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Executive Summary

The complex and dynamic nature of our coastal zones makes their management especially difficult. Coastal ecosystems are at the interface of the terrestrial and marine environments and so are sensitive to the effects of development, agriculture and other forms of land use, as well as the output wastes and pollution. Their integrity is also highly dependent on the maintenance of natural processes. To take account of these multiple factors, the idea of 'Integrated Coastal Zone Management' (IZCM) has therefore been developed as a way of facing up to the challenges that we face in ensuring that our coastal zones develop in sustainable ways.

This document describes the principles on which ICZM is based and its relationship to other conceptual frameworks such as sustainable development, the Ecosystem Approach, ecosystem services and integrated water and river basin management. It also describes the development of policy based on ICZM in the Mediterranean and the current status of these ideas in the Black Sea. Despite its long history, we show that ICZM thinking remains a relevant and fundamental part of the contemporary policy landscape in both these sea basins. We show that a focus on the principles underlying ICZM highlights the role of good governance and adaptive methods to managing the coastal zone, that usefully complements and extends current planning approaches on land and at sea. In Europe, the supportive and complementary of ICZM for implementing such measures as the Water Framework Directive and the Marine Spatial Frameworks Directive is discussed. The need to extend and share such experience with other parts of the Mediterranean and the Black Sea are also considered.

In order to take the notion of achieving good governance forward, this document concludes by describing the contribution that the PEGASO Project can make through the design and implementation of a 'Governance Platform'. It is suggested that the Platform must be seen as a forum that enables experience to be exchanged between practitioners and researchers at regional, national and local scales. It must also serve as a vehicle by which the institutional changes necessary for the successful implementation of ICZM can be encouraged. The contribution of the tools and methods developed within PEGASO and the needs of the Governance Platform are presented.

This review of the principles of the ICZM Protocol emphasises that they must be considered both in terms of the way they help us shape the goals of policy and management ***and*** design the governance processes that are needed to deliver them. A focus on ICZM is an essential if the Ecosystem Approach is to become embedded in decision making and the goals of sustainable development achieved. ICZM and the Ecosystem Approach are fundamentally adaptive, problem solving approaches to policy and management, and so to be successful, any Governance Platform must be able to achieve demonstrable social learning outcomes and provide documented examples of behaviour change.

Chapter 1 Achieving the Integrated Management of the Coastal Zone

1.1 Introduction

Our coastal zones have long been a focus for human activity. They are rich in resources and valuable for trade and communication between people. They are also complex and dynamic natural systems, and as a result they are highly vulnerable. Not only are societies often exposed to natural hazards such as storms and flooding, but nature is also highly susceptible to human impacts. Coastal ecosystems are at the interface of the terrestrial and marine environments and so are sensitive to the effects of development, agriculture and other forms of land management, as well as the output wastes and pollution; their integrity is also highly dependent on the maintenance of natural processes.

The complex and dynamic nature of our coastal zones makes their management especially difficult, and so the concept of 'Integrated Coastal Zone Management' (IZCM) has been developed as a way of facing up to the challenge. In this document we discuss the contribution that the EU-funded PEGASO Project has made to taking ICZM forward in the Mediterranean and Black Sea Basins, and in particular how it is helping to build a 'Governance Platform' that will facilitate the goals of sustainable development to be realised. Through international agreements such as the Barcelona Convention and its ICZM Protocol, the Mediterranean has been at the forefront of thinking about approaches to integrated management in the coastal zone. This document brings together the conceptual work that has been done within PEGASO, and will describe how ICZM links with other policy and governance initiatives on land and sea that are also relevant to the coastal zone. In particular it will describe how the Governance Platform, that will be one of the major legacies of PEGASO, can act as a forum for the building of a common knowledge between science and coastal zone management practitioners, by sharing of experience, data, methods and interpretation of the processes in a long term vision.

1.2 The ICZM Process: The context for PEGASO

The concept of ICZM is not new. In the last half of the twentieth centenary, a number of countries were actively engaged in different kinds of coastal zone management, but it was recognised that efforts did not deal with issues in a holistic way (Post and Lundin, 1996). As a response to the difficulties they faced, the idea of a more *integrated* approach emerged in the 1980s. ICZM was different from earlier approaches in that it attempted to be more comprehensive and inclusive, by taking into account activities in all the sectors that affected the economic, social and environmental character of coastal areas. A major stimulus to such efforts was provided by the United Nations Conference on Environment and Development (UNCED) in June 1992. A major outcome of the Rio Earth Summit was Agenda 21, which emphasised the fundamental role that ICZM must play in achieving the goals of sustainable development.

The evolution of thinking around the concept of ICZM can be observed in developments with Europe and the Mediterranean in particular. The Barcelona Convention for the Protection of the Mediterranean Sea against Pollution was signed in 1976 and came into force in 1978. The Priority Actions Programme Regional Activity Centre (PAP/RAC) was established in Split in 1980, under the auspices of the United Nations Environmental programme (UNEP) to assist in the implementation of the Integrated Planning Component of the Mediterranean Action Plan adopted in Barcelona in 1975.

During the 1990s it went on to support a number of Coastal Area Management Programme (CAMP) projects, designed to address coastal problems and the goals of sustainability in an integrated way.

Between 1994 and 96, EU launched an ICZM Demonstration Programme across 35 sites in Europe, 12 of which were in the Mediterranean. The aim was to look at the potentials of ICZM and the barriers to its implementation, especially at local scales. The work provided part of the basis for the EU's recommendations on ICZM Recommendation which were approved in 2002 (2002/413/EC). An Expert Group was established to support countries in implementing the reporting of national strategies, which was required by 2006. Developments in the Mediterranean, however, went much further. In 2008 the Contracting Parties (CPs) to the Barcelona Convention (21 Mediterranean States plus the EU) adopted a Protocol for ICZM, which entered into force in 2011. To date, the number of states that have ratified the ICZM Protocol in their own legislatures totals eight. The EU's ratification of the Protocol in 2011 makes it binding on the eight Member States around the Mediterranean. The ICZM Protocol is the first supra-state legal instrument specifically for coastal zone management.

The ICZM Protocol is one of seven protocols[1] to the Barcelona Convention that address specific aspects of Mediterranean environmental conservation and is supported at technical level by programmes and centres of cooperation, the Regional Activity Centres (RAC). The RAC for ICZM is PAP/RAC, the centre that was established under UNEP/MAP initiative to work with the 21 countries that border the Mediterranean.

The decision to develop the ICZM Protocol was taken in 2001 after recognition that - in spite of the effective implementation of a number of coastal area management programmes (CAMPs) at localities around the Mediterranean, the publication of ICZM guidelines, recommendations, action plans, and a White Paper on ICZM - a stronger instrument was required to ensure the sustainable management of coastal natural resources. Coastal areas throughout the Mediterranean faced severe pressures threatening coastal resources and the viability of economic activities. It became obvious that no real progress would be achieved in the field only on the basis of recommendations.

To support the implementation of the ICZM, DG RES launched a call for work under the FP7 Programme. The call was wide in scope, and required that issues and developments in the Black Sea were also included. The bid was won by the PEGASO consortium which begun its activities in February 2010. Key objectives of the project were to support the ICZM Protocol and to bridge science and decision-making. It was also designed to assist in building on the work of the Black Sea Commission, which had established an Advisory Group on the Development of Common Methodologies for Integrated Coastal Zone Management (AG ICZM) in 1996. The AG ICZM gives advice to the Commission on the management of the coastal zones in the Back Sea and the implementation of regionally coordinated ICZM strategies, methodologies and instruments to support the goal of sustainable development. However, at present the Black Sea lacks any formal agreement similar to that for the Mediterranean; an outcome of PEGASO might be to stimulate thinking about what might be needed in the future.

Despite the long period over which ICZM thinking has developed, a number of challenges remain. On the wider international scene, for example, Portman et al. (2012) found that in the case studies they considered, ICZM approaches were often adopted but not implemented successfully, often as a

[1] Seven Protocols within the MAP legal framework: Dumping Protocol (from ships and aircraft), Prevention and Emergency Protocol (pollution from ships and emergency situations), Land-based Sources and Activities Protocol, Specially Protected Areas and Biological Diversity Protocol, Offshore Protocol (pollution from exploration and exploitation), Hazardous Wastes Protocol, Protocol on Integrated Coastal Zone Management (ICZM).

result of poor integration across the principles covered by ICZM. From their work in Australia, Coffey and O'Tool (2012) noted the importance of combining different sources of knowledge if ICZM strategies are to be successful, and that failure to do so may also significantly hinder progress. Finally, Ballinger et al. (2010) found that while there had been some progress in terms of implementing the EC ICZM principles at national, regional and local levels across Europe, promoting the broad holistic, long-term and adaptive approaches demanded by ICZM has been more difficult to achieve.

Cummins and McKenna (2010) have argued that in the context of ICZM in Ireland, it is critically important to 'roll out' the approach of Sustainability Science if society is to make the transition towards sustainability, so that the transfer of knowledge between the research and policy communities can be effective. PEGASO has also been designed to achieve this goal across the Mediterranean and Black Sea Basins. It seeks to better understand and articulate the new forms of trans-disciplinary thinking that is required by ICZM Protocol, and to operationalise and generalise the findings through the creation of a shared Governance Platform for the two sea basins.

1.3 Structure of this document

The purpose of this document is to describe in detail what the PEGASO Governance Platform will entail, not so much in terms of its organisation, but rather in relation to what it needs to achieve. The Platform must be a forum that not only enables experience to be exchanged between practitioners and researchers, but also a vehicle by which the institutional changes necessary for the successful implementation of ICZM is encouraged. In part 2, we consider the principles of the ICZM Protocol, and review the types of knowledge and activity required if they are to be realised, both in the Mediterranean and the Black Sea.

Part 3 builds on this conceptual work, by looking at the policy context in which ICZM strategies must be set. In parallel to the development of thinking about how ICZM can help achieve the goals of sustainable development, a number of other policy initiatives designed to achieve the same general aim have been enacted; we also consider the relationships between ICZM and other conceptual frameworks such as the ecosystem approach, marine spatial planning and those dealing with the integrated management of water and river basins In this increasingly crowded 'policy space' the role and distinctive contribution of ICZM needs to be clarified; this is especially so in the EU, where such measures as the Water Framework Directive and the Marine Spatial Framework Directive also have implications for the management of the coastal zone. In the final part of this document the implications of the various policy challenges for the design of an ICZM Governance Platform proposed through PEGASO are considered.

Chapter 2 The ICZM Protocol – Principles, Practice and Wider Relevance

2.1 Introduction

The ICZM Protocol for the Mediterranean is highly innovative. Not only was it the first of its kind, but also it encourages new conceptual approaches to the way coastal zones are managed; the trans-disciplinary challenges of ICZM were highlighted in the introduction to this document. The ICZM Protocol puts in place some key mechanisms by which more collaborative and participatory approaches to coastal zone management can be achieved. The Protocol therefore provides an excellent starting point for any discussion about the kinds of governance we need in the future. In this Chapter we review its principles and look at how they are implemented in practice.

2.2 Scope and Implementation Provisions

The ICZM legal basis for the Mediterranean contrasts with that of the EU, which, as noted above, adopted a much "softer" policy instrument, in the form of *recommendations* on integrated coastal zone management (2002/413/EC). According to the Commission's own evaluation (COM(2007)308 final)[2] their implementation has been partial and fragmentary, and as a result EU has now proposed its own legally binding Directive (COM(2013) 133 final). EU Member States in the Mediterranean are, however, already bound to the ICZM Protocol following the EU Ratification and, as such, any new Directive will be delivered in parallel in these states (albeit more broadly across the EU).

As an instrument of *international* law, the ICZM Protocol for the Mediterranean must be respected and preserved by all parties through the complete, good faith implementation of its goals, specific results or objectives. The Protocol has been described by Rochette et al. (2012, p. 48) as 'a protean text whose provisions vary in terms of their legal scope'; as these authors explain it reflects the will of different States to grant 'different degrees of normativity to the provisions of the text'. However, this breadth and variety of content is matched and complemented by its comprehensiveness and strong internal coherence (Rochette et al., 2012). The Protocol defines a set of core ICZM objectives and principles along with the measures to deliver them - based on both actions by the individual parties and coordinated action and cooperation across the Mediterranean.

The Protocol provides for the first time a common geographical criterion for the definition of coastal zones; a framework for their management through a vertical hierarchy of a common Mediterranean approach, involving national strategies, local and trans-boundary plans and programmes. The Protocol also brings together instruments, tools and processes covered by a variety of sectoral instruments for activities, habitats, public involvement and the control of development. Trans-boundary and regional cooperation are required, along with reporting on progress and the definition of indicators. In addition to the responsibilities of the states, the Protocol sets out the role of UNEP/MAP as the Secretariat with its the Priority Actions Programme Regional Activity Centre (PAP/RAC) in Split providing, together with other competent organisations, support in the implementation of the Protocol and its coordination. The nomination of a dedicated regional governance structure is a strong feature of the Protocol with the aim of ensuring support, reporting and monitoring.

[2] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007DC0308:EN:NOT

2.3 The ICZM Protocol and the Ecosystem Approach

Coastal zones have been traditionally governed in a fragmented manner, often through measures with a broader sectoral or geographical scope, especially in Europe. Prior to the Protocol, there was often simply reliance on 'good practice' as a way of bringing together sectoral policies and guiding national systems. There was a lack of a common definition of the coastal zone, which was frequently looked at in an isolated way. The added value of the Protocol was the emphasis it placed on the more holistic perspective of the *Ecosystem Approach* (EsA). By defining the 'coastal zone', it set out a series of integrative measures *and* identified the geographic space in which they could be applied in a consistent way.

The relationship between the principles of the ICZM and those of the Ecosystem Approach as defined by the Convention for Biological Diversity (CBD) is especially important in understanding the scope and intention of the Protocol, and its relationship to other contemporary policy initiatives. As part of the initial phase of PEGASO, an analysis and cross-comparison was made between these two conceptual frameworks so that the context of the overall work programme could be better appreciated (Haines-Young and Potschin, 2011). Table 1 has been reproduced from this study, sets out the linkages between the ICZM Principles as defined in Article 6 of the Protocol, and the twelve principles of the CBD Ecosystem Approach (Appendix 1 provides a list of the EsA Principles as defined by the CBD). For completeness, the Table also includes reference to the recommendations of the ICZM strategy for Europe (Commission of the European Communities, 2000).

Table 1: Relationship between ICZM Protocol and other Conceptual Frameworks (Haines-Young and Potschin, 2011)

• ICZM Protocol	ICZM Strategy for Europe	CBD Ecosystem Approach
1. The biological wealth and the natural dynamics and functioning of the intertidal area and the complementary and interdependent nature of the marine part and the land part forming a single entity shall be taken particularly into account.	• Adopt a broad holistic perspective (both thematic and geographic). (1) • Work with natural processes. (5)	• Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.(3) • The ecosystem approach should be undertaken at the appropriate spatial and temporal scales. (7)
2. All elements relating to hydrological, geomorphological, climatic, ecological, socio-economic and cultural systems shall be taken into account in an integrated manner, so as not to exceed the carrying capacity of the coastal zone and to prevent the negative effects of natural disasters and of development.	• Adopt a broad holistic perspective (both thematic and geographic). (1) • Work with natural processes. (5)	• Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems. (3) • Ecosystem must be managed within the limits of their functioning. (6) • The ecosystem approach should be undertaken at the appropriate spatial and temporal scales. (7)
3. The ecosystems approach to coastal planning and management shall be applied so as to ensure the sustainable development of coastal zones.	• Adopt a long term perspective. (2)	• Ecosystem must be managed within the limits of their functioning. (6) • Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term. (8)

4.	Appropriate governance allowing adequate and timely participation in a transparent decision-making process by local populations and stakeholders in civil society concerned with coastal zones shall be ensured.	• Use participatory planning. (6) • Gain support & involvement of all relevant administrative bodies. (7)	• The objectives of management of land, water and living resources are a matter of societal choices. (1) • The ecosystem approach should involve all relevant sectors of society and scientific disciplines. (12) • The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices. (11)
5.	Cross-sectorally organized institutional coordination of the various administrative services and regional and local authorities competent in coastal zones shall be required.	• Gain support & involvement of all relevant administrative bodies. (7)	• The ecosystem approach should involve all relevant sectors of society and scientific disciplines. (12)
6.	The formulation of land use strategies, plans and programmes covering urban development and socio-economic activities, as well as other relevant sectoral policies, shall be required.	• Use of a combination of instruments. (8)	• The ecosystem approach should be undertaken at the appropriate spatial and temporal scales. (7)
7.	The multiplicity and diversity of activities in coastal zones shall be taken into account, and priority shall be given, where necessary, to public services and activities requiring, in terms of use and location, the immediate proximity of the sea.	• Adopt a broad holistic perspective (both thematic and geographic). (1)	• Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. (4) • The objectives of management of land, water and living resources are a matter of societal choices. (1) • Management should be decentralized to the lowest appropriate level. (2)
8.	The allocation of uses throughout the entire coastal zone should be balanced and unnecessary concentration and urban sprawl should be avoided.	• Reflect local specificity. (4)	• The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity. (10) • Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach. (5) • The ecosystem approach should be undertaken at the appropriate spatial and temporal scales. (7)
9.	Preliminary assessments shall be made of the risks associated with the various human activities and infrastructure so as to prevent and reduce their negative impact on coastal zones.	• Implement adaptive management during a gradual process. (3)	• Management must recognize the change is inevitable. (9) • Ecosystem must be managed within the limits of their functioning. (6)

10. Damage to the coastal environment shall be prevented and, where it occurs, appropriate restoration shall be effected.	• Ecosystem must be managed within the limits of their functioning. (6)

A number of features are apparent from an inspection of Table 1. ICZM Principle 3 specifically *requires* the Parties to be guided by the Ecosystem Approach in coastal planning and management. However, the condition should not be looked at in isolation, as analysis in Table 1 demonstrates that the entire set of ICZM Principles mirror, encompass and extend the Ecosystem Approach defined by the CBD. This is evident in a number of respects.

For example, the holistic way the coastal zone is defined and applied in the Protocol (e.g. Principles 1 and 2), strongly echoes the ideas stated in the Ecosystem Approach that should be applied at appropriate spatial and temporal scales (EsA Principle 7) and that it should entail management of the cross links between ecosystems (EsA Principle 3). According to the Protocol the coastal zone lies between: **'**the seaward limit of the coastal zone, which shall be the external limit of the territorial sea of Parties'; and, 'the landward limit of the coastal zone, which shall be the limit of the competent coastal units as defined by the Parties'. It is, therefore seen as, '*the geomorphologic area either side of the seashore in which the interaction between the marine and land parts occurs in the form of complex ecological and resource systems made up of biotic and abiotic components coexisting and interacting with human communities and relevant socio-economic activities*" (Article 2, Definitions). The implication is, as the EsA principles also argue, that the 'management unit' is highly context dependent; the coastal zone is not set by some arbitrary buffer along the interface between the terrestrial and marine parts, but a ***functional*** unit defined by the interactions between them; in this sense the definition is consistent with the principles of the Ecosystem Approach.

A corollary of this definition is that the ICZM Principles provide the basis for a coherent approach to coastal zone management at different scales. There is a requirement in the Protocol for a comprehensive and consistent 'nested' set of strategies, plans and programmes. At the macro, or pan-Mediterranean scale there should be a 'common regional framework' defined by taking into account the Mediterranean Strategy for Sustainable Development (UNEP/MAP 2005). It is anticipated that, beneath this, national strategies for integrated coastal zone management and coastal implementation plans and programmes will be developed. In turn these will shape the design of local plans, interventions and measures. An important aim is therefore to encourage management that is consistent with the common regional framework and conforming to the Principles of the Protocol. This is a key requirement designed to overcome the previous fragmentary and inconsistent nature of ICZM in the region, by allowing the various ecosystem scales to be recognised. ICZM Principles 4 and 5 specifically emphasise the need to coordinate national and local actions. Such thinking resonates with that of the EsA, which also argues that policy and management should be decentralised, at the appropriate scale and involve all relevant sectors of society and scientific disciplines (EsA Principles 2, 7 and 12).

Also consistent with the Ecosystem Approach, is the fact that the Protocol requires measures to ensure the involvement in coastal and marine strategies, plans and programmes or projects, and the issuing of the various authorizations of the stakeholders, local communities and the public. Awareness raising, training and public education is also required. The notion of informed social choice is also a key component of the EsA (EsA Principle 1), together with the involvement of all relevant interest groups (EsA Principle 12) and the use of different forms of knowledge (EsA Principle 11).

The ICZM protocol and the Ecosystem Approach are also closely linked in their commitment to sustainable development (e.g. ICZM Principle 3), although it could be argued that the Protocol frames this idea more broadly than the EsA, whose focus is specifically on biodiversity. It must be accepted, however, the conservation of the biological wealth of the coastal zone (natural capital) is a core component of the Protocol (e.g. ICZM Principle 1). This Parties are required to ensure the 'sustainable use and management' of coastal zones to preserve the coastal natural habitats, landscapes, natural resources and ecosystems, in compliance with international and regional legal instruments. The need for a development free 'set-back' zone of not less than 100 metres is specifically required, along with other measures to restrict or prohibit coastal development, or to protect fragile habitats. These include: wetlands and estuaries; marine habitats; coastal forests and woods; and, dunes.

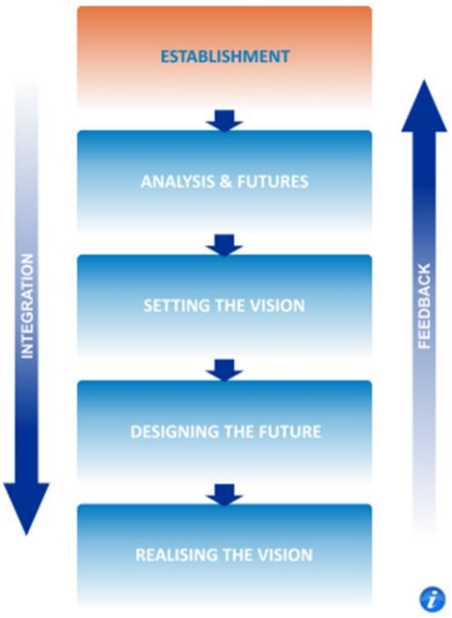
The keeping with its broader interpretation of the notion of sustainable development, however, the Protocol recognises the importance of 'balanced development' in the coastal zone (Principle 8). This goes beyond the recognition made in the EsA that decisions are made in an economic and social context (EsA Principles 1, 4 and 10). In addition to the requirement in the Protocol for protection of coastal ecosystems from economic activities including agriculture and industry, tourism and recreation, sand extraction and maritime activities, Parties must consider the carrying capacities of ecosystems and cumulative impacts of activities in the coastal zone. These must be taken into account in environmental assessments (ICZM Principle 9); both environmental impact assessments (EIAs) of projects, along with strategic environmental assessments (SEAs) of plans and programmes are covered in the Protocol (Article 19), both of which need take into account the inter-relationships between the marine and terrestrial parts of the coastal zone. Considering ecosystem services, EIA and SEA can focus attention on the cumulative effects on ecosystems and the services they provide identifying issues that may otherwise have been overlooked. They may also be key mechanisms for the broader consideration of risk (cf. ICZM Principle 9). Parties are also required to work across national boundaries by means of notification, exchange of information and consultation in assessing environmental impacts, along with cooperation in the formulation of ICZM guidelines.

The notion of balanced development in the coastal zone (ICZM Principle 8) represented a particular challenge in terms of interpreting what this means 'on the ground'; indeed it has become a particular focus of debate within PEGASO. Clearly it involves the needs to prevent urban sprawl, but given the way the other principles are framed, it must also take into account a number of other characteristics of development in the coastal zone. These include the idea that priority should be given to public services and activities requiring, in terms of use and location, the immediate proximity of the sea. It also implies the idea of restoration of ecosystem function and natural processes in the coastal zone (ICZM Principle 10), measures consistent with the EsA but not emphasised explicitly in its Principles. In the ICZM Protocol there is a significant move away from 'hard' engineering solutions to coastal erosion. Building on Principle 10, Article 23 of the Protocol which deals with coastal erosion, calls on Parties to adopt the necessary measures to 'maintain or restore the natural capacity of the coast to adapt to changes, including those caused by the rise in sea levels'. This is a call to work *with* nature rather than defensive engineering.

2.4 Delivering ICZM in the Mediterranean and Black Sea Basins

The Mediterranean clearly has well established and effective mechanisms for collaboration on ICZM, in particular the Priority Action Programmes Regional Activity Centre (PAP/RAC) for ICZM based in Split, Croatia. This is the nominated 'Centre' to support the Parties in delivering the Protocol. However, it is important to go further and build on this and use the experience to support initiatives elsewhere. PAP/RAC is, for example, developing guidelines for the delivery of ICZM consistent with the Protocol both through PEGASO and other programmes. These guidelines[3] are intended as a 'roadmap' towards Coastal Sustainability (Figure 1), and cover the preparation and implementation for ICZM strategies, plans and programmes. The framework identifies five key stages, from initiation of the process, defining boundaries and issues, engaging stakeholders, analysis and valuation of ecosystem services, deciding on future options, through to implementation.

Figure 1: The ICZM Process - a Roadmap towards Coastal Sustainability[2]



In 2012 the Contracting Parties to the ICZM Protocol adopted the 'Action Plan' for its implementation (UNEP/MAP, 2012), designed to addresses the need to deliver the Protocol in comprehensive form, through a strategic approach at all levels and the building of capacity. The three objectives of the Action Plan are:

a) Support the effective implementation of the ICZM Protocol at regional, national and local levels including through a Common Regional Framework for ICZM;
b) Strengthen the capacities of Contracting Parties to implement the Protocol and use in an effective manner ICZM policies, instruments, tools and processes; and,
c) Promote the ICZM Protocol and its implementation within the region, and also at global scale by developing synergies with relevant Conventions and Agreements.

The ICZM Action Plan has been designed to be 'coherent and synergistic' with the application by UNEP/MAP of the Ecosystem Approach to the management of human activities roadmap as adopted by the Contracting Parties in 2008 and the consideration of the Ecosystems Approach as one of the priorities of UNEP/MAP's Programme of Work as decided by the Contracting Parties in 2009 and confirmed in 2012. It will therefore reinforce 'ICZM's key role for the implementation of the Ecosystem Approach'. The intention[4] is that guidance will be developed to demonstrate how ICZM will achieve the aims of the MAP Initiative on the *Application of the Ecosystem Approach* in coastal areas (Objective 1.3). Reporting on the Protocol implementation will gather data and monitor ICZM Indicators for the Mediterranean 'starting with those related to coastal management in the context of the application of the Ecosystems Approach' (Objective 1.4).

[3] Coastal wiki: http://www.coastalwiki.org/wiki/The_ICZM_Process_-_a_Roadmap_towards_Coastal_Sustainability_-_Introduction
[4] See: Adoption of the Action Plan for the implementation of the ICZM Protocol for the Mediterranean (2012-2019), Decision IG 20/2, UNEP(DEPI)/MED IG 20/8, p19

The situation in the Black Sea is clearly different to that of the Mediterranean in that there is nothing that is equivalent to the ICZM Protocol in force. However, the Black Sea Convention which entered into force in 1994 obliges the six countries bordering the Black Sea 'to prevent, reduce and control the pollution in the Black Sea' so as to 'protect and preserve the marine environment, marine biodiversity and the marine living resources'. The major sources of pollution dealt with include hazardous substances from land-based sources and activities, from vessels, and from the dumping of wastes associated with the exploration and exploitation of natural resources (especially oil and gas). There is also a Protocol covering the Black Sea Biodiversity and Landscape Conservation, the purpose of which is to maintain the ecosystem of the Black Sea and its landscape by the protection, conservation and sustainable management of biological and landscape diversity in order to enrich the biological resources. This protocol also provides a legal instrument to underpin environmental policies, strategies and measures for preservation, protection and sustainable management of resources and heritage of the Black Sea for present and future generations.

The Black Sea Convention also established a Permanent Secretariat to coordinate activities leading to the implementation of the Convention[5]. The 2009 *Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea* is an important focus of its work. The vision it sets out for the Black Sea is to preserve its ecosystems 'as a valuable natural endowment of the region', simultaneously protecting its marine and coastal living resources 'as a condition for sustainable development of the Black Sea coastal states, well-being, health and security of their population'. To achieve three key management approaches are advocated, namely: ICZM, the Ecosystem Approach and Integrated River Basin Management (IRBM).

Despite such progress the key difference between the Back Sea and the Mediterranean is the lack of a legally enforceable agreement on ICZM. The *Advisory Group on the Development of Common Methodologies for Integrated Coastal Zone Management in the Black Sea* does just that; it develops approaches, drafts guidelines, seeks to strengthen cooperation and facilitates co-operation. Its activities are designed to support the work of the Black Sea Commission by advising on such things as the development of regional ICZM policies and strategies, devising and promulgating codes of conduct in the coastal zone, dissemination good practice at the regional level. It is also charged with advising on the development of 'appropriate indicators for comprehensive description of the status of the Black Sea coast and for the efficiency of the ICZM process and activities'. Part of the work being undertaken in PEGASO is to reflect on the experience in the Mediterranean and help stakeholders in the Black Sea consider what future measures are needed to build on what has already been achieved.

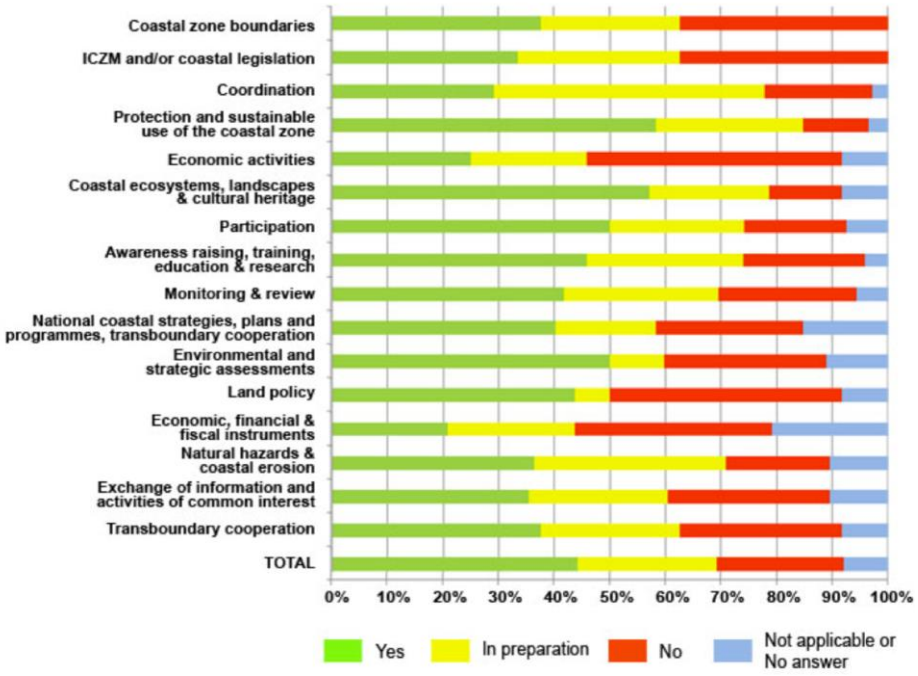
2.5 Taking Stock

As the history of efforts to achieve ICZM in the Mediterranean and Black Sea demonstrates, the sustainable management of coastal zones represents a challenging governance problem. It requires both a sound scientific understanding of natural processes and the complex interactions they have with the people in coastal areas. A start has clearly been made in both sea basins. However, as Shipman and Stojanovic (2007) have observed, ICZM has for too long 'inhabited a twilight zone between science and policy, between statutory and voluntary, between short-term project and long-term process'. As a result, they argue, progress has not been steady and current arrangements represent more of 'an untenable and unsustainable path, rather than a route to mature coastal governance'.

[5] http://www.blacksea-commission.org/_convention-fulltext.asp

In an effort to fully understand the contemporary situation, and to ensure that the PEGASO Project was founded on a secure evidence base, a stock take of governance issues was undertaken during the initial phase of the work programme (PAP/RAC, 2012). The stocktake was made by means of a questionnaire survey, sent to the National Focal Points (NFP) for coastal zone issues across both Basins. Its structure was based on the relevant Articles of the ICZM Protocol for the Mediterranean but the wording was adapted where necessary for the Black Sea. Reference to the Articles of ICZM Protocol for the Mediterranean were provided for information purposes to illustrate the questions; altogether there were 53 questions, structured around the 16 core themes. A summary of the results, which reflect the situation in the first half of 2012, is shown in Figure2.

Figure 2: Summary of the PEGASO ICZM Governance Stocktake for the Mediterranean and Black Sea Basins



Source: Costach (2011), http://www.ourcoastconferenceriga.eu/presentations/pegaso/mihail_costache.pdf

As can be seen from Figure 2, there are a wide variety of responses by theme. The themes where fewest NFP said that there were no relevant measures or interventions in place (i.e. the ones with the largest number of 'no' answers) were: the use of 'Economic, financial and fiscal instruments', 'Economic activities (indicators)', and 'Land policy'. However, even for these themes the existence of some preparatory work was highlighted. In contrast, the largest number of positive responses related to aspects of 'Environmental protection and management'. This situation possibly reflected the concentration of effort on conservation in the past decades. There was also a large number of positive responses the ICZM themes for 'Participation, awareness-raising', 'Training and research', and 'Coordination'.

The stock take suggested a fairly positive picture and, in the Mediterranean at least, some evidence that the Protocol is beginning to provide a foundation for the implementation of ICZM. It was concluded that efforts should now concentrate on the major geographic and thematic gaps, and on supporting effective implementation. This conclusion is reflected in the recommendations of the

Action Plan for the Implementation of the ICZM Protocol in 2012-2019 (UNEP/BUR/71/4)[6], which drew on the stock take results. The Action Plan proposes that to achieve a comprehensive adoption and implementation of the ICZM Protocol up to 2019, the key issues that must be recognised at regional, national and local, levels are:

- the requirement for consistency of institutional structures and legal frameworks for ICZM governance, specially marine and terrestrial spatial planning;
- the need of clear strategic priorities to guide ICZM;
- the importance of human and technical capacity and institutional coordination for ICZM;
- the importance of awareness of the Protocol and ICZM both within the region and internationally;
- the need for a strong centre of ICZM excellence to support the implementation and monitoring of ICZM in the Mediterranean; and,
- the need for access to and exchange of high quality information, knowledge and research.

Despite the differences with the situation in the Black Sea the conclusions of the stock take are very similar to that for the Mediterranean. Costache (2011), for example, reports that the questionnaire highlighted support for some kind of legal instrument for ICZM in the Basin, and the need for research and monitoring to compile an agreed set of coastal indicators to measure the effectiveness of ICZM. Alongside the need for training, the desirability of partnership with those working in the Mediterranean,Black and Caspian Seas was highlighted.

The PEGASO project has therefore been designed to address some of these governance challenges identified above by creating a 'platform' on which much of the exchange of information, data, and expertise that is needed for implementation of ICZM can occur. In the remaining parts of this document we consider the relationship between ICZM and other policy frameworks and map out the route to a more sustainable future and the role that a Governance Platform might play in overcoming the obstacles that remain.

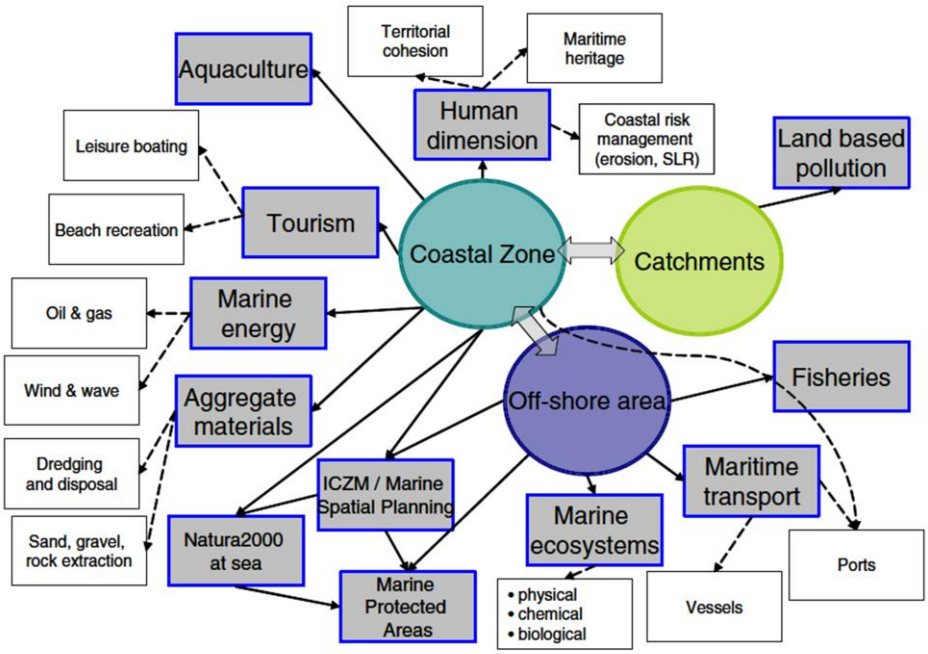
[6] http://cmsdata.iucn.org/downloads/decision_2___iczm_action_plan__sp_pdf.pdf

Chapter 3 ICZM – Conceptual and Policy Contexts

3.1 Introduction

Much of the significance of the coastal zone lies in the fact that it is the interface between land and sea. As Meiner (2010) observes, this is where many 'use interests' intersect, and this results in environmental impacts on natural systems that are particularly sensitive to change. He graphically captures the key characteristic of the coastal zone by describing it as the 'hinge' that links terrestrial and marine areas (Figure 3).

Figure 3: The coastal zone as the 'hinge' between terrestrial and maritime spaces (source: Meiner, 2010)



The pivotal role that the coastal zone plays in many sustainability issues is a *physical* reality. Its position that as a nexus between land and sea issues also means that it occupies the same *conceptual* space as many of the other ideas that people have used to frame problems of sustainability and what might be done to address them. In Chapter 2, we considered the close relationship between the principles underlying ICZM and the Ecosystem Approach. Both are clearly nested within the broader conceptualisation of sustainable development, and also sit alongside other frameworks designed to sharpen thinking about how this goal is to be achieved. These include: Integrated River Basin Management (IRBM); Integrated Water Resources Management (IWRM); Ecosystem Services and the multi-functionality of ecosystems and especially the role that biodiversity has in supporting human well-being; notions of Green and Blue Infrastructure; and, the design of new, more integrated approaches to spatial planning on land and sea. Many of these ideas post-date that of ICZM and, while they do not make it redundant, it is increasingly difficult to see what is distinctive and what its future relevance might be. The purpose of this Chapter is, therefore, to locate ICZM more clearly in current policy debates so as to identify more clearly how the Governance Platform being developed by PEGASO might best contribute.

3.2 The coastal zone as an integrated conceptual space

As Figure 3 shows, the conceptual space in which we have to understand the character and role of ICZM is a crowded one. It is not the purpose of this document to make an exhaustive analysis of the issue, but rather to clarify some of the relationships that exist, and especially the contribution that ICZM can make to current debates.

Table 2 summarises the key concepts that often touch on the concerns of those dealing with ICZM. A number of important features emerge from this analysis. Across all of them, for example, is the notion of equity and balance in the use of, and access to, resources. The idea of protecting the natural capital base, on which the well-being of people ultimately depends, is also strongly represented. The evidence of both features is hardly surprising, given that all of them articulate in some way notion of sustainable development. However, what is important to note is how their *general* concerns are echoed by and potentially addressed by ICZM which addresses the *specific* circumstances of the coastal zone. A feature of current debates at the interface of science and policy is how to operationalise, or make these concepts, frameworks and approaches 'work for us'. A review of Table 2 suggests that the similarity between the ideas embedded in ICZM and these newer concepts does not mean that the latter has now been overtaken, but rather its relevance has probably been strengthened. ICZM can usefully be seen as one key route in which the goal of balanced development and the maintenance of natural capital can be achieved in a particular type location. The novel feature to emerge by juxtaposing all these concepts is the clear emphasis that needs to be given to the management of the system in *functional* terms; that is as a dynamic socio-ecological system and not some arbitrary buffer area between land and sea. As the new spatial planning models for land and sea emphasise, while administrative units may be the frameworks through which we have to act, understanding of how these units sit in relation to the system as a whole is essential. Coordination and joint action across different jurisdictions is essential, and as Chapter 2 illustrates, while there is some way to go, through such mechanisms as the ICZM Protocol in the Mediterranean, the coastal zone may be well placed to illustrate how this can be done. The challenge for the future is to use the Protocol to develop an integrated land-sea governance system. We need to find new ways of integrating spatial planning on land and at sea both at the intervention and governance levels.

Table 2: Definitions of concepts and frameworks and their links to ICZM

Concept	Definition	Relationship of Link to ICZM
Integrated River Basin Management (IRBM)	*The process of coordinating conservation, management and development of water, land and related resources across sectors within a given river basin, in order to maximise the economic and social benefits derived from water resources in an equitable manner while preserving and, where necessary, restoring freshwater ecosystems. (1)*	Given the hydrological relationships that exist between land and sea, and understanding and coordinated management of the river catchments that drain into a given coastal zone is fundamental to achieving the goals of ICZM. Indeed the need to coordinate with actions at the catchment scale is one of the major cross-sectoral challenges that ICZM faces.

Integrated Water Resources Management (IWRM)	*A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (2)*	As in the case of IWRM, recognition of the inter-linkage between the terrestrial parts of the hydrological cycle emphasises the need to define the coastal zone in ***functional*** terms, as a coherent geomorphologic unit, '*in which the interaction between the marine and land parts [of the sea shore] occurs'.* Note both concepts speak of equitable balance, thereby echoing the idea of balance that is stressed in the ICZM Principles; the focus of IWRM is however, on water as a resource rather than (as in IRBM) hydrological units.
Ecosystem Services and ecosystem multi-functionality	*The concept of Ecosystem Services (ES) is becoming popular as a way to encourage discussion about the dependence of humans on nature and what that means socially and economically (3). They have been variously defined as the benefits people derive from ecosystems (4) or the contributions that ecosystems make to human well-being (5). Key concerns relate to the synergies and trade-offs between different services as a consequence of the multi-functional character of ecosystems (6).*	The ES concept has grown in usage in the period since ICZM was first introduced and in some circles overshadows it. It should be noted however, that the coastal zone is no different conceptually from any other multi-functional ecosystem, and indeed is one of the best illustrations of what such systems represent and the challenges that exist for their management. The need to understand and manage links between natural, social and economic capital are fundamentally part of the principles of ICZM, and so the ecosystem service framework represents one of the major routes by which the sustainable use of ES can be achieved.
Green and Blue Infrastructure	*The more inclusive term Green Infrastructure (GI) includes a 'green component', which refers to natural and semi-natural terrestrial environments, and a 'blue component', which refers to the aquatic and wetland network (rivers and streams, canals, ponds, wetlands, etc.) These two components are indivisible parts of a whole system, as is demonstrated in the interfaces between them (notably wetlands and plant and animal life along watercourses) (7). Any GI Strategy should be part of and contribute to a holistic environmental policy, which can tackle the overuse of ecosystems and natural resources (8).*	The concepts of green and blue infrastructure are often used to represent the importance of nature's contribution (via ecosystem services) to society in a language that can be better understood by planners and developers etc. The opportunities for investing in green and blue infrastructure would thus be a fundamental part of the language used when developing and explaining ICZM strategies, given the need for 'balanced' development. While such development may involve ensuring that priority is given to the uses of and activities in the coastal zone that depend on access to the sea, they must also ensure that these are supported by the right kinds of green and blue development that can sustain and enhance existing natural capital.
Spatial planning	*The methods used by the public sector to influence the distribution of people and activities in spaces of various scales by giving geographical expression to the economic, social, cultural and ecological policies of society. It is at the same time a scientific discipline, an administrative technique and a policy developed as an interdisciplinary and comprehensive approach directed towards a balanced regional development and the physical organisation of space according to an overall strategy (9).*	If the goal of spatial planning is to achieve balanced development and the efficient organisation of space, then it is largely synonymous with the goals of ICZM, the latter merely emphasised that this planning needs to be done in the coastal zone. However, and the discussion on the need to coordinate actions with those at the river basin scale emphasise, the planning strategies used have to look at functional connections and not only those that depend on administrative structures. Planning at the strategic as well as the local and site based scales are now an essential part of both

Marine Spatial Planning	*A process of analysing and allocating parts of three-dimensional marine spaces to specific uses, to achieve ecological, economic, and social objectives that are usually specified through the political process. It aims to create and establish a more rational organization of the use of marine space and the interactions between its uses, to balance demands for development with the need to protect the environment, and to achieve social and economic objectives in an open and planned way (10).*	processes. An illustration of the way planning concepts have been expanded is the growing emphasis given to marine spatial planning. The coastal zone plays a pivotal role in linking planning across the terrestrial and marine sphere; and understanding of the geographical character of coastal zones will be fundamental to taking this work forward. The emphasis which ICZM places on understanding the dynamics of the coastal zones is a useful complement to more static planning perspectives.
Climate change mitigation and adaptation	*Climate change mitigation is an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases; climate change adaptation is adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (11).*	Like the concept of ecosystem services, the importance of understanding the impacts of climate change and what can be done to mitigate their effects have grown in importance since ICZM was first proposed The coastal zone has an important role to play in the climate debate because it is both particularly sensitive to the impacts of climate change and in these zones the need for effective and rapid adaptation measures is often especially pressing.
Ecosystem Approach	*A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It is based on the application of appropriate scientific methodologies focused on levels of biological organization which encompass the essential processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of ecosystem (12).*	The close linkage between the principles of ICZM and the Ecosystem Approach (EsA) has already been discussed in detail in Chapter 2. The definition of the Ecosystem Approach given here emphasises how close the two concepts are; the difference, if any, is that the EsA tends to emphasise '*conservation and sustainable use'* in a social and economic context, whereas ICZM tends to give more equal emphasis to environmental, social and economic components of the coastal zone and especially their governance.

Sources

1. http://wwf.panda.org/about_our_earth/about_freshwater/rivers/irbm/
2. http://www.coastalwiki.org/wiki/Integrated_Water_Resources_Management_(IWRM)
3. http://www.coastalwiki.org/wiki/EcoSystem_services
4. http://www.unep.org/maweb/en/About.aspx
5. http://www.cices.eu
6. http://www.teebweb.org
7. https://circabc.europa.eu/sd/d/cb8faa38-b992-4355-ac2b-d3fe1795ea8b/GI%20TASK%204%20RECOMMENDATIONS.pdf
8. https://circabc.europa.eu/sd/d/e1a597b1-a4ed-4a64-897d-393a10fad3a4/Recommendations_GI_CEEweb_.doc
9. http://www.coastalwiki.org/wiki/Spatial_planning
10. http://www.coastalwiki.org/wiki/Marine_Spatial_Planning_-_the_need_for_a_common_language
11. http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter18.pdf
12. http://www.cbd.int/ecosystem/

The theme of equity and balance noted in Table 2 carries with it a second aspect that emphasises the contribution that ICZM can make to current debates. Given the idea expressed in the definition of the Ecosystem Approach that *'humans, with their cultural diversity, are an integral component of ecosystem'* it follows that we must give them a voice in making decisions. Contemporary approaches to planning recognise that public engagement is essential if we are to '*geographical expression to the economic, social, cultural and ecological policies of society*' and clearly the coastal zone is also well placed as a forum or locale in which this can be attempted.

The importance of understanding social and geographical context has emerged as an important feature of recent debates in the ecosystem service literature (Potschin and Haines-Young, 2013). Indeed place-based ecosystem assessments are now recognised as an essential tool for identifying what people think are important ecosystem services, and how the trade-offs and synergies between them might be managed. An understanding of the characteristics of place and geographical context is also vital in any valuation of natural capital. The diversity of conditions in the coastal zones has long been recognised as an important issue by those working in these places, and ICZM now clearly offers an important opportunity to show how these more place-specific approaches to planning and managing socio-ecological system can achieved.

Local places might be seen in a more general picture where they are nested within other scales (e.g. national, regional and global).

Table 3: Relationships between different policy instruments and initiatives and ICZM Principles

	ICZM Principles (Article 6)	EU Policies										EU Directives							Regional Policies			
		The EU Sustainable Development Strategy	EU Sustainable Development Policy (Europe 2020)	Horizon 2020	EU Biodiversity Strategy 2020	Maritime Spatial Planning	Marine Strategy for Sustainable Development	Framework for Maritime Spatial Planning and Coastal Planning	European Spatial Development Perspective	Common Fisheries Policy	Climate change adaptation strategy	Birds and Habitats Directive	Water Framework Directive	Marine Strategy Framework Directive	EU Bathing Waters Directive	EU Shellfish Waters Directive	EU Urban Waste Water Treatment Directive	EU Nitrates Directive	H2020 Capacity-Building/Mediterranean Environment Programme	Barcelona Convention (Protocols 1-6)	Mediterranean Strategy for Sustainable Development	Bucharest Convention
1	The biological wealth and the natural dynamics and functioning of the intertidal area and the complementary and interdependent nature of the marine part and the land part forming a single entity shall be taken particularly into account.																					
2	All elements relating to hydrological, geomorphological, climatic, ecological, socio-economic and cultural systems shall be taken into account in an integrated manner, so as not to exceed the carrying capacity of the coastal zone and to prevent the negative effects of natural disasters and of development.																					
3	The ecosystems approach to coastal planning and management shall be applied so as to ensure the sustainable development of coastal zones.																					
4	Appropriate governance allowing adequate and timely participation in a transparent decision-making process by local populations and stakeholders in civil society concerned with coastal zones shall be ensured.																					
5	Cross-sectorally organized institutional coordination of the various administrative services and regional and local authorities competent in coastal zones shall be required.																					
6	The formulation of land use strategies, plans and programmes covering urban development and socio-economic activities, as well as other relevant sectoral policies, shall be required.																					
7	The multiplicity and diversity of activities in coastal zones shall be taken into account, and priority shall be given, where necessary, to public services and activities requiring, in terms of use and location, the immediate proximity of the sea.																					
8	The allocation of uses throughout the entire coastal zone should be balanced, and unnecessary concentration and urban sprawl should be avoided.																					
9	Preliminary assessments shall be made of the risks associated with the various human activities and infrastructure so as to prevent and reduce their negative impact on coastal zones.																					
10	Damage to the coastal environment shall be prevented and, where it occurs, appropriate restoration shall be effected.																					

3.3 The coastal zone as an integrated policy space

Given the high level of integration with a number of other concepts that describe the issues surrounding the need for sustainable development, it follows that the policies that have developed in relation to the coastal zone also link closely to other policy initiatives. As in the case of the ICZM concept, it is also often difficult for practitioners to identify just where ICZM fits in. In this section we therefore consider the contemporary 'policy landscape' and identify the important links between different initiatives. The analysis will show that far from being an outdated framework, the policy relevance of ICZM remains high, whether it is looked at from a formal or informal policy perspective.

Table 3 summarises the major relationships between different policy instruments and initiatives at the EU, and the scale of the Mediterranean and Black Sea Basins. The material is organised so as to show the relevance of the Principles as they are expressed in Article 6 for the ICZM Protocol. As such, it can therefore be looked at in conjunction with Table 2, where the principles are described at a more conceptual level. In Table 3 only the links between the ICZM Principles and other policy initiatives and instruments are shown – the mutually supporting links between these other areas is not considered. Nor are international agreements flagged up here, on grounds that these commitments will be reflected in the respective EU regional and national policies.

The ***EU Sustainable Development Strategy***, which was launched at the Göteborg European Council in June 2001, provides the overarching policy framework for the other measures identified in Table 3. It was designed to add an 'environmental dimension' to the Lisbon Strategy, which had focussed mainly on economic growth and employment. It was strengthened in 2006 following a review, and again in 2009. The strategy covers:

- Climate change and clean energy;
- Sustainable transport;
- Sustainable consumption and production;
- Conservation and management of natural resources;
- Public Health;
- Social inclusion, demography and migration; and,
- Global poverty and sustainable development challenges.

Such concerns continue to permeate much of wider EU policy, and those that are more tailored to the needs of the region, such as the ***Mediterranean Strategy for Sustainable Development***. Indeed the EU ***Strategy*** was designed to create mechanisms for coordination with other levels of governments and encourages business, NGOs and citizens to become more involved in working for sustainable development. Most recently the themes have been included in the drafting of ***Europe 2020: A Strategy for European Union Growth.*** The latter proposes a new political strategy to support employment, productivity and social cohesion in Europe. The ***Strategy*** describes the kind of growth that is being sought as:

- smart, through the development of knowledge and innovation;
- sustainable, based on a greener, more resource efficient and more competitive economy; and,
- inclusive, aimed at strengthening employment, and social and territorial cohesion.

Such themes are particularly relevant to, and strongly resonate with, the concerns of ICZM. As Table 3 suggests all of the ICZM Principles are clearly supportive of sustainable development in a general

way, and the aims to promote balanced development in the coastal zone and to give priority to the kinds of activity that require proximity to the sea are clearly necessary if we are to achieve greener forms of growth in such areas, based on the more efficient use of resources. The new forms of knowledge and capacity building engendered by ICZM, is also likely to contribute to the knowledge economy; there is also a link here to the new research strategy being developed within the EU under ***Horizon 2020***. Finally, the inclusive and participatory emphasis that ICZM brings to governance, and stimulus it gives to linking of institutions across sectors and scales, also makes ICZM as highly pertinent to the goal of strengthening social and territorial cohesion.

As we have noted earlier, while the focus of the ICZM is governance, the principles do stress the need to sustain natural capital and protect the natural processes that maintain the integrity of coastal socio-ecological systems. Thus, as Table 3 highlights, the principles dealing with the preservation of the biological wealth and natural dynamics in the coastal zone (ICZM Principle 1), and the need to ensure that carrying capacities are not exceeded (ICZM Principle 2) can be seen as strongly supporting, for example the ***EU Biodiversity Strategy 2020***, and the various Directives (e.g. Birds Directive, Species and Habitats Directive, Water Framework Directive) that underpinned its predecessor (Biodiversity Strategy 1998). The aim of the new Strategy is to halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and where feasible, restore them while stepping up the EU contribution to averting global biodiversity loss. In addition to the contribution that the conservation measures emphasised in the ICZM Principles can make, that dealing with restoring damage covered in Principle 10 (see Table 3) also demonstrates the continuing relevance of the ICZM approach. These Directives were developed before the ecosystem approach became a driver in European legislation, and so make no allowance for human activities within sites. The human dimension is clearly one that the ICZM framework can bring. The Directives for Birds and Species and habitats were implemented by the EC in response to its obligations under the Bern Convention, to provide protection of animal and plant species of European importance, and the habitats that support them, by establishing a network of protected sites. Thus for those species and habitats occurring in the coastal zone, the ICZM framework can also make an essential contribution to the task of meeting these *international* requirements.

The contribution that ICZM can make to the policy fields related to planning in Europe is also evident from Table 3. The ***European Marine Strategy Framework Directive*** (MSFD) aims to achieve 'Good Environmental Status' in Europe's seas by 2020. It requires Member States to produce, in collaboration with other member states in their region, a marine strategy for their waters. Under the MSFD**,** good environmental status is broadly defined as:

- making sure populations of fish and shellfish are within safe biological limits;
- maintaining the biological diversity of marine habitats and species;
- limiting contaminants to the marine environment to levels which do not cause pollution; and
- Fighting also eutrophication.

These are consistent with the objectives for coastal ecosystems set by UNEP/MAP in their framework for implementing the Ecosystem Approach in the Mediterranean, through the setting of coastal ecological objectives (UNEP/MAP, 2012) (see also Section 2.4). The MSFD also partly extends the concerns of the ***Water Framework Directive,*** which seeks to establish good environmental status for all waters. The overlap in the coastal zone is evident to the extent that the MSFD states that coastal waters should be considered under the MSFD unless already addressed by the WFD or

other EC legislation; this is likely to be the case for impacts of noise and litter, commercial fisheries and certain aspects of biodiversity.

The focus of the MSFD is on meeting environmental objectives rather than promoting the management of human activities. Thus additional policy mechanisms are being developed to address the need for marine spatial planning. It has been argued[7] that in general, the implementation of the MSFD will require a coordinated, coherent approach, but in the long term it will provide a way of neighbouring countries better understanding and working with each other to manage their use of the marine space and resources that are found there. It has, however, been recognised that any planning measures will have to link to concerns in coastal areas, and the EC have published **A Proposal of a Directive establishing a *Framework for Maritime Spatial Planning and Integrated Coastal Management*** (COM(2013) 133 final)[8].

The **proposal** recognises that maritime spatial planning and integrated coastal management are complementary tools, and recognises the importance of linking them in the same set of measures. Broadly, the proposal will ensure that there is a basis for developing integrated marine spatial plans and coastal management strategies, and that there is cooperation on trans-boundary issues. Although the idea of a Directive for ICZM has been debated in the past, the proposal clearly now moves the debate on. Besides the reference to ICZM in its title, the strong links to the MSDF, WFD, and European Sustainable Development Strategy ensure that the notion of integration is not lost. The emphasis that the proposed framework places on Strategic Environmental Assessment will also strengthen the role of the MSFD in taking forward existing ICZM strategies. For the future the challenge will be to see how the plans developed under the Framework can be made compatible with commitments made under other agreements such as the ICZM Protocol.

The extension of planning into the marine and coastal space is clearly a positive step, and it will ensure that the notion of integration and the ideas behind the ecosystem approach are further embedded in future policy and management activities. As the proposal emphasises the aim is to provide a common strategic framework for the implementation of other policies, such as the Common Fisheries Policy, the Renewable Energy Directive, and the Habitats Directive. It also seeks to support the goals of *Europe 2020*, and help deliver high levels of employment, productivity and social cohesion, including promotion of a more competitive, resource efficient and greener economy. The proposal specifically recognises that coastal and maritime sectors have a significant potential for sustainable growth and are key to the implementation of the ***2020 Strategy***.

The need to ensure 'coherence of spatial planning across the land-sea boundary' was recognised in the EU Recommendations on ICZM, and this remains a significant challenge. As Table 3 therefore highlights, there are strong synergies between the ICZM Principles and the goals of the ***European Spatial Development Perspective***, which seeks to ensure both balanced and sustainable development, and especially social and territorial cohesion. As Figure 3 showed, a focus on the coastal zone is essential if there is to be coherent planning across the land-sea boundary. Beyond the needs to deliver the goals of sustainable development it is also critical if societies are to meet the challenges set out in the ***EU Climate Change Adaptation Strategy.***

[7] www.projectpisces.eu/guide/the_msfd_and_the_ecosystem_approach/implementing_the_ecosystem_approach_through_the_msfd/
[8] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0133:FIN:EN:PDF

The Commission adopted an ***EU Strategy on Adaptation to Climate Change*** in April 2013. In general terms it seeks to 'mainstream' the climate mitigation and adaptation into EU sectoral policies and funding, including those relating to marine and inland water issues, forestry, agriculture, biodiversity, infrastructure and buildings. It also seeks to address migration and social issues. In the context of ICZM it is clear that not only will adaptation strategies have to be built into any marine and coastal planning strategies, but also an understanding of the way the coastal zones will react to climate change will be essential if policies in other sectors are to be 'climate proofed'. An understanding of the coastal zone as a hinge off which a constellation of social, economic and environmental issues change will be essential if the goal of better informed decision making is to be achieved.

3.4 The Continuing Relevance of ICZM

The aim of this chapter has been to locate the principles underpinning ICZM more clearly in current policy debates. In this way we may easily identify how the Governance Platform being developed by PEGASO might best contribute. Despite the long history of ICZM it is clear that it continues to have relevance both as a concept in contemporary debates about sustainable development and as a policy instrument. Recent developments have not undermined the principles on which ICZM is based, but rather suggest that there is a need to find new ways to ensure that the thinking it engenders feeds into the wider policy initiatives that concern sustainable development, ecosystem based approach, balanced economic growth and social cohesion. In the next and final chapter we explore how the PEGASO Governance Platform can help achieve this aim.

Chapter 4: The PEGASO ICZM Governance Platform

4.1 Introduction

The analysis presented in Chapters 2 and 3 demonstrate the continuing relevance of ICZM and its distinctive features. Clearly it is unique in the focus it has on the interface between land and sea. Equally important, however, is the emphasis it places on ***governance***. Many of the policies and directives discussed in Chapter 3, for example, are concerned with particular issues in particular sectors (e.g. habitats and species, water quality, climate change adaptation and mitigation). The particular characteristic of ICZM that makes it special is that it provides a framework in which ***all*** these related issues can be brought together and potentially resolved in a particular place – the coastal zone.

Thus ICZM could be seen as a collective response to the goal of sustainable development in coastal and marine areas. To tackle this challenge at local, regional and national levels, it embodies the idea that management decisions have to go through a process of negotiation, harmonisation and reconciliation of interests, so as to achieve a consensus about what needs to be done and where. The place-based focus of ICZM seeks to encourage all interested parties to work together on specific development issues and appropriate protection measures. Success depends on forging partnerships and linking local-scale initiatives to higher-level policies. In this chapter we explore what kinds of resource, or governance platform, might be designed to help practitioners navigate the increasingly complex policy frameworks that impinge on coastal zone issues. How can we build on our collective experience to decision makers design and implement robust strategies in the face of uncertainty? As a foundation to our discussion of the character of the proposed governance platform, we consider in more detail the nature of governance itself.

4.2 Governance sets the stage for management

Governance is about relations and power. One definition is that it is about '*the interactions among institutions, processes and traditions that determine how power is exercised, how decisions are taken on issues of public and often private concern, and how citizens or other stakeholders have their say*'. (Institute of Governance, 2002). Or, more succinctly: '*Governance determines who has power, who makes decisions, how other players make their voice heard and how account is rendered*'[9]. Not all systems of governance work well, however. Thus increasingly, especially in the context of sustainability, there has been extensive debate on the characteristics of 'good' and 'bad' decision making approaches.

Olsen (2003) defines 'good governance' as a *fair* and *effective* way of exercising governing powers (means) in order to meet the objectives (ends) of any managed area. Good governance therefore depends on the capacity and reliability of governing institutions to respond effectively to problems, and achieve social unity in their solution, by undertaking various forms of consultation, negotiation and multi-party agreements. In the context of the coastal zone, for example, developing systems 'good governance' can help overcome the shortcomings of existing statutory frameworks, which in many countries are fragmented and partial. It can also be about ensuring adequate political support, by ensuring that strategies are supported by appropriate institutional arrangements. Increasingly it is recognised that these agreements need to draw on both scientific and indigenous knowledge, that

[9] http://iog.ca/blog/defining-governance/

the participatory processes need to be adequately resourced and supported. According to Brusis and Siegmund (2011), the necessary ingredients of 'good governance' therefore include:

- institutions in their widest sense – international, regional, national, local, and all legal and regulatory instruments (laws, etc.) as well as the enforcement mechanisms (administrations, monitoring, policing, justice, etc.);
- the scientific expertise and technological tools, methods, infrastructures and constant inputs of innovation which allow for the technical expansion of the carrying capacity of our systems and the facilitation of the natural mechanisms to cope with anthropogenic pressures (e.g. sewage treatment plants, composting and recycling plants, etc.); and,
- the widest information/education, consultation and participation processes that deal with cultural-behavioural changes of individuals, groups and the society at large.

Good governance is therefore a fundamental part of what ICZM is trying to achieve, namely the 'co-construction' of an integrated and adaptive management approach to coastal zone issues. There is, however, no simple recipe for good governance. The ICZM Principles discussed in Chapter 2, are necessary rather than sufficient conditions, in terms of what determines success. In this context it is interesting to note that Article 7 (Coordination) of the Protocol does not explicitly call for any particular type of institutional arrangement, but rather seeks to create *opportunities* to establish appropriate governance mechanisms suited to the different legal and institutional arrangements, and cultural and socio-economic conditions, that are can nevertheless consistent with the aims and objectives of sustainable development (IDDRI, 2012). The framework for 'good governance' suggested by the United Nations can help identify more explicitly what is needed. In relation to achieving effective ICZM outcomes, good governance should involve creating institutional arrangements that promote: (1) Legitimacy and Voice; (2) Accountability; (3) Performance; (4) Fairness; and (5) Direction (Table 4).

Table 4: Five Principles of Good Governance (modified from Abrams et al., 2003)

Five Principles of good governance	The United Nations Principles on which the five principles are based	Related ICZM area governance responsibilities
Legitimacy and Voice	**Participation**: All men and women should have a voice in decision-making, either directly or through legitimate intermediate institutions that represent their intention. Such broad participation is built on freedom of association and speech, as well as capacities to participate constructively. **Consensus orientation**: Good governance mediates differing interests to reach a broad consensus on what is in the best interest of the group and, where possible, on policies and procedures.	• *Promoting the free expression of views, with no discrimination related to gender, ethnicity, social class, etc.* • *Fostering dialogue and consensus* • *Fostering relations of trust among stakeholders* • *Making sure that rules are respected because they are "owned" by people and not solely because of fear of repression*

Accountability	**Accountability**: Decision-makers are accountable to the public, as well as to institutional stakeholders. This accountability differs depending on the organizations and whether the decision is internal or external. **Transparency**: Transparency is built on the free flow of information. Processes, institutions and information are directly accessible to those concerned with them. Enough information is provided to understand and monitor institutions and their decision-making processes.	• *Making sure that stakeholders possess an adequate knowledge, and quality of knowledge, regarding what is at stake in decision-making, who is responsible for what, and how responsibilities can be made accountable* • *Making sure that the avenues to demand accountability are accessible to all* • *Making sure that accountability is not limited to verbal exchanges but linked to concrete and appropriate rewards and sanctions*
Performance	**Responsiveness**: Institutions and processes try to serve all stakeholders. **Effectiveness and efficiency**: Processes and institutions produce results that meet needs while making the best use of resources.	• *Ensuring a competent administration* • *Making certain there is sufficient institutional and human capacity to carry out the required roles and assume the relevant responsibilities* • *Being robust and resilient, i.e. able to overcome a variety of threats/ obstacles and come out strengthened from the experiences*
Fairness	**Equity**: All men and women have opportunities to improve or maintain their well-being. **Rule of Law**: Legal frameworks are fair and enforced impartially, particularly the laws on human rights.	• *Making sure that development is undertaken with decency: without humiliation or harm to people* • *Ensuring that the governing mechanisms (e.g. laws, policies conflict resolution forums, funding opportunities, etc.) distribute equitably the costs and benefits deriving from development* • *Making certain that public service promotions are merit-based* • *Being consistent through time in applying laws and regulations* • *Providing fair avenues for conflict management and, eventually, non-discriminatory recourse to justice*
Direction	**Strategic vision**: Leaders and the public have a broad and long-term perspective on good governance and human development, along with a sense of what is needed for such development. There is also an understanding of the underpinning historical, cultural and social complexities.	• *Providing effective leadership, generating and supporting innovative ideas and processes* • *Providing or supporting initiatives to increase the use of collaborative learning in various forums*

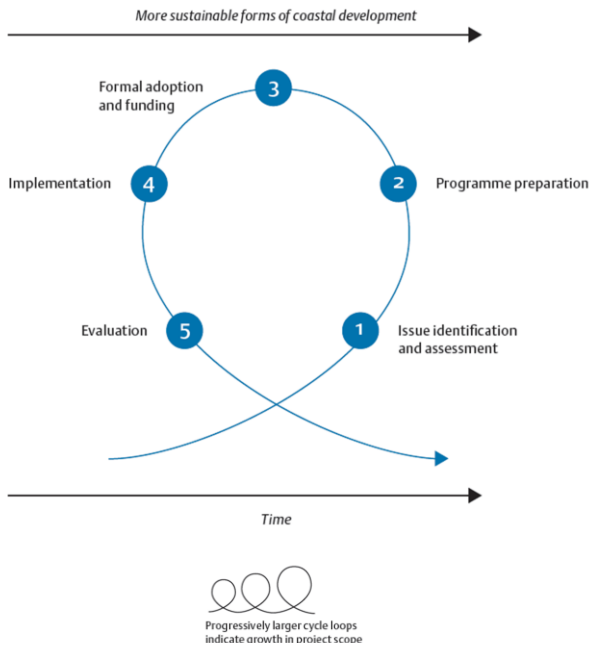
Since ICZM is increasingly seen as a way of giving expression to the Ecosystem Approach, and embedding it in decision making, the implications of the characteristics of good governance identified in Table 4 are that ICZM must be seen fundamentally as a process of *learning* and *adaptation*. Effective ICZM strategies must be sustainable well beyond their implementation, be

capable of being modified according to changing conditions; and provide mechanisms to encourage collaborative behaviours and shared learning amongst institutions and user groups. Experience needs to be institutionalised and shared. Thus while the principles of ICZM are a foundation of the approach, the governance arrangements that are built upon them must be capable of transforming behaviour of user groups and institutions. ICZM must trigger a change of culture that starts with a dialogue among users and eventually leads to them to assuming responsibility for management.

4.3 Building Good Governance

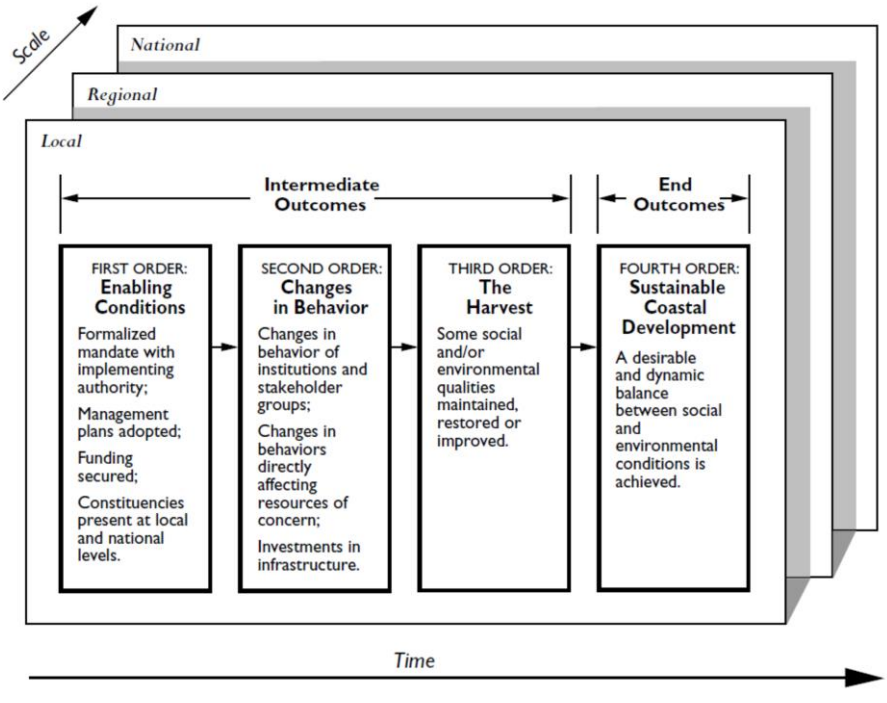
The need for an iterative but adaptive (and expanding) approach to coastal management has long been recognised. One particularly effective representation of this idea is the 'management cycle' diagram created by the *Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection* (GESAMP, 1996) (Figure 4). The cycle describes a sequence of actions that progressively lead to more sustainable forms of coastal development.

Figure 4: The management cycle



The idea of a cycle and the notion of building an effective sequence of actions have been refined in the 'Orders of Outcome' described by Olsen (2003) and others (UNEP/GPA, 2006; National Research Council, 2008; Olsen et. al., 2009) (Figure 5).

Figure 5: The four orders of coastal governance outcomes (source: Olsen, 2003)



The 1st Order Outcomes (Figure 5) define the enabling conditions for the sustained practice of the ecosystem approach; that is they define the *direction* of management or policy (cf. Figure 5). The outcomes that mark the full scale implementation of a formally approved and sustainable funded plan of action are addressed in the 2nd Order. This stage is characterised by changes in the behaviour of governmental institutions, the groups exploiting or otherwise affecting ecosystem conditions, and those making financial investments in the system. Involvement of the latter is especially important so as to generating the funds required to sustain the programme or project over the longer term. The 3rd Order marks the achievement of the specific societal and environmental quality goals that prompted the entire effort. In ecosystems that have been greatly modified by human activities the achievements at this stage marks the path to more sustainable forms of development, represented by outcomes of the 4th Order. Achievement of this last stage may take some considerable time. However, as Olsen (2003, p.27) points out it is essential because 'in an operational sense, the ultimate goal of sustainable forms of coastal development is a "north arrow" that points in the direction needed to proceed. The most tangible and near-term outcomes lie in achieving the necessary enabling conditions and the forms of behaviour that constitute coastal stewardship, and produce some—but not all—of the desired social conditions in a given place'.

Table 5: The relationship between governance criteria with the ICZM orders of outcome

Orders of Outcome	**Good governance criteria**				
	Legitimacy and voice	**Accountability**	**Performance**	**Fairness**	**Direction**
Creating an enabling framework ***1st Order of Outcomes***					•Supportive constituencies •Formal commitment •Institutional capacity •Unambiguous goal •Vision
Achieving changes in behaviour ***2nd Order of Outcomes***	•Consensus processes •Ownership of institutions •Public participation •Subsidiarity	•Institutions commitment •Guaranteed access to information •Equal access to information •Internal evaluations •Effective monitoring and reporting system			
Achieving results ***3rd Order of Outcomes***			•Attainment of management objectives •Cost effectiveness •Research and innovation •Policy learning •Private-public partnerships	•Rule of law •Distributional equity •Conflict management	

The Orders of outcome framework can be used operationally not just as a guide to the way sustainable outcomes can be achieved, but also to develop a set of indicators against which progress to creating 'good governance' can be judged (Table 5). Adapting the work of Olsen et al. (2009) indicators can be developed (see Henocque, 2011) to provide a graduated set of measures that enable a project or programme to identify the degree to which each of the orders of outcomes is achieved. When applying the framework shown in Table 5, the justification of the indicator score is likely to be more revealing of changing conditions and learning than the rating itself. Tracking the progress of the programme or project should involve the periodic assessments of each of the indicators.

In addition to the five governance principles and the various criteria identified in Tables 4 and 5, it is important to note that to be fully effective it is important to build up a picture of changes in governance arrangements *and* conditions 'on the ground' over time. Experience suggest that a long term analysis of this kind may better reveal or explain the traditions, the strengths and the weaknesses of the existing governance system in a particular area. In addition monitoring over time is also essential if effective *learning* is to be achieved and the goal of adaptive management attained. Again experience suggests that defining the issues or area of concern focus in a dynamic way, by identifying the drivers of change and responses in terms of their impacts on ecosystems, is essential. Indeed this requirement is, for example, an important element of the 'establishment' step as defined in the PAP/RAC guidelines for ICZM delivery (Fig. 1). Only if an adequate base-line is available will it be possible to assess the success of particular governance arrangements in a meaningful and useful way.

4.4 The PEGASO Governance Platform

The goal of promoting 'good governance' in the coastal zone is a primary aim of PEGASO. To do this it was proposed that the principle outcome was the creation of a 'Governance Platform', designed to support efforts across the region to put effective ICZM strategies, plans and policies in place. ***The Platform was conceived, not as a governance mechanism, but as resource that would provide for the necessary enabling condition be created and the resulting changes in behaviours being encouraged.*** The technical infrastructure needed for the Platform that has been developed during the Project is summarised in Table 6. The main focus has been on building tools to bridge the gap between science and decision-making by developing a common approach to the identification of the priority coastal issues across the Mediterranean and Black Sea Basins. The Platform has been designed to provide a hub for the use of project tools, knowledge exchange, capacity building, and the dissemination of information. Throughout the work as bee designed to stimulate more effective collaboration between key stakeholders, such as the representatives of national governments, regional and local administrations, coastal and marine agencies, the private sector, and professionals and experts from academia and research institutions, as well as from civil society organisations.

As Table 6 shows how to create the infrastructure necessary for the Governance Platform, the project has developed a range of tool and approaches, and tested them amongst project partners and members of the wider community of policy makers and coastal managers. The work has included conducting a regional stock-take and making an assessment of specific scientific and governance issues; the results of the stock take have provided part of the input for this Report. The work has also created a set of indicators against which progress towards the implementation of generic ICZM principles across the two sea basins can be judged, and through the work it has done

Table 6: Overview the technical infrastructure of the PEGASO Governance Platform

PEGSO Component	Contribution
Intranet	Designed for sharing and communication; it is a restricted common work space, but has an active forum and document repository for participants (upload/download). ***This can be extended as the basis of a wide resource in the region.***
Management system	Designed to organise and disseminate resources and results (reports, maps, data, application, etc.). It uses open source code, ***and provides an asset that can be used to create a generation of review tools as the Platform goes forward.***
Web portal	Designed to provide a complete external visibility to the Project. One of the main features linked to the web portal and allowing further dissemination is the Coastal & Marine Wiki (www.coastalwiki.org). The portal enables selected outputs of the Project available to wider audience and ***this can become an important resource for the wider community as the Platform develops.***
Spatial Data Infrastructure (SDI):	Supported by a dedicated Spatial Data Infrastructure (SDI), complying with OGC standards and the INSPIRE Directive. It supports interactive information sharing, assuring the spatial data is organised and standardised.

on scenarios helped people to articulate a vision for what the goal of a 'more sustainable future' might look like. Such work has enabled people to identify the risks and barriers to the successful implementation of ICZM and the kinds of data they need to make decisions. Finally the work has developed an extensive network of expertise than encouraged the use of participatory methods. This has been a vital step, and will be an important outcome of the Governance Platform, because we need to find way of unlocking the expertise of local actors and providing them with the tools needed to design their own management strategies.

In the context of taking the Governance Platform forward, we therefore provide a *generic* adaptation of the ICZM Principles from the Protocol, that makes more explicit reference to the ideas that underpin the EsA and the governance issues addressed here (Table 6). We do this to show more clearly how the Ecosystem Approach is embedded in ICZM thinking, and hence the fundamental consistency between them. This modified set of ICZM principles can be thought of as a way of customising and making operational the EsA in the context of the coastal zone, given the particular interests of the kinds of end-user that will be supported by the Governance Platform.

Table 7 has been designed to highlight the kinds of work that should be stimulated by the activities of the Governance Platform. It also indicates some of the PEGASO tools that have already been created to support this activity. A number of issues are evident, namely:

- That the application of the principles (e.g. Principle 1) will require the development of an appropriate indicator set *and* a good understanding of the direct and indirect drivers of change. The DPSIR framework, which captures some aspects of causality is clearly a valuable analytical tool, and **future work needs to find ways of embedding Environmental Impact Assessment, Strategic Environmental Assessment and more wide ranging Sustainability Impact Assessments as they are applied to the coast and sea**. The accounting framework being developed for the region by PEGASO can provide a foundation for looking at

biophysical indicators in a systematically way and get a picture of the social and natural capital in the region.

Table 7: Interpretation of key ICZM Principles and their implications for the PEGASO work programme

ICZM Principles (interpreted)	PEGASO Contribution and Tools
1. ICZM seeks to take account of the wealth of natural capital in coastal zones represented by ecosystems and the output of ecosystem services that depend on the complementary and interdependent nature of marine and terrestrial systems. Thus policy makers and managers should consider the effects of their actions and activities on those social, economic and environmental systems that affect the coastal zone or are affected by processes within it or out of it, by considering the cross-sectoral implications of all plans and policies.	• A range of assessment methods exist to assist to examining the impact of plans and proposals, including Environmental Impact Assessment, Strategic Environmental Assessment and more wide ranging Sustainability Impact Assessments. For such methods to be used effectively, spatially disaggregated indicators and ecosystem accounts covering all aspects of the coastal zone should be provided by the PEGASO Platform, along with an understanding of their sensitivity to drivers of change.
2. All elements relating to hydrological, geomorphological, climatic, ecological, socio-economic and cultural systems shall be taken into account in an integrated manner and in a long-term perspective, so as not to exceed the carrying capacity of the coastal zone and to prevent the negative effects of natural disasters and of development. Policies and plans in the coastal zone should therefore ensure that ecosystems are managed within the limits of their functioning.	• Ecosystem services provide a framework for making judgements about progress towards sustainable development goals, because they integrate understandings about the capacity of ecosystems to supply a given suite of services together with the demands that people place on these resources. As a result a more balanced approach to development might be achieved (cf. ICZM Principle 8) and the limits of ecosystem functioning might be identified. An understanding of risks and uncertainties is also required (Principle 9), as well as the capacities of ecosystems to meet the needs of people (Principle 5). The PEGASO Platform should support the implementation of effective ecosystem assessments
3. The ecosystem approach to coastal planning and management should be designed to ensure the sustainable development of coastal zones. This implied that not only should ecosystems be managed within the limits of their functioning, but also that full account is taken of the varying temporal scales and lag-effects that characterize ecosystem processes. As a result, ICZM should look to the long-term so that sustainable development can be achieved.	

4. Appropriate governance allowing adequate and timely participation in a transparent and well informed decision-making process by local populations and stakeholders in civil society concerned with coastal zones shall be ensured. In doing so ICZM recognises that the management of land, water and living resources is a matter of societal choice. This will require that all relevant sectors of society and scientific disciplines should be involved in framing the options, and that all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices be taken into account. In particular the way different groups value ecosystem services should be understood.	• If the management of coastal zone resources is matter of social choice, the proposed ICZM Governance Platform should provide tools and techniques by which these options can be identified, articulated and assessed. Thus the PEGASO Platform should disseminate both the contextual information needed to consider local and problem specific issues from a range of different perspectives, together with guidance and training on the use of participatory methods and tools (e.g. citizen's juries, scenarios) including a selection of indicators related to the ICZM outcomes in regard to governance criteria (Table 5). The Platform therefore helps create the necessary enabling conditions and will stimulate the necessary behavioural change needed for effective ICZM
5. Given the requirement for cross-sectoral management approaches in the coastal zone, the institutions dealing with social, economic and environmental issues must themselves be organised to ways that allow integrated approaches to the developed. This will require that appropriate institutional capacity be built and that decision makers should be competent in using all the forms of evidence that needs to be taken into account.	• The use of integrated assessment tools should be supported by access to systematic monitoring data for the key resources associated with the coastal zone. The PEGASO Platform can begin to help meet this need by providing physical environmental accounts that could provide the basis for integrated economic and environmental accounting.
6. The formulation of land use strategies, plans and programmes covering urban development and socio-economic activities, as well as other relevant sectoral policies are needed for successful ICZM. However, their impacts need to be assessment, and the implications considered in terms of the trade-offs between the natural, economic, social and cultural capitals.	• This principle also requires the use of indicators and understandings of their sensitivity to the drivers of change. However, it also implies some way of valuing the output of services that coastal zones provide so that the full value of the environment can be taken into account when looking at the impacts across different types of capital. Thus the PEGASO Platform should help decision makers to use and understand different valuation methods, and how local contexts may change them. The effective management of resources can only be achieved at local scales if the factors motivating the actors at those scales are understood, or if appropriate incentive structures are developed.
7. ICZM is essentially place-based and should take account of geographical context. In particular, it must recognise and communicate the particular qualities, characteristics and opportunities in the coastal zone that arise from the proximity of land and sea, and take steps to protect and sustain them. Thus management should be decentralized to the lowest appropriate level to ensure that management or policy goals are understood and owned by those who affect their implementation and success.	
8. The allocation of uses throughout the entire coastal zone should be balanced. Moreover the coastal developments need to be balanced with related processes in the coastal hinterland.	• The *PEGASO* Platform should provide decision makers with an understanding environmental capacities and limits.

9. Preliminary assessments shall be made of the risks associated with the various human activities and infrastructure so as to prevent and reduce their negative impact on coastal zones. Although such risk assessments should take account of the limits of ecosystem function, assessment must also recognise that change is inevitable, and so must be updated by periodic assessments in the light of changing circumstances. ICZM must be framed as an adaptive process.	• Risk based assessments are a vital part of building adaptive and resilient communities and ecosystems. The PEGASO Platform should provide tools to help decision makers better understand the risks and uncertainties associated with plans and activities, and guidance in setting and monitoring safe minimum standards for resource use.
10. Damage to the coastal environment shall be prevented and, where it occurs, appropriate restoration shall be effected.	• The PEGASO Platform should provide stakeholders with tools such as environmental accounts that could provide the basis for calculating damage and restoration costs, and the minimum levels of natural capital needed for sustainability.

- That given the emphasis that the ICZM principles place on the goal of achieving sustainable or balanced development, an understanding of **environmental limits or capacities**, and how these vary spatially and or over time, must be an essential aim of any future Governance Platform. At present the scientific understanding of thresholds and limits is limited. In developing the future work around the Platform, the issue of limits and capacities could be introduced as a useful cross-cutting theme to link scenario thinking with the indicator framework. Given that decisions about limits and capacities are based on both scientific understandings and societal choice, it should also be a focus in the development of participatory tools.
- That by emphasising the role of ecosystem services and the idea that decisions about them are a matter of social choice, then the issue of values and valuation must become a significant part of any future associated with the Platform. In the long term the Platform must therefore support users in exploring these issues, and in looking at how values might change in the context of different plans and policies; tools such as cumulative impact mapping that have been developed in PEGASO will support this kind of work. Economic valuation of the environment is also an increasingly important topic for decision makers, and it is essential that this work is taken forward by showing how it can be used in different decision making contexts, by linking it to the accounts work, the scenarios and participatory methods. The development accounting methods for natural capital, begun in PEGASO, represents one way forward, and potential link valuation work to ideas about of 'safe minimum standards' and the formulation of sustainability limits.
- By highlighting the importance of understanding risk and uncertainty, the Table 7 highlights a potential gap that was outside the remit of the PEGASO work programme. Like the notion of limits and capacities, however, risk is a topic that cuts across many concerns, and could be used as a theme to link different work areas. However, in the long term, if the Platform is to support the implementation the ICZM Principles, it should explicitly support the use of more formal risk assessment methods.
- Finally, by emphasising the importance of 'local specificity' and the view that ICZM is essentially 'place-based', when developing tools and the training necessary to use them

there has to be great emphasis on helping people to both frame issues for themselves and apply generic approaches to resolve them. The challenge for place-based approaches is to understand how knowledge and experience can be transferred from one location to another and across scales. The *PEGASO* work programme explicitly recognised the need to develop understandings across different scales through its work in the CASES and on the Regional Assessment. In thinking about the support the ICZM Platform might eventually provide, topics such as benefit transfer, the customisation of production functions for ecosystem services might also be considered, alongside more informal methods such as knowledge networks. The partnerships that PEGASO has encouraged at local and regional scales are already a significant contribution to the long term development of such networks.

4.5 Conclusion

The aim of this Report has been to set out the background to the ICZM Governance Platform that is a key outcome of the PEGASO Project. In doing so, we have traced the conceptual basis of Integrated Coastal Zone Management (ICZM) and its links to the Ecosystem Approach (EsA). ICZM and the EsA are two important bodies of thinking that set the context for PEGASO; they have also shaped its outcomes. The discussion presented here has emphasised that while both sets of ideas are now widely accepted and institutionalised in such documents as the ICZM Protocol for the Mediterranean, these frameworks continue to evolve as they come to be applied and new concepts develop. In reflecting upon the principles of the ICZM Protocol in the context of the PEGASO project, we have suggested how they might be adapted to include more explicit reference to ecosystem services and the problem of valuation, which are only considered implicitly in current formulations. Most importantly we have argued that they are the basis for developing 'good governance'. We have argued that the concept of governance is at the heat of the ICZM concept.

This review of the principles of the ICZM Protocol has also emphasised that they must be considered both in terms of the way they help us shape the goals of policy and management, especially for coastal and marine ecosystems, ***and*** design the governance processes that are needed to deliver them. The implications of accepting the precepts of ICZM and EsA as fundamentally adaptive, problem solving techniques are profound for any future Platform. It suggests that its work programme should be designed to achieve demonstrable social learning outcomes and documented examples of behaviour change.

Despite the long history of ICZM and the application of the EsA, it is clear that considerable challenges remain in embedding both in decision making. The challenge of ICZM remains relevant and ever more pressing. As McKenna et al. (2009, p.953) have argued not only must we attempt to express the principles that underlie such approaches clearly and precisely, but also emphasise that they constitute an 'indivisible set that cannot be picked through to find one to serve a specific policy outcome.' In this sense ICZM principles are omnipresent in any discussion of sustainability in the coastal zone and a useful focus for discussion and the resolution of issues across a range of policy sectors. Achieving a balance between strategic and local concerns is perhaps one of the most difficult issues that we face in coastal zone management, along with the question of how we ensure that a narrow focus on coastal issues does not undermine or conflict with policy in the marine and terrestrial domains. A conclusion that we might draw from this analysis is that one of the key contributions that the PEGASO Governance Platform might make in the long term, is helping to develop a framework of understanding in which such tensions and challenges can be resolved. It must also demonstrate how a focus on the principles underpinning ICZM can be a way of helping Society deliver on the wide body of policy that has now developed around the goal of sustainable development.

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Appendix 1: The Principles of the Ecosystem Approach

Adopted by The Conference Of The Parties to the Convention On Biological Diversity at its Fifth Meeting, Nairobi, 15-26 May 2000. Decision V/6, Annex 1. CBD COP-5 Decision 6 UNEP/CBD/COP/5/23

1. The objectives of management of land, water and living resources are a matter of societal choice.
2. Management should be decentralised to the lowest appropriate level.
3. Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
4. Recognising potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should:
    a. Reduce those market distortions that adversely affect biological diversity;
    b. Align incentives to promote biodiversity conservation and sustainable use; and
    c. Internalise costs and benefits in the given ecosystem to the extent feasible.
5. Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the Ecosystem Approach.
6. Ecosystems must be managed within the limits of their functioning.
7. The Ecosystem Approach should be undertaken at the appropriate spatial and temporal scales.
8. Recognising the varying temporal scales and lag-effects that characterise ecosystem processes, objectives for ecosystem management should be set for the long term.
9. Management must recognise that change is inevitable.
10. The Ecosystem Approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
11. The Ecosystem Approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
12. The Ecosystem Approach should involve all relevant sectors of society and scientific disciplines.