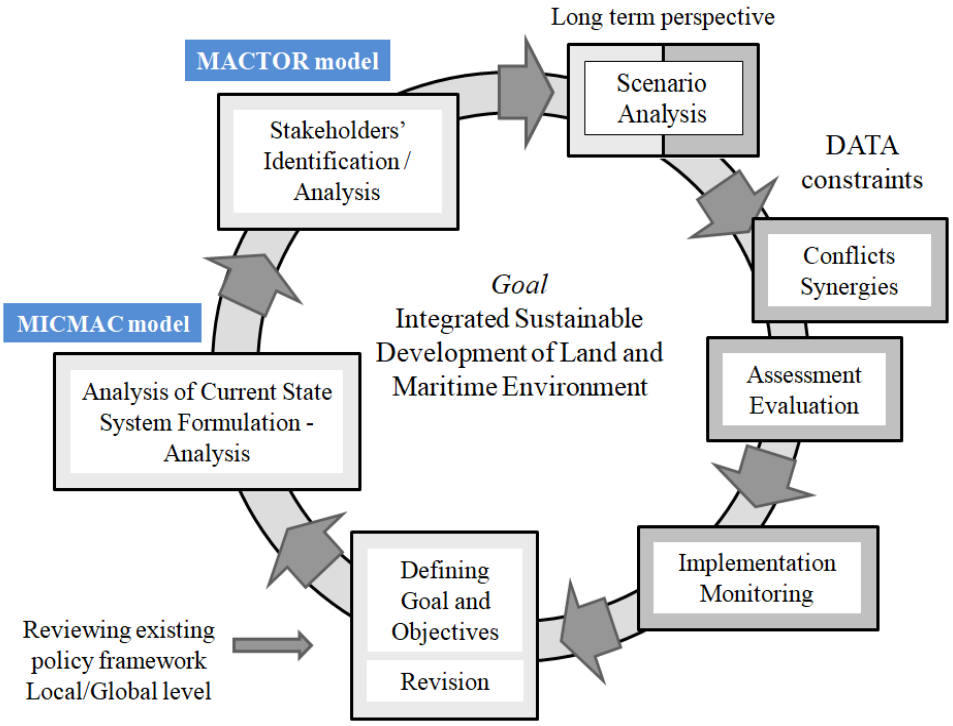
The focus of this section is on the elaboration of a *strategic integrated participatory territorial & marine spatial planning approach* for dealing with terrestrial and maritime development at the local level; and guiding *informed, well structured and coherent policy directions*.

The *steps* of the proposed framework are delineated in Fig. 5. More specifically these have as follows:

- *Review of the existing policy framework at higher hierarchical levels*: this first step designates policy directions that are already in force for the region at hand. For the Zakynthos case study example, indicative plans at national and regional level that need to be consulted are the Special Framework of Spatial Planning and Sustainable Development for Tourism, the Regional Spatial Plan of the Ionian Region, etc., used for decoding main strategic policy directions set up for the study region. Additionally, trends of the

external environment of the study area need to be explored in order key challenges of this environment to be grasped, e.g. climate change, migration, environmental stability, patterns of tourist demand. These designate potential future developments of this environment, within which decision-making for the region at hand will take place.

Figure 7: The proposed methodological approach and the stages elaborated in this work (in blue)



Source: own elaboration

- *Defining goals and objectives*: based on the outcome of the first step and a thorough analysis of past and current state of the study region (both terrestrial and coastal/maritime) are sketched the *goal* and *objectives* to be reached in the context of the integrated spatial plan.
- *System formulation and analysis*: at this step a thorough analysis of the study area (terrestrial and coastal/marine area) is carried out, resulting in information that is used to present the area as a *spatial system*, depicted by means of several *subsystems*, each of which is composed by a number of *variables*. Subsystems and related variables are used for defining a *structural matrix*; while also the interaction between each subsystem and related variables with all the rest of subsystems/variables of the matrix is articulated. Elaboration of these data – *structural analysis* – provides information on the *key drivers* of the study system, i.e. the most *influential variables* or those that are crucial for the future development of the system, being the outcome of this step. Implementation of this step is carried out by use of the *MICMAC module* of the LIPSOR[1] participatory planning tool.
- *Stakeholders' analysis*: consists of an important step in the context of territorial and coastal/maritime planning, providing insight in the interrelationships, current and (potential) future interests and expectations of certain stakeholders, potential conflicts or synergies' creation, etc. The analysis is based on the *MACTOR module* of the LIPSOR participatory

[1] LIPSOR scenario planning model - Laboratory for Investigation in Prospective and Strategy, developed by M. Godet in 1994.

planning tool, using two types of input data. The *first type of data* relates to the *interaction* among stakeholders' groups engaged in the planning process. Use of an integrated approach, considering interrelationships between both terrestrial and maritime stakeholders, sets the ground for addressing the interests of both the local community and the *land and maritime economic actors* in a certain study area. The *second type of data* depicts the position of stakeholders' engaged with regards to the objectives set. This is an important outcome for planning purposes as it can reveal, among others, oppositions to the planning objectives that can hamper implementation of the final policy decisions. In this sense, it can contribute to either the change of the proposed planning decisions or the identification of those policy decisions that will weaken resistance and assure smooth implementation of planning outcomes.

- *Scenario analysis*: taking into consideration that planning is a future oriented activity, at this step it is crucial to identify the dynamics of the system at hand and the desired end state (vision), in order proper policies, driving the system to this vision, to be defined (Stratigea and Giaoutzi, 2012a and 2012b). At the same time, it is important to grasp developments of the external environment, i.e. the decision environment, within which implementation of planning outcomes will take place. In such a context, scenario analysis is a useful strategic tool for identifying alternative future end states that can serve objectives set.
- *Exploring conflicts and synergies*: at this stage, *conflicts and synergies* that are due to sectoral developments and respective *terrestrial and maritime uses* in each single alternative scenario are explored.
- *Assessment / evaluation of alternative scenarios*: alternative scenarios and related spatial organization i.e. land and maritime uses, serving integrated future development paths of the region at hand within different decision environments, are assessed. This assessment is based on their performance with respect to the set of objectives. Outcome of this process is decision-making regarding the most prevailing scenario for further implementation (Stratigea and Giaoutzi, 2012a).
- *Implementation of selected scenario – Monitoring*: this concerns the stage where the selected scenario is implemented. Crucial in this respect is the steady monitoring of the selected scenario in terms of environmental, economic and social performance. Towards this end properly selected indicators are used. Identification of potential deviations from expected outcomes are crucial for setting up relevant remediation actions. This can fuel revision of any of the previous presented stages and related outcomes, e.g. from goal and objectives, structure of the system and variables concerned, stakeholders' groups taken into consideration, alternative scenarios, etc., marking *feedbacks* within the proposed planning framework.

Additionally, it should be noted that given the *complexity* and *uncertainty* of both the internal (case study) and external environment of any planning exercise (Stratigea, 2015), the proposed framework is not considered to represent a linear process. On the contrary, it is perceived as a process, where feedback is necessary among the various stages as a mean of *deepening understanding* of the study system at hand; and increasing *performance and value* of planning outcomes.

Finally, it is also noted that in each of the above stages are embedded knowledge and principles, tools, expertise, data, etc. that relate to each subsystem (terrestrial and coastal/marine), revealing thus the multidisciplinary and interdisciplinary nature of such a *shared planning study*.

4.3. Primary results - Discussion

In the following, primary results obtained by the application of two steps of the above described methodological approach are presented, referring to a specific study region, the

Island of Zakynthos. More specifically, the empirical application attempts to shed light at the stages of the analysis of the study system and the stakeholders' analysis by use of respective planning tools that enable an integrated consideration of terrestrial and coastal/marine environments as well as of land and maritime stakeholders. This is accomplished by elaborating on the interaction / interrelationships between:

subcomponents of the study system, i.e. key elements of both the terrestrial and coastal/maritime environment; and

terrestrial and coastal/maritime stakeholders' groups, addressing thus in the planning context the specific needs and visions of both local community and economic sectors.

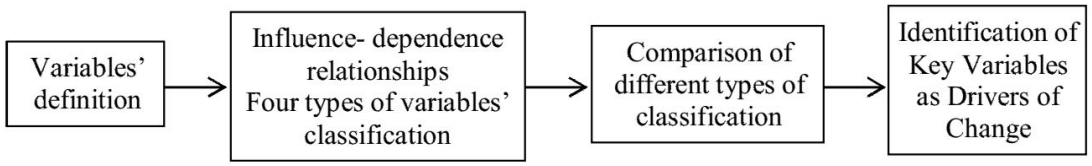
The above two steps are shortly discussed in the following, by presenting the basic principles of related planning tools (i.e. MICMAC and MACTOR module of the LIPSOR participatory planning model) as well as indicative outcomes produced in the case study of Zakynthos.

It should be noted here that although the above two steps (as well as the rest of the steps presented in Fig. 5) of the proposed methodological framework imply the engagement of community and other stakeholders in order to feed these stages with the necessary data input, this did not take place in the present study. Based on time and budget constraints, but also following the rationale of this paper, which is to test the usefulness of these tools to the integrated, terrestrial and maritime, planning approach and outcomes produced, data feeding the two modules reflect researchers' insight from the study area as well as certain experts' consulting, gathering specific reflections on the land and coastal/maritime as well as stakeholders' interactions.

4.3.1. Structural analysis – MICMAC module

The MICMAC module explores the key variables of the study system and formulates the basic questions relating to its future states (Godet 1994 and 1999; Stratigea, 2013). This is based on a structural analysis, exploring the "influence-dependence" relationships among the selected key variables, which correspond to the attributes of the internal and external environment of the study system, capable of driving its future states (Fig. 6). Selection of variables is conducted on the basis of their role as drivers of change (Stratigea and Giaoutzi 2012a; Stratigea, 2013).

Figure 8: Steps of the MICMAC model



Source: own elaboration

Application of MICMAC aims at identifying the key variables that can drive future development of the Zakynthos study area. For serving this purpose, a structural matrix was created, based on 39 variables, namely: i) internal environment variables, such as coastal built environment, morphology of shoreline, National Marine Park of Zakynthos, land and marine valuable ecosystems, hydrocarbon fields in neighbouring areas, settlements' development, sectors of the local economic structure (aquaculture, mass and alternative forms of tourism, agriculture, maritime transportation, conventional and alternative forms of energy production, telecommunication infrastructure, etc.), educational level of population, cultural heritage, income, employment, and waste management; and ii) external environment variables: climate change, economic recession, technology, blue growth strategy, EU policy for tourism and culture.

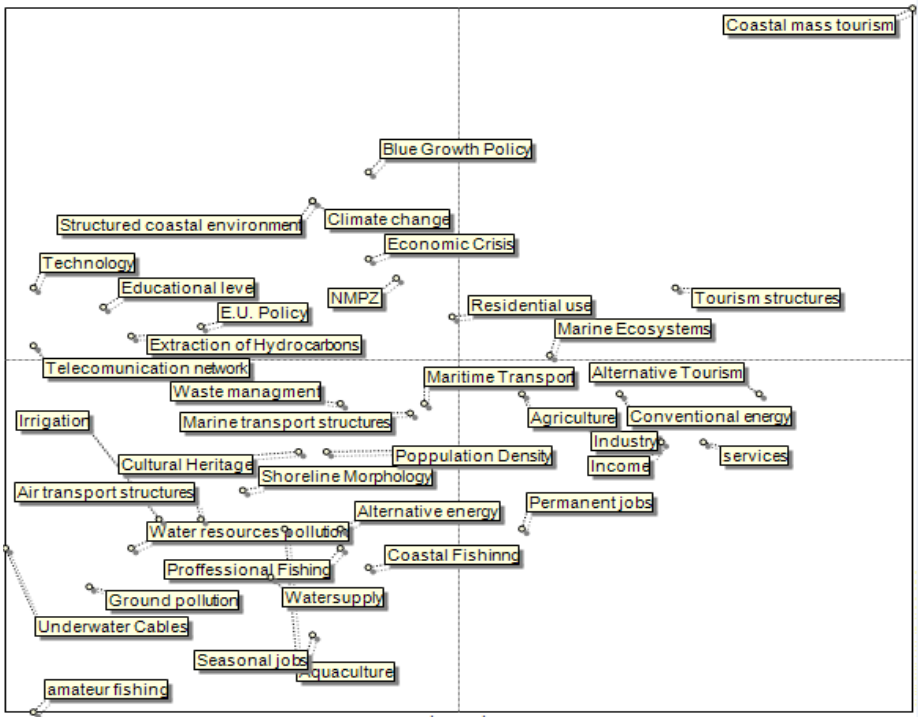
Variables' selection as to the *internal environment* is based on the deep insight on past behaviour and current state of the study system, gained through exploration of contemporary and historical data (Stratigea, 2013). This implies collection and analysis of statistical but also qualitative information in order major evolutionary trends, past discontinuities, etc. to be identified.

With regards to the external environment, variables' selection is grounded on the exploration of major challenges faced nowadays by regions and particularly by insular communities (Stratigea and Katsoni 2015).

Based on this matrix, a structural analysis is conducted, focusing on the 'influence-dependence' relationships among the variables of both the internal and the external environment.

More specifically, four types of '*influence-dependence'* relationships between each specific set of variables are explored by MICMAC, namely, '*direct*', '*indirect*', '*potential direct*', and '*potential indirect*'. Variables that are steadily rating high in all these types of *'influence-dependence'* relationships are considered as having an *influential role* in its evolution, perceived as key drivers, steering future developments of the study system (Godet 1994 and 1999, Godet et al. 2004). Results of the direct and indirect influence – dependence relationships among the 39 variables are depicted in Fig. 7 and 8 respectively.

Figure 9: Direct influence-dependence relationships among the 39 variables of the study system – MICMAC results



Source: Panagou, 2017

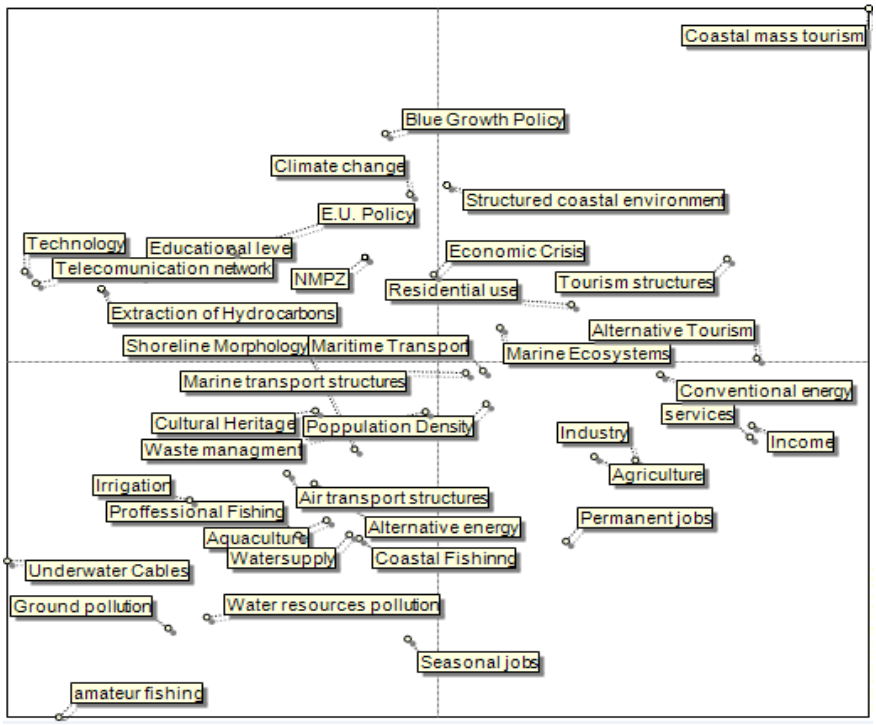
The study of all four types of relationships of key variables and their interpretation along the MICMAC rationale (Godet, 1994 and 1999, Godet et al. 2004, Stratigea and Giaoutzi 2012a; Stratigea, 2013), can lead to their classification as (Table 2): *influential* (those that are largely affecting development of other variables); *dependent* (those that are highly influenced); *lay variables* (those that are both affecting but also influenced from the other variables); and *independent* (variables that are following a trajectory that is mostly not relying on variables of the system concerned).

Interpretation of these results is summarized as follows:

- *Influential variables* i.e. key drivers for change of Zakynthos study system. Most of these variables are related to the external environment (climate change, economic recession, technology, EU policy for culture and tourism as well as blue growth). High dependence of the future of the study system by variables of the external environment was somehow expected, taking into consideration the extraversion of this system due to the tourism activity. The prevalence of this sector in the local economy and its future trajectory are indeed largely affected by climate change, changing the geography of tourist destinations at a global scale (Stratigea and Katsoni, 2015); the EU policies for culture and tourism, marking a certain shift from the mass (prevailing

tourism model in Zakynthos island) to alternative, more qualitative and experience-based, tourism forms; the Blue Growth strategy affecting both the tourism sector but also other, competing to tourism, economic sectors that can potentially be located to the marine environment (Stratigea and Katsoni, 2015). With regards to the internal environment, of decisive importance are the: educational level of local population, conditioning directions of future development and competitiveness of relative sectors; coastal built environment, both as a factor exerting high pressure on land coastal parts of the area and as a potential threat for marine environment's health, taking also into consideration the fragility of these parts of the island (marine park); and hydrocarbon extraction in adjacent to Zakynthos fields, an issue that can potentially highly affect the image and the local economic structure, placing at stake tourist development of the region.

Figure 10: Indirect influence-dependence relationships among the 39 variables of the study system – MICMAC results



Source: Panagou, 2017

- *Lay variables interpretation*: protection of marine ecosystems as well as developments of the tourism sector – coastal mass tourism and development of tourism infrastructure – are largely affected by the influential variables (mainly EU policies); while they play a crucial role for the development of dependent variables (income, job creation, services etc.). Same holds for settlements' development and residential use largely driven by economic recession, EU policy on culture and tourism that sets up certain directions for inland developments regarding alternative tourism forms, based on available land resources, etc.
- *Dependent variables*: the evolution of influential and relay variables will largely affect development of the local labour market, jobs' creation, and energy demand. Additionally, it will particularly affect the pattern of tourism development, giving birth to alternative forms of tourism as well as agricultural activities (both for goods' production and as the ground for alternative tourism development).

Table 2. Classification of variables of Zakynthos study system – MICMAC results

Influential variables Key drivers of change	Lay variables	Dependent variables
v8- ydrocarbon extraction	v6 - Marine ecosystems	v17 - Income
v 35 - Climate change	v21- Coastal mass tourism	v18 - Permanent jobs
v36 - Economic recession	v30-Tourism infrastructure	v20 - Services
v37 - Technology	v9-Settlements' development	v26- Conventional energy production
v39 - EU policy for culture and tourism	v7 - Residential use	v11 - Agriculture
v15 - Educational level		v22 - Alternative tourism
v38 - Blue growth strategy		
v1 - Coastal built environment		

Source: Panagou, 2017

4.3.2. Stakeholders' analysis – MACTOR module

The *MACTOR module* identifies the role of principal stakeholders in the study system. Various attributes of these stakeholders are studied, such as their economic interests, potential strategic moves, projects in progress, motives, attitudes, personal profiles, strategic alliances, strengths and weaknesses, etc.; while relationships among stakeholders are also taken into account, revealing the underlying *power structure of stakeholders* within the study system. *Key hypothesis* of the MACTOR model is that the future state of a study system is largely based on own decisions of stakeholders (sectoral representatives, local population and policy making bodies) (Godet 1994). In depth analysis of past behaviour and current state of the study region as well as results obtained from the application of the MICMAC model (influential and relay variables) are decisive factors for identifying the *stakeholders' groups* that need to be considered at this stage. Based on this information, stakeholders identified for the case study of Zakynthos are shown in Table 3.

Additionally, a very important attribute of MACTOR lies on its capacity to reveal the *attitudes* (position or level of resistance) of the various actors/stakeholders against the *planning objectives* (convergence with or divergence), providing planners with valuable information for decision-making purposes **(**Stratigea and Giaoutzi 2012a; Stratigea, 2013).

The steps undertaken and the rationale of MACTOR model is designated in Fig. 9.

The *goal* of Zakynthos case study is the Development of a Spatial Plan Integrating Terrestrial and Coastal/Marine Environment. The *objectives* set for serving this goal have as follows (Panagou, 2017):

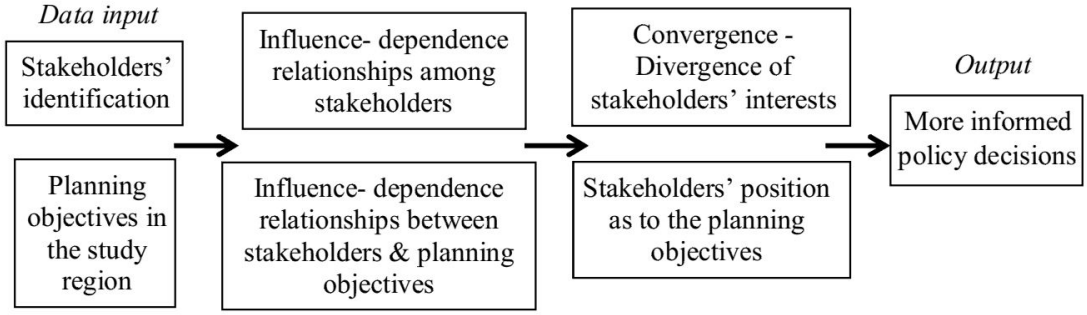
- **S1:** development of alternative forms of tourism in the terrestrial and coastal part.
- **S2:** development of alternative forms of tourism in the marine part.
- **S3:** decentralization of tourism sector across the coastal part.
- **S4:** protection of high valued coastal and marine ecosystems.
- **S5:** synergies' creation applying between uses in the terrestrial and marine environment in isolation as well as in between them.
- **S6:** conflicts' management applying between uses in the terrestrial and marine environment in isolation as well as in between them.
- **S7:** Human resource upgrading – Promotion of green and blue entrepreneurship.

Table 3. Stakeholders considered in Zakynthos case study

Stakeholder	Description
A1	Cultural associations
A2	Social associations
A3	Local authorities
A4	Environmental associations
A5	Experts
A6	Trade Associations
A7	Tourist associations
A8	Maritime transport companies
A9	Agricultural associations
A10	National Marine Park of Zakynthos
A11	Policy making authorities at a higher hierarchical level (regional/national)

Source: Panagou, 2017

Figure 11: Steps of the MACTOR model



Source: own elaboration

Basic data input in the MACTOR model consist of:

- A *cross-impact matrix* designating influence – dependence relationships among stakeholders concerned. Analysis of these data classifies stakeholders into dominant-driving, relay or link, dominated and independent.
- An *mxn stakeholders x objectives matrix*, sketching the position of stakeholders concerned as to the set of planning objectives.

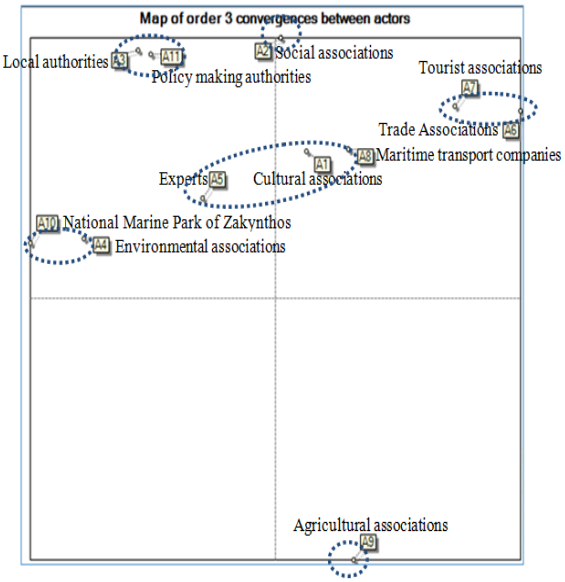
A variety of results are produced by MACTOR model that can support a more in depth elaboration of stakeholders' role, taking into consideration their attitude with regards to the planning objectives and their position in the local power relations system (Godet, 1994 and 1999; Stratigea, 2013). Based on these aspects, their potential to affect implementation of planning outcomes is sketched. Some indicative results, obtained from MACTOR analysis and their interpretation, are presented in the following.

More specifically, Fig. 10 illustrates *stakeholders' convergence* (Fig. 10a) as well as *alliances and divergence* among allied groups formed (Fig. 10b). From this figure, it is evident the coalition between environmental associations and the National Marine Park of Zakynthos, sharing the same environmental concerns; and their divergence from the allied group of tourism and trade associations, representing a more market-oriented approach of the exploitation of local resources.

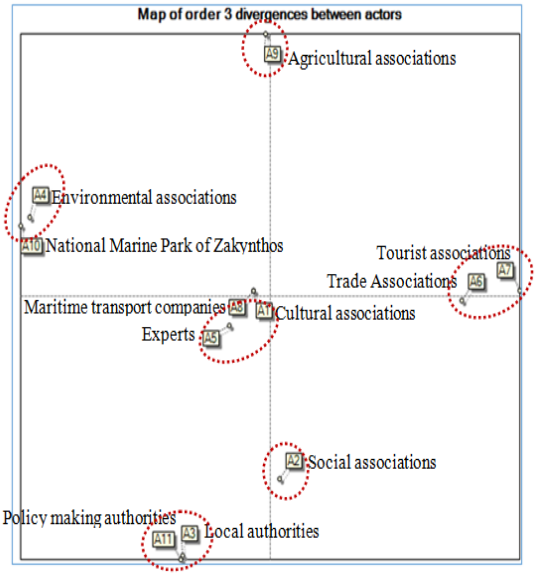
Also it is evident the coalition of decision and policy making bodies (local administration authority as well as relevant authorities at the regional and national level), sharing similar concerns about the sustainable development of local/regional resources, lying also at a distance from tourism and trade associations approach. Worth mentioning is the position of agricultural and social associations, reflecting a high divergence from other allied groups depicted in Fig. 10b.

Figure 12: Convergence among stakeholders, alliances and divergence of interests of allied groups

a. Stakeholders' convergence



b. Stakeholders' alliances - divergence



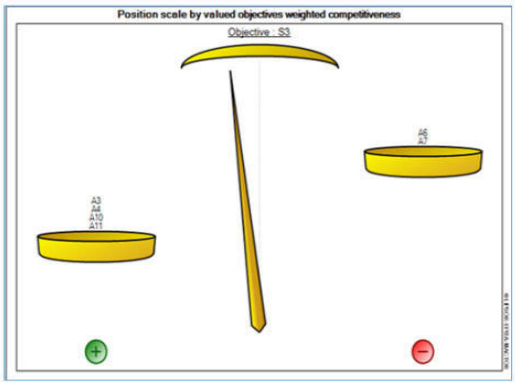
Source: Panagou, 2017

With regards to the *position of stakeholders* as to the *planning objectives*, the following can be noticed:

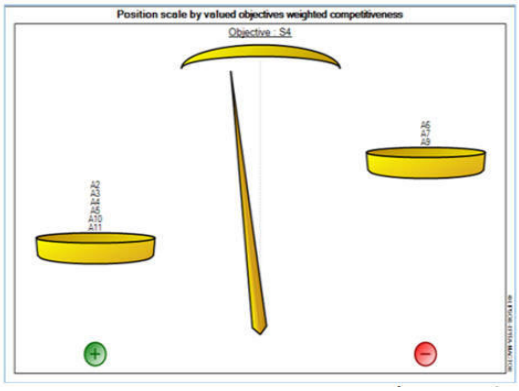
- Full convergence of stakeholders is reached in cases of *Objective S1* (development of alternative forms of tourism in the land and coastal part) and *Objective S2* (development of alternative forms of tourism in the marine part);
- *Objective S3* (decentralization of tourism sector across the coastal part) seems to be accepted by the majority of stakeholders, apart from A6 (Trade Associations) and A7 (Tourist associations), who seem to resist to this objective as this opposes already well established tourism patterns and location of sector-related businesses in the coastal part of the study region (Fig. 11a).
- With regards to Objective S4 (protection of high valued coastal and marine ecosystems), the majority of stakeholders is positive, apart from A6 (Trade Associations), A7 (Tourist associations) and A9 (Agricultural associations), as this objective will inevitably imply the enforcement of certain constraints to respective sectoral-related activities (Fig. 11b).
- Concerning *Objective S5* (synergies' creation between uses in the terrestrial and marine environment in isolation as well as in between them) (Fig. 11c) and *Objective S6* (conflicts' management between uses in the terrestrial and marine environment in isolation as well as in between them), opposing are A4 (Environmental associations), A9 (Agricultural associations) and A10 (National Marine Park of Zakynthos), each for own reasons. Such an opposition can potentially be related to the reluctance to accept a land use change or unwillingness of the above groups to share rights on, already exploited by them, land parcels.
- Finally in *Objective S7* (Human resource upgrading – Promotion of green and blue entrepreneurship) full convergence of stakeholders is reached.

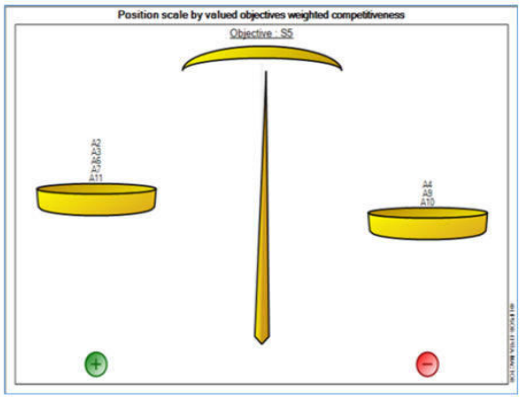
Figure 13: Position of stakeholders as to the objectives

a.Position as to S3 - decentralization of tourism sector across the coastal part



b. Position as to S4 - protection of high valued coastal and marine ecosystems





c. Position as to S5 - synergies' creation between uses in the land, the marine as well as the land – marine environment

Source: Panagou, 2017

5. Conclusions

Coastal environments are nowadays at the epicentre of planners' interests as 'laboratories' of growth and development, but also as land parcels that are extremely vulnerable to human activities' impacts. This interest is due to their dual nature as *enablers* of land and marine activities, with an increasing importance for job and wealth creation in the context of the Blue Growth Strategy; and as *public spaces* that provide ecological and recreation goods and services to local populations. This in turn designates the value of these places for both the *local level*, i.e. local communities, but also the *supralocal level*, since these areas constitute appealing environments for investments with impact at the regional or even the national economy. Based on this challenging dual role, they constitute attractive places for population and activities, a fact that exerts considerable pressure on these terrestrial compartments, rendering them a field of *conflicting and competing economic and social interests* that strongly affect their trajectory and impact both the territorial and the marine/coastal environment and spatial organization.

As *interfaces* of marine and terrestrial activities, e.g. fishing, agriculture, tourism and recreation, transportation and maritime trade (Echevarría et al., 2013), coastal areas are subject to both *marine/coastal (MSP and ICZM) and terrestrial planning endeavours*. The need for an integrated spatial planning approach in marine and coastal zones is pretty well understood and endorsed in various EU policy documents [COM(2013)133 final]. On the contrary, the role of *terrestrial plans* on the coastal/marine environment and the need relative planning endeavours and policies emerging out of them to be in harmony with marine/coastal planning considerations and objectives and vice versa, especially when planning at a *local scale,* has not been yet fully realized.

The latter lies at the heart of this paper, arguing that, at the local level, *marine/coastal (MSP and ICZM) and terrestrial planning* should be rather perceived as a *shared planning exercise*, embedding in it principles and peculiarities of terrestrial, coastal and marine environments and their interactions, as well as interactions among stakeholders having a stake in all three types of environments. Based on such a shared view of related spaces (terrestrial,

coastal and marine), the paper aims at contributing in a twofold manner, namely by: i) providing a more *integrated, system-based, planning approach*, mostly relevant to *local planning exercises*, which implies the perception of terrestrial and coastal/marine environments as subsystems of one system; and ii) shedding light on proper *planning tools* that are capable of handling terrestrial and coastal/marine space as well as relevant stakeholders and community actors' *interaction*. Such an approach can ensure an *integrated and coherent view* of terrestrial and coastal/marine resource management, *broadening thus the scope* of respective planning efforts and emerging policies for the sustainable exploitation of terrestrial and marine resources by accommodating local development visions, relating to terrestrial space, into the perspective of MSP and ICZM and vice versa. The proposed framework and planning tools can, additionally, set up a *platform for interaction* among a wide variety of stakeholders and communities' representatives, in order understanding of various interests to be facilitated and building up of consensus on mutually benefiting perspectives to be reached.

The integrated view embedded in the methodological approach is largely emerging from territorial planning discipline and principles, properly expanded to introduce coastal/marine space interests as well. As parts of the proposed approach, the rationale and outcomes obtained by use of suitable *planning tools* – MICMAC and MACTOR models – in a specific case study, Zakynthos Island, are depicted. These facilitate the handling of terrestrial and coastal/marine space as well as stakeholders and communities' *interaction* at the local level. The participatory context of these tools is stressed; although time and budget constraints did not allow its real implementation in the case study region (data used for feeding these models reflects mainly researchers' insight and experts' views, occasionally advising researchers in their effort).

The usefulness of planning tools tested in this paper (MICMAC and MACTOR models) lies mainly on their capacity to provide, in a more systematic and structured way, useful *knowledge* on key drivers of the study system for: predicting *future demand for space* in both the terrestrial and coastal/marine environment; and using this knowledge for building *more informed and robust scenarios* with respect to alternative future developments of the territorial / marine system as a whole. Additionally, they provide the chance for early identification of *powerful stakeholders* in the study system, an issue of critical importance for its future development (Carrero et al., 2013). Both inputs can affect validity and robustness of subsequent steps of the process e.g. identification of conflicts and synergies, assessment of scenarios.

Experience gained from the application of these tools in the specific case study area can be shortly summarized in a range of key *barriers or difficulties* that need to be handled in such a *shared planning endeavour*.

A key aspect that relates to the effective implementation of the proposed methodological framework lies on the *capacity* of establishing substantial communication and interaction among the multidisciplinary and interdisciplinary group required for accomplishing such a planning exercise. Indeed, a variety of different *perspectives* and relative *scientific backgrounds* are incorporated in this framework (legal, cultural, environmental, social, economic, spatial, technological, etc. knowledge). These, as research has also revealed (ADRIPLAN, 2015), cannot always find pathways for establishing full mutual understanding and constructive interaction in order the different perspectives and technical knowledge to be fully integrated in each specific case study context. Things are getting worse in this respect, due to time and resource constraints.

Stakeholders and local communities' engagement is another important issue. As earlier discussed, coastal/marine stakeholders and community actors do not share the same values and do not dispose similar perceptions with regards to local terrestrial or marine resources. In certain cases the two groups can represent rather conflicting stakes. Bridging these differences and establishing a fruitful and creative interaction among completely different, in terms of knowledge and objectives but also power to influence policy decisions, groups, seems to be a real planning challenge and a considerable barrier to overcome. If this can be properly handled, networking through stakeholders and community's engagement can have multiplying effects towards conflicts' alleviation and synergies' creation at the local level.

The role of *governance structures* is also stressed in such an effort. Such structures, apart from their role as facilitators of the full engagement of relevant coastal and maritime stakeholders (Stojanovic and Barker, 2008; ADRIPLAN, 2015; Jay et al., 2016), can act also as *enablers* of the proposed integrated approach, since this engages different hierarchical decision levels and related bodies. Indeed, while terrestrial spatial organization and respective decision-making is a responsibility of the local level, coping with marine environment falls into the state's jurisdiction. Implementation of the integrated methodological approach of the present paper, in this respect, implies both *horizontal* (decision-making bodies at the local level, having a role in spatial and developmental planning issues) and *vertical* (decision-making and policy making bodies at different hierarchical levels, e.g. local, regional, national) spatial territorial governance. Such a vertical and horizontal cooperation and coordination can assure that all kinds of legal, institutional etc. barriers can be overcome; and the final planning outcome can be in alignment with the strategic objectives and respect constraints of higher hierarchically policy making levels.

Finally, *availability of reliable spatial data* in both the terrestrial and the marine environment is of crucial importance in handling issues raised in such a shared planning approach. This holds true especially for marine data that appear to be more scarce and scattered to various institutions and researchers, while terrestrial data seem to be an issue easier to handle. Data shortage has been stressed by most of the macro-region studies explored in this work. Both aspects, i.e. availability and quality of data, but also data accessibility, can largely affect the smooth handling of the planning process and the validity of the results obtained.

References

Action Plan, 1995. "Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean (MAP Phase II)." Final Act of the Conference of Plenipotentiaries on the Amendments to the Convention for the Protection of the Mediterranean Sea against Pollution, to the Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft and on the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean, Barcelona, 9-10 June 1995, UNEP(OCA)/MED IG.6/7, 1 July 1995, 101-131.

ADRIPLAN 2015. "Conclusions and Recommendations: A Short Manual for MSP Implementation in the Adriatic-Ionian Region." ISBN: 978-88-941335-3-0 (accessed July 5, 2017).

Barcelona Convention, 1976. "The Convention for the Protection of the Mediterranean Sea Against Pollution." Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region for the Protection of the Mediterranean Sea. Barcelona, 16 February 1976.UNEP/CONF.1.

Bryson, M. John 2004. "What to Do when Stakeholders Matter – A Guide to Stakeholder Identification and Analysis Techniques." Public Management Review, 6 (1): 21-23, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.507.4165&rep=rep1&type=pdf (accessed January 4, 2017).

Carrero, Rocio, Navas, Fatima, Malvárez, Gonzalo and Cáceres, Francisco 2013. "Participative Future Scenarios for Integrated Coastal Zone Management." In Conley, D.C., Masselink, G., Russell, P.E. and O'Hare, T.J. (Eds.), Journal of Coastal Research, 65: 898-903, Special Issue, Proceedings 12th International Coastal Symposium (Plymouth, England), ISSN 0749-0208.

Cohen, E. Joel 1995. "How Many People Can the Earth Support?" New York: W.W. Norton & Co, ISBN 0-393-03862-9.

COM(2005)504 final. "Thematic Strategy on the Protection and Conservation of the Marine Environment." Communication from the Commission to the Council and the European Parliament.

COM(2005)505 final. "Directive of the European Parliament and of the Council establishing a Framework for Community Action in the Field of Marine Environmental Policy (Marine Strategy Directive)."

COM(2006)275 final, Vol. I. "Towards a Future Maritime Policy for the Union: A European Vision for the Oceans and Seas–An Integrated Maritime Policy for the European Union." Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions.

COM(2006)275 final, Vol. II-Annex. "Towards a Future Maritime Policy for the Union: A European Vision for the Oceans and Seas–An Integrated Maritime Policy for the European Union." Green Paper, Commission of the European Communities, Brussels, 7.6.2006.

COM(2007)308 final." Evaluation of Integrated Coastal Zone Management (ICZM) in Europe." Commission Communication on 7 June 2007."

COM(2007)575 final. "An Integrated Maritime Policy for the European Union." and SEC(2007) 1278. 10.10.2007.
COM(2008)395 final. "Guidelines on an Integrated Approach to Maritime Policy: Towards Best Practices in Integrated Maritime Governance and Stakeholder Consultation." Communication on 26.06.2008.
COM(2008)534 final. "A European Strategy for Marine and Maritime Research - A Coherent European Research Area Framework in Support of a Sustainable Use of Oceans and Seas." Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, 3.9.2008.
COM(2008)768 final. "Offshore Wind Energy: Action Needed to Deliver on the Energy Policy Objectives for 2020 and beyond." Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Commission of the European Communities, 13.11.2008.
COM(2008)791 final." A Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU." Communication from the Commission, Brussels, 25.11.2008.
COM(2010)461 final. "Marine Knowledge 2020 - Marine Data and Observation for Smart and Sustainable Growth." Communication from the Commission to the European Parliament and the Council, SEC(2010) 999, SEC(2010) 998.
COM (2010)771 final. "Maritime Spatial Planning in the EU – Achievements and Future Development." Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 17.12.2010.
COM(2012)494 final. "Blue Growth Opportunities for Marine and Maritime Sustainable Growth." Communication from the Commission to the European Parliament, the Council the European Economic and Social Committee and the Committee of the Regions.
COM(2013)133 final. "Proposal for a Directive of the European Parliament and of the Council establishing a Framework for Maritime Spatial Planning and Integrated Coastal Management." 2013/0074 (COD).12.3.2013.
COM(2014)451 final. "Better situational awareness by enhanced cooperation across maritime surveillance authorities: next steps within the Common Information Sharing Environment for the EU maritime domain." Communication from the Commission to the European Parliament and the Council, Brussels, 8.7.2014.
Commission Directive 2009/89/EC. "Commission Directive 2009/89/EC of 30 July 2009 amending Directive 98/8/EC of the European Parliament and of the Council to include nitrogen as an active substance in Annex I thereto." Official Journal of the European Union, L199/19, 31.07.2009.
Council Decision 2009/89/EC. "On the signing, on behalf of the European Community, of the Protocol on Integrated Coastal Zone Management in the Mediterranean to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean." Official Journal of the European Union, L 34/17, 4.2.2009.
Council Decision 2010/631/EU. "Council Decision of 13 September 2010 concerning the conclusion, on behalf of the European Union, of the Protocol on Integrated Coastal Zone Management in the Mediterranean to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean." Official Journal of the European Union, L 279/1, 23.10.2010.
Dahl, Rachel (Ed.) 2009. "Marine Spatial Planning - A Step-by-Step Approach toward Ecosystem-based Management." UNESCO, IOC/2009/MG/53.
Directive 2008/56/EC. "Establishing a Framework for Community Action in the Field of Marine Environmental Policy (Marine Strategy Framework Directive)." Official Journal of the European Union, OJ L 164/19, 25.6.2008.
Directive 2014/89/EU. "Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a Framework for Maritime Spatial Planning." Official Journal of the European Union, L 257/135, 23.07.2014.
Echevarría, Luciana, Gómez, Alberto, Piriz, Clara, Quintas, Cristina, Tejera, Rafael and Daniel Conde (2013). "Capacity Building for Local Coastal Managers: A Participatory Approach for Integrated Coastal and Marine Zones Management in Uruguay", Journal of Integrated Coastal Zone Management, 13(4):445-456.
Eden, Colin, and Ackermann, Fran, 1998. "Making Strategy: The Journey of Strategic Management." London: Sage Publications.
Ehler, Charles, and Douvere, Fanny, 2007. "Visions for a Sea Change." Report of the 1st International Workshop on Marine Spatial Planning, Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. iOC Manual and Guides. 48, iOCa M Dossier, 4, UNESCO, Paris, doi: http://dx.doi.org/10.4135/9781446217153 (accessed November 9, 2017).

European Commission, 2010. " Integrated Coastal Zone Management: Participation Practices in Europe", pp. 36 Luxembourg : Publication Office of the European Union ISBN 978-92-79-16201-5, doi : 10.2779/43519.

European Parliament. 2013. "Maritime Spatial Planning and Integrated Coastal Management." ***I-Amendments adopted by the European Parliament on 12 December 2013 on the Proposal for a Directive of the European Parliament and of the Council establishing a Framework for Maritime Spatial Planning and Integrated Coastal Zone Management - COM (2013) 0133 – C7-0065/2013 – 2013/0074(COD) Official Journal of the European Union, C468/368, 12.12.2013, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013AP0588&from=EN> (accessed January 4, 2017).

Freeman, R. Edward 1984. "Strategic Management: A Stakeholder Approach, Boston." Pitman, MA, Latest edition.

Giannakopoulos, Christos, Bindi, Marco, Moriondo, Marco, Lesager, Philippe, and Tin, Tina 2005. "Climate Change Impacts in the Mediterranean resulting from a 2°C Global Temperature Rise (Report)." Gland: World Wildlife Fund.

Godet, Michael 1994. "From Anticipation to Action – A Handbook of Strategic Prospective." UNESCO Publishing, ISBN 92-3-102832-4.

Godet, Michael 1999. "Creating the Future." The Antidote, 22: 11-16.

Godet, Michael, Monti, Regine, Meunier, Francis and Roubelat, Fabrice. 2004. "Scenarios and Strategies: a Toolbox for Problem Solving." Cahiers du LIPSOR, Laboratory for Investigation in Prospective and Strategy, Paris.

Jarvis, Rebecca, M., Bollard Breen, Barbara, A., Krägeloh, Christian, U., Billington, Rex 2015. "Citizen Science and the Power of Public Participation in Marine Spatial Planning." Marine Policy, 57:21-16.

Jay, Stephen et al. 2016. "Transboundary Dimensions of Marine Spatial Planning: Fostering Inter-jurisdictional Relations and Governance." Marine Policy, 65:85-96.

Kavadas, Stefanos and Maina, Irida 2012. "Methodology of Analysis of Vessel Monitoring System Aata: Estimation of Fishing Effort for the Fleet of Open Sea Fishery." Abstract in 10th Hellenic Conference on Oceanography and Fisheries, Athens, 7-11 May, p. 164.

Kearney, John, Berkes, Fikret Charles, Anthony, Pinkerton, Evelyn, and Wiber, Melanie 2007. "The Role of Participatory Governance and Community-Based Management in Integrated Coastal and Ocean Management in Canada." Coastal Management, 35 (1): 79-104, doi: 10.1080/10.1080/08920750600970511

Lewis, W. Carol 1991. "The Ethics Challenge in Public Service: A Problem-Solving Guide." San Francisco, CA. Jossey-Bass.

Lionello, Piero, Platon, Serge and Rodo, Xavier 2008. "Preface: Trends and Climate Change in the Mediterranean Region." Global and Planetary Change, 63: 87-89.

Med Trends, WWF Report 2015. "Blue Growth in the Mediterranean Sea: the Challenge of Good Environmental Status".

Mediterranean Action Plan (MAP) 1975. "Integrated Planning of the Development and Management of the Resources of the Mediterranean Basin." Intergovernmental Meeting on the Protection of the Mediterranean. Barcelona, 28 January-4 February 1975, UNEP/WG.2/2, 1-9.

Mitchell, Ronald, Bradley, Agle and Wood, Donna 1997. "Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts." Academy of Management Review, 22(4): 853-86.

OECD (2004). "Stakeholder Involvement Techniques – Short Guide and Annotated Bibliography." NEA No. 5418, ISBN 92-64-02087-X.

Panagiotopoulou, Maria and Stratigea, Anastasia 2017. "Spatial Data Management and Visualization Tools and Technologies for Enhancing Participatory e-Planning in Smart Cities." In Anastasia Stratigea, Elias Kyriakides and Chrysses Nicolaides (Eds.), Smart Cities in the Mediterranean - Coping with Sustainability Objectives in Small and Medium-sized Cities and Island Communities, Springer, ISBN 987-3-319-54557-8, 31-57.

Panagou, Nikoleta 2017. "Towards a Methodological Approach for Integrating Territorial and Marine Spatial Planning – Case Study Zakynthos Island / Greece." Diploma Thesis, Dept. of Geography and Regional Planning, School of Rural and Surveying Engineering, National Technical University of Athens.

Pentz, Tim-Ake, Ruskule, Anda, Lamp, Jochen, Aps, Robert, Chmura, Grazyna, Morf, Andrea, Lindblad, Cecilia, Fidler, Jan, and Kamrowska, Hanna 2012. "Stakeholder Involvement in MSP." BaltSeaPlan Project, Report 24.

Regulation No 1052/2013. "Regulation of the European Parliament and of the Council of 22 October 2013 establishing the European Border Surveillance System (Eurosur)." Official Journal of the European Union, L 295/11, 6.11.2013.

Regulation No 1380/2013. "Regulation of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/E."

Recommendation 2002/413/EC 2002. "Implementation of Integrated Coastal Zone Management in Europe." Recommendation of the European Parliament and of the Council of 30 May 2002.

Schultz-Zenden, Angela, Gee, Kira, and Scibior, Katarzyna 2008. "Handbook on Integrated Maritime Spatial Planning." PlanCoast Project, Adriatic / Baltic/ Black Sea, INTERREG III B. CADSES, April (accessed July 9, 2017).

SEC/2007/1278 final. "An Integrated Maritime Policy for the European Union." Commission Staff Working Document - Accompanying Document to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Commission of the European Communities, 10.10.2007.

SEC(2005)1290 2005. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52005SC1290 (Accessed November 29, 2017).

Stojanovic, Tim and Barker, Natasha 2008. "Improving Governance through Local Coastal Partnerships in the UK." The Geographical Journal, 174(4): 344–360.

Stratigea, Anastasia and Giaoutzi, Maria 2012a. "Scenario Planning as a Tool in Foresight Exercises: The LIPSOR Approach". In Maria Giaoutzi and Bartolomeo Sapio (Eds.), Recent Developments in Foresight Methodologies, Springer – Verlag, New York, 215-236.

Stratigea, Anastasia and Giaoutzi, Maria 2012b. Linking Global to Regional Scenarios in Foresight, Futures, 44: 847–859.

Stratigea, Anastasia 2013. "Participatory Policy Making in Foresight Studies at the Regional Level - A Methodological Approach", Regional Science Inquiry Journal, V(1):145-161.

Stratigea, Anastasia 2015."Theory and Methods of Participatory Planning." Hellenic Academic Electronic Books, Kallipos, http://repository.kallipos.gr/handle/11419/5428 (In Greek).

Stratigea, Anastasia and Katsoni, Vicky 2015. "A Strategic Policy Scenario Analysis Framework for the Sustainable Tourist Development of Peripheral Small Island Areas - The Case of Lefkada Greece Island." European Journal of Futures Research (EJFR), 3(5): 1-17, doi: 0.1007/s40309-015-0063-z, SpringerOpen.

Stratigea, Anastasia, Leka, Akrivi and Nicolaides, Chrysses 2017. "Small and Medium-sized Cities and Island Communities in the Mediterranean: Coping with Sustainability Challenges in the Smart City Context." In Anastasia Stratigea, Elias Kyriakides and Chrysses Nicolaides (Eds.) Smart Cities in the Mediterranean - Coping with Sustainability Objectives in Small and Medium-sized Cities and Island Communities, Springer, ISBN 987-3-319-54557-8, 3-29.

Strickland-Munro, Jeniffer, Kobryn, Halina, Brown, Greg, Moore, Susana 2016. "Marine Spatial Planning for the Future: Using Public Participation GIS (PPGIS) to Inform the Human Dimension for Large Marine Parks." Marine Policy, 73:15-26

UNEP(OCA)/MED, 1996. IG.7 Conference of the Plenipotentiaries on the Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources

Siracuse (Italy), 6-7 March.

Zaucha, Jacek and Matczak, Magdalena 2011. "Developing a Pilot Maritime Spatial Plan for the Southern Middle Bank." BaltSeaPlan Programme 2007-2013, Report 10, December, ISBN: 978 83-62-438-12-9 (accessed July 5, 2017).