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The present document provides the basic elements of the proposed MAP Knowledge Management Strategy to be developed within the next biennium. It was developed by INFO/RAC in close cooperation with Lucilla Minelli, MedProgramme officer, MAP CU and with the support of WARREDOC, the Water Resources Research and Documentation Center established at the Università per Stranieri di Perugia (UNISTRAPG), Italy.

Towards a MAP Knowledge Management Strategy (KMS)

Overview and background

The present document provides the first elements and the general framework for a proposal for a **MAP Knowledge Management Strategy** to be developed during the biennium 2022-23.

The **MAP Knowledge Management Strategy** will be aimed at sharing and provide information, policies and data on the Mediterranean through **digital technologies** to support scientific communication and the technical-scientific dissemination in the Mediterranean basin and **other KM services** which foster learning, improve trust and overall help creating a more effective knowledge sharing culture across the MAP Barcelona Convention system. Improving regional and national capacity of governments and other stakeholders with science-based solutions, making effective use of environmental information in decision making and planning, and stakeholder engagement will be fostered by the development and testing of **communication models** for UNEP-MAP based on innovative communication tools.

Within the definition of knowledge management, it is also important to draw clear distinctions between data, information and knowledge:

- **Data** - facts and statistics collected together for reference or analysis;
- **Information** – data presented within a context which gives it meaning and relevance;
- **Knowledge** – results from information in combination with experience and interpretation.

On behalf UNEP/MAP, INFO/RAC acquires, creates, processes and stores a significant amount of data and information, some of which is turned into knowledge. As it is recognized that this knowledge is valuable, and a cost has been incurred in the creation of this knowledge, it is therefore critical and imperative to leverage this investment. A MAP Knowledge Management Strategy should outline a framework to drive and leverage the organizational benefit of this knowledge.

To drive the realizable value and benefits from existing and new knowledge assets, two different actions need to be combined: the strengthening of existing **KM Environmental capabilities** based upon structures, policies, culture and systems which will enable knowledge management to develop and the introduction of organization-wide **KM Process capabilities** focusing on the standardization of the life cycle of knowledge within the MAP Barcelona Convention System.

The **MAP Knowledge Management Strategy** will have also close linkages to the MAP Operational Communication Strategy, developed for the biennium 2020-21, and to the updated one 2022-2023, according to the approach defined as "**Communication as One**". The MAP Knowledge Management Strategy will also support the implementation of the **Mid-Term Strategy (MTS) 2022 -2027** of UNEP/MAP and facilitate the dissemination of the Barcelona Convention and its Protocols to partners and institutional actors at local, national and international level, both among citizens and local communities on which strategic decisions impact.

The MAP Knowledge Management Strategy aspires to build upon existing initiatives whilst being forward-looking, and proposes three strategic objectives:

Strategic Objective 1: Develop a “knowledge management” culture

This objective will ensure that **knowledge-sharing culture** is considered an integral part of the MAP Barcelona Convention System daily activities to support the achievement of the Barcelona Convention objectives, improving building capacity.

Ultimately this will result in better governance of knowledge assets, drive clear accountability for knowledge management activities and instill a sense of shared ownership as well as shared benefits.

It is further recognized that for knowledge management to succeed within an organization to become a true “knowledge organization” the activities relating to knowledge management need to become further embedded within the culture of the organization itself. Staff members need to consider how knowledge management can assist them in their role and the impact upon corporate knowledge of every interaction they have with an information or knowledge asset.

Strategic Objective 2: Implementation of an Organization-wide set of knowledge management processes & tools.

This objective will ensure that the current online Mediterranean information system, the InfoMAP Platform, is developed as a data-driven knowledge platform in which a standardized set of knowledge management processes and tools are implemented within MAP Barcelona Convention System, providing a common set of defined entry points into the knowledge management processes.

Several technology applications and tools have been developed and implemented, albeit in a different manner, in the MAP Barcelona Convention System in the last few years, which have had a positive impact on information and knowledge sharing. A strategic approach toward **digital transformation** and better content management is required to provide improved methods for organizing, accessing and using data, information and knowledge. The introduction of new tools has to continue to support innovation and collaboration rather than create new boundaries.

Strategic Objective 3: The identification and publication of the “Single Source of Truth” for knowledge and information assets.

This objective will ensure that for each type of data, information or knowledge asset the definitive source is known and information on this definitive source is communicated to all the relevant stakeholders, therefore allowing for greater re-use of data, information and knowledge assets within MAP Barcelona Convention System.

The strategy will be designed and roll out a modular approach including the following steps:

✓ *Design the process...*

Knowledge Management Strategy (KMS), as the management of the set of processes and practices to generate, identify, collect, update and disseminate knowledge and awareness and best practices internally and externally to the MAP System through textual, multimedia, interactive contents and visuals.

✓ *Build the tool...*

Knowledge Platform (KP), as an operational tool for consultation and dissemination of content that includes databases, publications, visualization material, digital maps, digital storytelling products and tools for interacting with the public such as dashboards, infographics, surveys and questionnaires that require user input actions. The development of tools and data visualization products, services like Communities of Practice, learning exchanges, case studies on best practices fosters knowledge on specific environmental aspects in the Mediterranean region.

✓ *Expand the access....*

Knowledge Hub (KH), as a section of the KP to promote the boosted KM approach and start to effectively support the MAP system on its delivery. It will facilitate access to technical and specialist contents (technical reports, scientific publications), integrating ease of reading with the immediate reception of information for experts and non-experts using interactive and personalized content navigation tools for a quick link to the official documentation, consolidate tested practices and technology and make best use of resources.

Why a MAP Knowledge Management Strategy?

INFO/RAC's mission is to provide **adequate information and communication services and infrastructure technologies** aimed at:

- (1) **stakeholder and institutions** at level of the Contracting Parties of Barcelona Convention to implement Article 12 on public participation and Article 26 thus strengthening the information management and communication capabilities of the MAP system;
- (2) **citizens**, with a view to dissemination of specialist and scientific content to the general public and continuous exchange and feedback of user-generated content data and information between experts and local communities on human actions and impacts in marine and coastal environments.

The general objectives of the **MAP Communication Strategy** take into account the ongoing process provided by the broader framework of the **2022-2027 Mid-Term Strategy** and address the KM Strategy towards:

- Management of the set of processes and procedures to generate knowledge and awareness on the state of the Mediterranean to support decision making and collective actions aimed at raising citizens' awareness.
- Improvement of the quality and quantity of information materials through the creation of digital products and services that are easily accessible to the specialist and non-specialist public.
- Promotion of the “communication as one” brand to unify the communication strategies of the MAP System.

In particular, the **MAP KM Strategy** intends to:

- Strengthen the **collection and dissemination** of knowledge including technical data and information for the Mediterranean Sea environment;
- Create a **hub, a single access point**, for the Mediterranean Sea knowledge on environmental topics to leverage participation and dialogue between decision makers, researchers and partners;
- Promote the adoption of **communication models** for the involvement of citizens and stakeholders in Mediterranean policies through social communication campaigns, interaction tools such as dashboards and digital maps;
- Develop the **digital tools for consultation and interaction with specialist content** to increase citizens' awareness by promoting environmental monitoring best practices and virtuous attitudes for the management of environmental and marine resources according to co-participation and public engagement approaches;
- Facilitate a **timely exchange of data, information and publications** to improve the internal communication in the MAP System;
- Provide a **reference platform** for stakeholders, decision makers, researchers in the Mediterranean area.

Gap analysis and baseline scenario

The development of a **Knowledge Management Strategy** tailored for the UNEP/MAP System and at the same time taking into account UNEP Regional Seas framework, needs to carry out a gap analysis and a review of what is already existing. In view of the implementation of a complete gap analysis and baseline scenario, the following gaps have been identified:

- MAP Components adopt and implement separate communication strategies with consequent **dispersion of data and information** in different platforms whose access is often limited to professionals;
- MAP System initiatives remain **not always perceived as having an impact in the decision-making** and social contexts at the local level;
- **Lack of a unique platform** for the collection and dissemination of data and information on the Mediterranean Sea and Coast environment relating not only to the MAP System knowledge heritage but also of other institutional actors working in the MED (European Union, UFM, etc.);
- **Unintuitive and non-user-friendly data and information sharing tools** for a large audience;

To reduce these gaps, the development of a KM Strategy intends to promote **new communication paradigms** that rely on the visualization of data and the interaction between online users via social network platforms. These paradigms imply a reorganization of scientific and specialist contents towards a narrative and visual structure of immediate understanding for a wide audience. The interactive visualization of specialized data and contents assumes, in this new communicative dimension, a language of common understanding, accessible at an interdisciplinary level, aimed at overcoming barriers of a linguistic nature and of expertise and cultural background (Grainger et al., 2016; Green et al., 2018; Lacroix et al., 2019; Cortes Arevalo et al., 2020). Communicating scientific and specialist content through visualization dashboards, interactive maps and social media is a way to **reduce the gap between experts and citizens** and raise awareness on MAP System activities and Mediterranean policies in general, as an indicator of the state of the coastal and marine environment (Herring et al., 2016; Newell et al., 2017; Berendsen et al., 2018; Maher et al., 2018). The use of social media, in particular, allows information to be conveyed to a wider audience through a continuous exchange of specialist information, enhancing the social networks within online communities (Maher et al., 2018). In this perspective, online collaboration networks are configured as digital socio-technical tools to facilitate the dissemination of complex contents and to increase collective awareness on environmental issues and policies with a high impact on socio-economic balances and dynamics, favoring collective actions of local level (Maher et al., 2018).

A baseline scenario will be composed exploring all the available resources of Mediterranean Sea basin integrating the overview performed by the GEF/UNEP MedProgramme.

The approach

The MAP Knowledge Management Strategy focuses on how knowledge is generated and curated, particularly among knowledge brokers, putting emphasis on the documentation of processes, the enhanced capacity of stakeholders, the creation of suitable ICT tools, the identification of lessons learned for replication, among others. Besides all these aspects that will be detailed in the future strategy, a large impulse will be given to the associated communication activities focusing on dissemination ones. At this purpose, here it is proposed the **tripartite model** including:

1. **Dissemination** of technical reports that integrates ease of reading (e.g., executive summary or infographic) with the immediacy in receiving information for both experts and non-experts.
2. **Integration of multimedia and geospatial content** by means of dashboards, infographics and multimedia content for the interaction of non-experts and stakeholders with shared content.
3. **Social media campaigns** via Twitter.

This tripartition constitutes **an original model for the management of the set of processes and practices to generate, identify, collect, update and disseminate data and technical contents of MAP.**

The design of the tripartite model, inspired primarily by the scientific bibliography previously examined, gets also inspiration from examples of dissemination platforms entirely structured in interactive navigation pages, integrating textual information with images and multimedia contents.

A *Get Involved* section will offer opportunities for events in order to create a community of users for public engagement in environmental activities and actions, for awareness-raising and crowdfunding campaigns through interactive tools such as widget and filters.

This platform will be structured for digital storytelling by integrating texts and digital mapping contents and will host web apps based on GIS tools for interactive navigation of specialistic contents, public engagement section and open data libraries.

The portal will offer various section for consulting specialized contents through dashboards, web apps and story maps. All these tools rely on the use of digital maps for dissemination of information supported by infographics and query tools for users' interactions.

Target groups

Knowledge Management Strategy is mainly addressed to the MAP Barcelona Convention System but the benefits of knowledge management is not just for MAP Barcelona Convention System internally and the ultimate and indirect beneficiaries of the outcomes of the strategy will include all the Mediterranean community.

During the delivery of this strategy and the implementation of supporting projects and initiatives, the requirements of the external stakeholders as well as the internal stakeholders and user need to be considered to maximize the benefit of knowledge management.

Knowledge Management Platform

The platform constitutes the main output of the strategy and is aimed at the target audience that will be properly identified in the strategy.

For the development and implementation of the KM Platform the following steps need to be taken into account:

- Reconstruction of the state of the art in the field of communication models present in the literature and implemented in the UNEP-MAP context;
- Identification of target audiences and partners;
- Mapping of stakeholders to be involved in defining the elements of the KM Platform;
- Mapping and identification of specialized platforms and content to be integrated within the platform to provide a picture as complete as possible on the policies, studies and data produced by the MAP System and institutional actors in the Mediterranean;
- Implementation of a survey for stakeholders to identify strengths / weaknesses of the strategy and promote co-design initiatives of the platform according to a participatory approach to the creation of communication models;
- Dissemination of content through social media campaigns;
- Identification and formulation of key messages by identifying hashtags and trending topics.

In this regard, **the core** of Knowledge Management Strategy is the development of the Knowledge Platform, as **an operational tool for the collection and sharing of specialist and scientific content concerning mainly**

the activities of the MAP Barcelona Convention System but also aimed to involve other institutional actors working for the environmental protection of the Mediterranean Sea.

The main aim is to set up a **unique reference platform** for the collection and dissemination of policies and technical and scientific advances in the management and monitoring of marine and coastal environments in the **Mediterranean basin**.

The main objective of the Knowledge Platform is to **support the dialogue between stakeholders, decision-makers and experts** through availability of validated data and information. The difficulty of finding specialized data and information to make impact choices on social, economic and environmental systems at regional level, pushes towards the definition of new innovative communication models, supported by digital technologies and ICT, able to integrate specialized information with multimedia contents of wide and immediate understanding and dissemination to stakeholders and decision makers in the first place. **Rapid advances in digital and web-based technologies** have shifted the role of websites from simple passive and one-sided communication tools to intuitive user interaction with content. In this perspective, the visualization of data and contents in general can play an essential role in the communication and dissemination strategies of scientific progress and policies adopted in the Mediterranean area.

New multimedia models are based on the development and implementation of descriptive dashboards and storymaps to support communication practices for the integrated management of environmental policies. These tools allow a dynamic and interactive consultation of the contents through the combination of narrative texts, images, multimedia contents, graphics and digital maps. Multimedia platforms allow the user not only to use but also to query content in real time via a user-friendly web interface. The use of storymaps and data visualization dashboards as a popularizing tool for specialized content is reflected in various fields of application as it facilitates the cognitive experience of non-expert users.

Structural characteristics

As **unique and centralized access point for the Mediterranean**, the Knowledge Platform will make available contents of several digital formats, accessible in different modalities based on the target audience identified. Available contents will be mainly divided into (1) qualitative contents (technical report, scientific publication) usually provided under unstructured format such as .doc, .pdf; (2) quantitative data such as tables, statistics and geospatial data provided under structured format as Excel supported format or ESRI shapefile, KMZ/KML in the case of GIS data.

In light of what will emerge from the gap analysis, the set of perspectives and methodological approaches for the implementation of the Knowledge Platform as an operational tool of the MAP Knowledge Management Strategy will be defined.

The Knowledge Platform architecture will be developed on the basis of the baseline scenario and the network of partners involved in the Mediterranean area.

Regardless of the technological solution chosen, the **integrated tripartite model** for the collection, sharing and public dissemination of information and data will be applied.

Dissemination of documents and information material

The dissemination of documents and information material should focus on the creation of an **incubation platform** for the contents produced by the MAP System. The multiplicity of actors operating in the Mediterranean context requires the creation of a special section for the systematic and organized collection of the available documentation.

The MAP Knowledge Management Platform will include a **Knowledge Hub** to facilitate access to the publication heritage of the MAP System and including also other source of environmental information present in the Mediterranean basin.

The creation of the Knowledge Hub must take into account the different types of users of the MAP Barcelona Convention System.

The **Knowledge Hub** documentation will be made accessible by search tools that facilitate interactive navigation of the content including:

- Free search of keywords.
- Filter tools by document type and category (e.g., Governance and Management, Meeting and Events, Projects and Initiatives, Technical and Scientific Documents, News, Awareness Raising and Advocacy, Training and Learning Resources).
- Filter by projects and organizations (UNEP-MAP, INFO/RAC, MED POL, PAP/RAC, Plan Bleu, SCP/RAC, SPA/RAC, etc.)
- Other filter such as: document format, document language, theme, geographic scope (regional, national, local), Countries.

Social Media campaign as support of Knowledge Management Strategy

Social Media could represent an effective communication channel supporting the Knowledge Management Strategy. The Twitter communication strategy must be set on the identification of **keywords** on reports and activities that MAP intends to promote. These keywords will have to compose the **hashtags** to be used as part of the social campaign in order to contextualize and direct the dissemination of content in specific and useful communication channels to fuel the debate on the proposed topic.

For the purposes of the campaign, it is useful to conduct preliminary analysis on the stakeholders to be involved in order to **strengthen the online user networks**. The identification of **stakeholders** is also functional to the activity of sharing social content relevant to the activities, initiatives of the MAP Barcelona Convention System and to a wide dissemination of the contents to institutions and organizations (governmental and non-governmental).

Sharing social content is a strategic activity aimed at creating and strengthening communities of connected users around the topic of environmental management and monitoring. The use of social media is aimed at building a collaborative dialogue on the environmental issue, strengthening relations and collaboration between institutional actors, stakeholders and citizens and creating connections between environmental policy, decision making. The social media strategy aims, first of all, at sharing information of public interest in the environmental field. Secondly, it aims to create connections among institutional actors and between them and the citizenship. Finally, it intends to promote collective actions and cooperation between actors of different roles and nature in the field of environmental management and monitoring. In this vision, INFO/RAC should play a connecting role between the various actors inside and outside the MAP System. In this regard categories of stakeholders will be identified for the composition of the Mediterranean network.

Communication tools

The creation of data visualization dashboards and digital maps responds to the need to facilitate communication and dissemination of content, integrating textual information, multimedia content (images, videos) and statistical infographics to reach a broad and generic audience.

The development of digital products for data visualization responds to the dual need to facilitate the access and understanding of non-expert users (citizens) of complex and specialized issues and to promote the

interactivity of the users themselves. Furthermore, it allows experts to analyze communication patterns and interactions between users and institutions by mapping environmental policy instances with local impact.

Dashboards and digital maps therefore aim at a concise and understandable communication of complex and specialized information. Communicating in a concise and understandable manner through digital visualization tools does not imply the adoption of a simplistic language, but rather the adoption of communication and disclosure rules and protocols for the identification of the salient points of specialist content.

The identification of these points involves:

- The clarification of the strategic objectives of MAP documents and reports highlighting their connections and impacts with local governance actions and the impacts on socio-economic and cultural balances, on collective and individual attitudes. In conclusion, it is essential to make the citizen understood about why a specific scientific study is of public interest and how it can affect personal and collective well-being.
- The adoption of data visualization models for immediate understanding of the results obtained or the data used in the study by combining textual information with multimedia content (images, videos), infographics and interactive and dynamic digital maps.
- The adoption of interactive navigation tools aimed at improving the user experience such as: a) **zoom tools** on digital maps or digital interfaces that allow the user to focus on aspects of specific interest; b) **query tools** for applying filters, activating or deactivating display layers, for loading additional content from users devices or via URL link in order to obtain customized detailed information; c) **interactive consultation tools** such as hyperlinks to external sites or documents.

This last point is particularly useful for the purpose of integrating content and strengthening between partner organizations in the exchange of information and knowledge with citizens, as they direct the user towards complementary and in-depth contents of the strategic mission of INFO/RAC.

Conclusions

Moving within the general context of UNEP, in full synergy with the InforMEA portal and the KMS of the MedProgramme, the **Knowledge Management Strategy** that will be elaborated for UNEP/MAP is aimed at systematizing the Mediterranean Sea knowledge heritage to support governance processes and public awareness. The implementation of the **Knowledge Management Platform** will be the operational tool of the KMS, according to the structure of the tripartite model.

MAP KMS will be work in synergy with **InforMEA**, one of the UN main platforms, integrating into the Knowledge Hub the available documentation related to the Barcelona Convention. InforMEA is the portal to access information on multilateral agreements in the environmental field implemented by United Nations. Contents in this platform are accessible by thematic subdivision and by geographical areas. In addition to agreements, policies and technical contents, InforMEA portal hosts local reports and legislation filtered by geographic area.

At level of Mediterranean basin, synergies with the **MedProgramme Knowledge Management Strategy** are expected in the design of the MAP KMS. Although the approach conceived for the MedProgramme can serve as methodological inspiration for the MAP Strategy, the two approaches differ as one is time-bound and conceived for an extra-budgetary intervention (MedProgramme), while the other one has a much broader scope and mandate, i.e. the MAP system and even beyond. In the next biennium the MAP KM Strategy scope will be detailed as well as the synergy with the MedProgramme.

As Knowledge Management is a “*journey not a destination*”, during the development of this strategy, will be taken into account that knowledge management is an ongoing incremental activity, with continued environmental and procedural improvements.

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