

Pegaso Project People for Ecosystem based Governance in Assessing Sustainable development of Ocean and coast

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Acronyms and/or abbreviations

B

BBN:Bayesian Belief Networks

BSC-PS: Black Sea Commission Permanent Secretariat

C

CA: Consortium Agreement.

CAMP: Coastal Area Management Programme **CAQ:** Committee on Aquaculture (of the GFCM)

CASEs: Collaborative Application SitES.

COP: Conference of Parties (to the Barcelona Convention)

CPC: The Champion Participatory Coordinator.

D

D: Deliverable

DEGESTS: Demographics Economy Governance Environment Society Technology and Science

DG ENTR: Directorate-General for Enterprise and Industry

DG ENV: Directorate-General of Environment

DG MARE: Directorate-General for Maritime Affairs and Fisheries **DG Regio:** Directorate-General for Regional and Urban Policy **DG RES:** Directorate-General for Research and Innovation **DIEC:** The Data and Information exchange Coordinator.

DoW: Description of Work

Е

EC: European Commission. **EcAp:** Ecosystem Approach

EEA: European Environment Agency

ENPI: European Neighbourhood and Partnership Instrument

ETCs: European Topic Centers

EU:European Union

EUC: End-Users Committee.

EuropeAid: Directorate-General for Development and Cooperation

F

FAO: Food and Agriculture Organization of the United Nations

FP7: Seventh Framework Programme.

G

GA: Grant Agreement. **GAs:** General Assembly.

GFCM: General Fishery Commission for the Mediterranean

GIS: Geographical Information System

Н

H2020: Horizon 2020

ICZM: Integrated Coastal Zone Management

INSPIRE: Infrastructure for Spatial Information in Europe Directive **INTERREG:**Interregional Cooperation across Europe Programme

IOC: International Oceanographic Commission

M

M12: Month twelve.

MAP: Mediterranean Action Plan

MED: Europe in the Mediterranean Programme

MEDINA: Marine Ecosystem Dynamics and Indicators for North Africa

MEDPAN: Network of Marine Protected Area Managers in the Mediterranean



MEDWET: Mediterranean Wetlands Initiative

MSP: Maritime Spatial Planning

NFPs: National Focal Points

NGOs: Non-Governmental Organisations

PAP: Priority Actions Programme

PM: Person month PO: Project Officer

RAC: Regional Activity Centre

RAMSAR: The Ramsar Convention of Wetlands

SAP: the Black Sea Strategic Action Plan

SC: Steering Committee SDI: Spatial Data Infrastructure **SEAC:** Sea ecosystem accounting

ENPI-SEIS: Shared Environmental System across Europe

ToR: Terms of Reference

UNEP/MAP: United Nations Environment Program/Mediterranean Action Plan UNESCO: United Nations Educational, Scientific and Cultural Organization

V

VIC: Virtual Meeting
VIC02: 2nd Pegaso Virtual Meeting

W

WMIIE: Western Mediterranean Impact Index on the coastal and marine Ecosystems

WP: Work Package



1. Introduction

1.1. Purpose and scope of the report.

Responding to the call for tender of the FP7 ENV.2009.2.2.1.4 on Integrated Coastal Zone Management (ICZM), the PEGASOproject major objectives are:

- Building a bridge between science and decision-making;
- Giving support to the implementation of the ICZM Protocol for the Mediterranean and the development of similar policy for the Black Sea.

During the PEGASO life (February 2010-January 2014), the project has delivered a number of very innovative and useful services and products, and has maintained an intensive process, which are closely related to the two main objectives of the project.

The purpose of this report is to develop the PEGASO Business Planthat aims at ensuring the durability of the PEGASO approach, products and main added valueafter the end of the project (31 January 2014). This document aims at ensuring the PEGASO legacy.

1.2. PEGASO main impacts

PEGASO(People for Ecosystem based Governance in Assessing Sustainable development of Ocean and coast) is a collaborative project between twenty-four partners that have co-worked over four years under the lead coordination of the UniversitatAutònoma de Barcelona to develop common, novel approaches to support integrated policies for the coastal, marine and maritime realm of the

Mediterranean and Black sea basins.

The PEGASO final conference took place in Antalya (Turkey), from the14th to 17th of January 2014 gathering a wide range of institutes and networks from the Mediterranean and Black Sea and representatives from IntegratedCoastal Zone Management (ICZM) initiatives in other regional seas.

The ICZM Protocol of the Barcelona Convention has been the main driver of



the PEGASO project. The Pegaso community; ICZM researchers, actorsin different economic sectors, practitioners and decision-makers, have worked together to achieve as the main outcome a shared IZCM Governance Platform enabling to bridge between communities of scientists and End-Users, far beyond conventional bridging. The Governance Platform has been established as a human network and a forum where people with deep interest in effectively implementing ICZM have shared knowledge and experience, and tested new planning and management tools. This kind of joint effort based on the ecosystems approach and collaborative work allows the best options for "adaptive management".



PEGASO has also developed tools to better appraise conflicting issues, responding closely to different articles from the Protocol, focusing on the balance between urban development versus natural capital maintenance. This reflexion has included an analysis of cumulative impacts of climate change and human pressures as well as an assessment of vulnerability and adaptation to risks (indicators, accounting methods, models and scenarios). They have been tested and validated in a multi-scale approach for integrated regional assessment through a number of relevant pilot sites. All the tools are fully accessible at the Pegaso website and have served to produce some indicator factsheets at different places, and an atlas for the Mediterranean and Black seas.

Tools are very useful per se, but they have also served to develop participative methods for support decision making, facilitating a common understanding of the coastal and marine processes, which are manageable or not, and in which way they should be managed, how stakeholders have to collaborate, main priorities and roadmaps for action, etc.

To support the whole PEGASO process, a Spatial Data Infrastructure (SDI), following the INSPIRE Directive, has been implemented to organize and standardize spatial data sharing on an interactive visor, to make it available to the ICZM Platform, and to disseminate all results of the project to the End-Users and interested parties.

Furthermore, PEGASOhas made efforts to establish and strengthen durable mechanisms for networking and capacity development so as to promote knowledge transfer and dissemination (N-S; S-N; N-N and S-S). Special effort has been done for the South and Eastern Mediterranean and for the Black Sea countries, that are extremely motivated and would like to see the PEGASO project continuing, for support of their ICZM needs.

Over the lifespan of the PEGASO, the project has mobilised in a successful collaborative-work around one thousandMediterranean and Black Sea scientists and stakeholders, both at regional and at CASE levels. PEGASOends up as an innovative and creative project, which has provided exploratory ways to stakeholders to share common knowledge with scientists. This practice has given a new know-how on exchanging data and speaking together, making these different professional spheres collaborating for agreed actions. Demands from stakeholders are very high to continue PEGASO work and spirit. This continuous interaction has created a social energy in PEGASO. This human aspect, the relations between people haveencouraged a creative human, trans disciplinary and trans-cultural unforgettable experience that has reinforced friendship and cooperation linkages, and should be capitalised in the post PEGASO as the most important achievement of the project.

Finally, it has to be underlined that PEGASO was strongly linked to the needs of both Regional Seas Conventions, the Barcelona and Bucharest conventions for the protection of the Mediterranean and the Black sea by providing assistance to the implementation of their plicies and contributed to the implementation of specific tasks.



2. Capitalizing for the future: the PEGASO legacy

In this chapter, the PEGASO outputs will be briefly explained in term of the PEGASO legacy that is important to be maintained. More information can be found in the annex of this document. The PEGASO legacy is based on the high added value of its outcomes, which are basic informations for future capitalisation work.

2.1 The human legacy: the PEGASO ICZM Governance Platform.

The heart of PEGASO is its ICZM governance platform. It is first made of people that work together to put in place effective ICZM by exchanging, learning together, helping each other, sharing knowledge and experiences, testing new planning and management tools, discussing in a collaborative work priority threats and actions.

Organised to work across different scales, the PEGASO ICZM Governance Platform members were:

- -The 25 partners institutions of the PEGASO consortium, with around 150 scientists, ICZM experts and technicians, including the PAP/RAC MediterraneanICZM Center and the Blue Plan, expert in Mediterranean prospective and indicators for the Mediterranean Commission on Sustainable Development; Centers such as IOC-UNESCO brought the global ocean expertise, linking regional and global issues and threats; NGos such as IUCN, MEDCOAST Fundation, and research centers and universities (see list of partners in the annex);
- -The 10 Collaborative Application Sites (CASES) that worked at local and subregional levels. Led by PEGASO partners they have built on ICZM issues, they haveorganised CASE multi-stakeholders' governance platforms and promoted shared dialogue, linking local and regional scales. They have tested and used the PEGASO tools. A number of them have become nodes of the spatial data infrastructure network;
- -The PEGASO end users, representative of Mediterranean sectors, National Focal points of the ICZM Protocol, NGOs, regions and countries, who have participated all along the project life in the collaborative work of PEGASO;
- -The Expert panel for the Black Sea, with representatives of the different countries, some from the Advisory Board of the BSC-PS.

In September 2011, as a result of the collaborative work of the PEGASO Governance Platform to produce a stocktake of legal, institutional and implementation aspects of ICZM in the Mediterranean and the Black Sea, the NFPs of the ICZM Protocol were associated to the Platform.

Additionnaly, under the initiative of Algeria (the Area-Ed NGO, a PEGASO partner), a Working Group on indicators and data including the three Maghreb countries organised two participatory events in Algiers (September 2012 and November 2013), with representatives of Algeria, Morroco and Tunisia.





Building BBNs at the Rabat Workshop, Day 2 (Photos: Glòria Salgado)

The PEGASO governance platform has been a source of motivation to impulse againICZM initiativesin the Black Sea, giving support to the BSC-PS, where the need for a similar policywas discussed, and PEGASO tools tested and used.

From the very beginning of its functioning, this PEGASO governance platform has made efforts to open towards regions, NGOs and has attracted several other coastal and marine initiatives (RAMSAR, MEDWET, MEDPAN, the Small Islands Network, the Water Network in the Mediterranean, the Adriatic-Ionian Commission, the FAO GFCM/CAQ, etc) in the debate.

So at the end of the project, the PEGASO governance platform has enlarged its concept to answer to the needs of most relevant Mediterranean networks, aiming to become a privileged place of exchange and a sort ofhub for all projects, studies and initiatives related to the ICZM Protocol implementation in the large sense.

The platform has facilitated the dissemination of information on the project results, which were regularly communicated to a broad public during the major Mediterranean events, such as the Mediterranean Coast Day celebrations, meetings of the ICZM Protocol NFPs, conferences of the Barcelona Convention contracting parties, MEDCOAST international Conferences, etc.



2.2The technical legacy

To support the platform a web portal, with its website has been build and upgraded along the project life. See www.pegasoproject.eu

PEGASO Technical Components	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). <i>This can be extended as the basis of a wide resource in the region.</i>
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.

2.3The production of common knowledge legacy

The project has focused its efforts on these main outcomes, in order to serve betterthe collaborative work of the ICZM Governance Platform for the Mediterranean and the Black Sea:

The PEGASO toolbox, consisting in a set of useful and user-friendly tools and methods, oriented to the construction of a common knowledge and a co-working experience. It includes:

- The indicator core set based on the articles of the ICZM Protocol, together with a number of factsheets to produce main indicators at different scales;
- The first PEGASO Land Cover prototype for the whole Mediterranean and the Black Sea, at two dates (2000-2011), the PEGASO Land Cover;
- A Cumulative Impact Index Maps on the coastal and marine ecosystems of the Western Mediterranean (2013) (WMIIE), towards a Sea Ecosystem Accounting; completed by a work on Posidonia beds as tools for management of seascapes;
- The PLC and the WMIIE have served as a basis to develop Land and Ecosystem accounts (LEAC) and explore Sea ecosystem accounting (SEAC). Accounting maps have been



developed at regional scale, focusing on urban sprawl versus natural capital; and by a number of CASES (Greek islands, Bouches du Rhone, Georgia CASE, etc).

- Participatory methods, including scenario building, using different methods (BBN, DEGESTS, etc), using the information of the previous tools to build a co-construction of the desired future, and indentifying collectively the best scenario to achieve it.
- Socio-economic valuation on the cost of ecosystem degradation.

2.4 Enhancing collaborative work legacy

The tools and methods listed above have already prompted the work in collaboration. The best example however is the national stocktake exercise.

The national stocktaking exercise

One of the main tasks of PEGASO's shared ICZM Platform was to carry out a benchmark assessment of the current state of ICZM in Mediterranean and Black Sea countries, as required by Article 16 of the ICZM Protocol for the Mediterranean. In September 2010, the Black Sea Commission Permanent Secretariat (BSC-PS) agreed to adopt this approach for the Black Sea basin. Stocktaking for ICZM was then carried out in a comparable way for both the Mediterranean and the Black Sea countries, with a review of current ICZM-related legislative, institutional, policy and financial frameworks.

A draft questionnaire was prepared by PAP/RAC (Priority Action Programme/Regional Activity Centre) and involved broad consultation, including a workshop with National Focal Points (NFPs) for the ICZM Protocol in the Mediterranean, held in Portoroz, Slovenia, in September 2010. The Mediterranean NFPs subsequently validated the Mediterranean questionnaire, whilst the Advisory Group (AG) on the Development of Common Methodologies for ICZM validated the questionnaire on behalf of the Black Sea Commission, also in September 2010.

In the Mediterranean, the stocktaking made an important contribution to the Barcelona Convention system in terms of providing initial guidance on drafting the official UNEP/MAP reporting format for the ICZM Protocol and a baseline for measuring progress in implementing the Protocol.

Early results of the stocktaking were also instrumental in informing the action plan for the implementation of the ICZM Protocol for 2012-2019, which was officially adopted by the 17th Ordinary Meeting of the Contracting Parties to the Barcelona Convention (COP 17) in 2012.

For the Black Sea, the ICZM AG members advised using the regional stocktaking synthesis report as the basis for the ICZM part of the report on the implementation of the Black Sea Strategic Action Plan (SAP), due in 2014-2015.

As a proposed follow up actions, during COP 17 the Contracting Parties decided to update the data gathered through the stocktaking questionnaire bi-annually. Therefore, this report on the stocktaking is the baseline for measuring future progress in the implementation of the ICZM Protocol.



2.5The SDI legacy: the Infrastructure to share data amongst all

The Spatial Data Infrastructure network (SDI), with partners' institutions as geo-nodes of the network, and the construction of an interactive atlas for the Mediterranean and the Black Sea has re-enforced the PEGASO ICZM human governance platform, allowing sharing of data across all members.

2.6 Learning by doing: other PEGASO legacy

To achieve the objective of the collaborative participatory work, a Capacity building programme and strategy, including 'polimedia' videos; participatory events and dissemination activities, was prepared and implemented.

3. Business Plan proposal for the post-PEGASO: How to ensure the PEGASO legacy

Development after end of PEGASO needs to face a number of very important challenges that should be takled as soon as possible and as well thought as possible, not to loose the momentum.

3.1 The ICZM Platform for the Mediterranean and the Black Sea

PAP/RAC as the coastal management center of the Barcelona Convention hasso faracted as a network and a sort of platform for ICZM. PEGASO has supportedPAP/RAC in itswork mainlythrough a scientific support to the implementation of the ICZM Protocol, producing new scientifically based tools and methods in the philosophy of science and experience sharing, collaboration and co-construction of common future.

To make the ICZM Platform sustainable, there is a need to get a recognised institutionalised mandate. PAP/RAC, also according to the Article 32 of the Protocol, is the most indicated institution to lead the enlarged, after-PEGASO ICZM Platform, with the support of the UNEP/MAP Secretariat of the Barcelona Convention and the other regional centers of UNEP/MAP (e.g. the Plan Bleu). They have the mandate to do these practical experiences; however, support for some specific building elements of the Platform such as the SDI, should be provided from the core PEGASOteam toenablesustainability of "a platform for life".

The name of the future platform includes the Black Sea. PEGASO has potentiated collaborations between the two regional seas that have shared PEGASO outputs and good practices. PAP/RAC will find a solution to have the Black Sea associated to the Mediterranean platform, depending of their will and how BSC-PS wants to be associated.

The ICZM Platform for the Mediterranean and the Black Sea (name to be finally agreed amongst both regional Seas), should continue to work with countries (ICZM Protocol NFPs in first place), and



to enlarge to scientists, end users (at different scales), integrating CASES and CAMP as local ICZM demonstration sites, NGOs and other relevant Mediterranean (and Black Sea) networks. It will capitalise on PEGASO products (e.g.tools, methods, SDI and atlas), on PEGASO methods to animate participation and co-working process, being open to people and institutions willing to collaborate with the ICZM Platform.

3.2 The need for a technical and scientific platform to back up the work of the human ICZM platform

Web portal, intranet, supporting virtual forums, coastal and marine wiki, interactive social network

- The main needs of the PAP/RAC to achieve this task in the short term is the maintenance of the technical legacy (a technical infrastructure with web portal, intranet, supporting virtual forums and information exchange, an interactive social network such as Facebook, to support the daily work of the ICZM platform. The "ICZM Facebook" would serve to exchange information, discuss, ask for assistance, share experiences, etc. and access to a wide public, schools and citizens.
- To restructure the existing Platform on the PEGASO web site to become a self-standing Platform, user friendly and visually attractive to users.
- The functionning of such a web site needs repository or links to resources maintained elsewhere, mechanism for feeding and updating.

Funding is required for this activity, to build the technical assets, have a management and help desk.

Maintenance and update of PEGASO tools with a plan for gatering new relevant data with relevant institutions at different scales

Production of a number of indicators for EcAp, ICZM, MSP, etc. based on PEGASO tools, compiling land accounts of stocks and trends by analitic units (grids, coastal buffers, catchments, countries, region, etc.).

Update and maintenance of the PEGASO Land use databaseand statistics by reporting units, as it is needed for ICZM reporting by the countries, and also for the making of their ICZM strategies. These PEGASO tools are probably also relevant for other UNEP/MAP needs.

Review the PEGASO land use for the Mediterranean and the Black Sea, ensuring the updates from a first Prototype to an automatised mapping that can be done at different years, with the associated land and sea ecosystem accounts.

An ad-hoc support, interactive on line and on the spot if needed, to help Countries, Regions, NGOs, etc. developing relevant indicators for coastal and marine ecosystems, based on PEGASO



tools, answering needs of different stakeholders at different scales.

Funding is also required for such activities.

Development of the spatial data infrastructure (SDI), maintenance of the services and enlargement of the geonodes network

All this information will be embedded in the SDI, and the geonode network should grow, with more partners involved, related to the ICZM Platform of governance or not. Terms of reference should be made to become partner of the human ICZM platform and of the Technical SDI platform.

A plan updating tools, for data gathering, and geonode building should also be discussed with the countries and other members of the ICZM Platform for the Mediterranean and the Black Sea.

Funding is required for such activity.

Ad-hoc capacity building, continuing the philosophy of learning by doing

- This would includeface to face participative sessions, on ICZM concept, tools and methods as well as SDI and atlas
- Capacity building relevant materialswill be produced such as methodological guidelines (in different lenguages) and videos for tools and SDI.
- Interactive techniques can be developed to help building a number of tools, ICZM guidelines, etc.
- Support the development, together with PAP/RAC and other interested institutions, of local multistakeholders platforms and geonodes, using participative methods and scenarios.

Ad-hoc funding. It depends on which sort of capacity is required.

3.3 Funding issues and interested agencies

To be able to work right now approximation for a seed monney for 2014 has been coarsely evaluated. Of course, an ad-hoc work plan should be associated to each task, for budget to meet the demand. The approximative budget evaluation includes one-person full time during one year, work direction, external assessment when needed, and equipment (hard and software). This seed money would allow us to continue the ongoing PEGASO work right now.

Tasks	Aprox. budget need by year	Possible funding agencies	
Web management	50.000	UNEP/MAP	
helpdesk		EEA	



Tools and methods	50.000	EEA/ENPI-SEIS/ETC
SDI and atlas	50.000	EEA/SEIS
Capacity Building	Ad hoc	Ad hoc

The work on tools and SDI/Atlas should go in a parallel way to the development and enlargement of data gathering for the coast and the sea ecosystems and social trends in the Mediterranean and the Black Sea with the mid/long term objective to facilitating the development of a consistant cartography for the land and sea uses and for coastal and marine ecosystems, risk areas at the face of climate change, and other climate change issues, etc. as a basis for different types of assessment, reports on state and evolution of coastal zones, Marine spatial planning issues, etc.

Further needs for budget, adapting to PAP/RAC and other agencies demands, could be negociated during this year.

For gathering new information, and complete the atlas and the tools at a better resolution, calls should be looked at, to see the ones that answer better to the ICZM Platform for the Mediterranean objectives (e.g. H2020, Med, INTERREGS, EuropeAid/ENPI, etc).

A transitional task force of 3 or 4 people should be identified to make institutional marketing and look for additional funding, and to research calls, and preparation of these calls (consortium, objectives, collaboration networks, etc). EC, the European Parliament, ESA, EEA, Union for the Mediterranean, GFCM, economic drivers, etc should be approached to understand their needs and how the ICZM Platform for the Mediterranean can fulfil them.

3.4 Possible future directions

Plan with the ICZM Platform for the next years: some ideas to be implemented from the PEGASO assets in support of the Conventions' Programmes of Work and EU priorities in the Mediterranean and Black Sea regions:

- Translate research work and practical experiences into comprehensive and operational documents:
- Support the making of PEGASO indicators'factsheets by countries, regions, local sites, etc, supporting the bottom up process;
- -Continuing with urban trends and natural capital accounts, changes of land-use, Carbon accounting, integrating climate change layers in the analyses;
- -Mapping risk areas in the Mediterranean and the Black Sea linked with sea level rise and low sandy shores, accounting for assets and population at risk, data on property for set back relocations, etc.;
- -Develop ecosystem and species maps as well as sea use maps, to continue the development of



Cumulative impact mapping on ecosystems for a number of sectors (fisheries, aquaculture, MPAs, tourism, agriculture, industries, energy...) and ressources (water, ecosystems, Good environmental status, waste, etc.);

- -Update of the stocktakeevery two years (following PAP/RAC needs to implement regular reporting on the implementation of the ICZM Protocol);
- Prospective and foresight exercises for 2030 and 2050, at local scale especially at risk (e.g. Nile Delta), and for nacional and regional assessments;
- Decision making support methods with participative processes to be develop with PEGASO products and relevant products from other projects.