

## The challenge to be sustainable, systemic and synergic: lessons learnt from the Caribbean EBM-DSS.

### El desafío de ser sustentable, sistémico y sinérgico: lecciones aprendidas de la EBM-DSS del Caribe.

### Le défi d'être durable, systémique et synergique: leçons apprises de l'EBM-DSS des Caraïbes.

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#### EXTENDED ABSTRACT

We herein share the main challenges and lessons learnt from the pilot project “Biodiversity for Sustainable Development in the Caribbean through Ecosystem Based Management (EBM)” (Dominican Republic 2015-2019; UN Environment 2021), to provide an example of an EBM approach that led to a project legacy beyond its end. This initiative took place in the framework of a project implemented by United Nations Environment Programme - Caribbean Environment Programme (UNEP/CEP) funded by Italian Agency for Development Cooperation (AICS). To emphasise the essential roles and contributions of all the stakeholders involved, during the conference presentation we further explained the methodology, tools and pilot areas of this project (for details see Attorre *et al.* 2016 and Lysenko *et al.* 2019).

The constructive interdisciplinary collaboration of the Dominican stakeholders during the project’s duration is one of the outcomes that facilitated a process for ongoing communication among people with different expertise and multiple perspectives. The stakeholders were also the key actors for identifying the pertinent indicators and for providing or collecting the data required to feed the EBM application software with all the necessary information (Integrated Spatial Planning (ISP); [http://www.progesconsulting.it/Pages/proges\\_products/proges-isp.aspx](http://www.progesconsulting.it/Pages/proges_products/proges-isp.aspx)). Considering that the EBM-DSS requires substantive specific information ranging from different institutions to a myriad of ecosystem components, the creation of a functional and verified database is imperative. For this reason, the efforts to improve the efficiency of standardized data collection underwent procedures to agree on how to share the data, resulting in written user agreements and inter-sectoral cooperation. The lengthy and often painfully slow process of gathering the necessary information is one of the most common challenges in DSS projects, demanding political and administrative approval and defined protocols for standardization of data. Often, information is either not available in digital format or needs to be extracted from published and unpublished technical reports.

The project further highlighted the importance of disseminating EBM-DSS principles during several national and regional workshops (i.e. Merida, Mexico in 2016 (CERMES 2017); Panama City, Panama in 2017 (UNEP 2018) and one in Saint Marteen in 2020). Exchange of ideas and fruitful discussions gathered at scientific and dedicated events proved effective in securing stakeholder’s ownership needed for EBM-DSS applications. Moreover, a successful EBM-DSS needs to be enhanced through social media, because they are offering several valid alternatives and the chances to reach broad audiences, providing greater dissemination. Nevertheless, for an effective communication, EBM messages should be simple and clear, and utilise local languages looking at having active responses on various stakeholders.

Based on the shared goal to store and manage ecosystems and socio-economic data, a synergy was found between this project and the GEF-funded project *Biodiversidad Costera y Turismo*. This synergy led to the creation of a special EBM-DSS Unit supervised by the Dominican Ministry of Environment and Natural Resources (MARENA), hence guaranteeing project sustainability. The Unit continues to manage and update the EBM-DSS database and software tools thanks to the promotion and nurturing of further synergies with other projects in the country by MARENA. This could be considered a good example of integration of the available resources, including those from other projects with similar objectives, to achieve their priority actions.

The lessons learnt and experiences obtained from this Caribbean project were fundamental in influencing the strategic approach for the ongoing coastal and marine focus area project “Mediterranean Forum For Applied Ecosystem-Based Management” (MED4EBM), funded by the ENI CBC MED Programme (<https://www.enicbcmed.eu/projects/med4ebm>).

MED4EBM is a partnership project and involves Jordan, Italy, Tunisia and Lebanon. The project aims at enhancing capacities of institutional stakeholders involved in the management of coastal and marine areas, and at establishing a collaborative and coordinated platform to effectively implement Ecosystem-Based Integrated Coastal Zone Management (EB-ICZM). EBM-DSS applications deal with complex situations that can be facilitated through functional regional nodes, that share similar cultural and political conditions. Like the Caribbean, the Mediterranean basin is a biodiversity hotspot, undergoing intensive demographic, social, cultural, economic and environmental changes. The challenge to ensure a heterogeneous and well-represented group of stakeholders was especially hard during the current Covid pandemic. The

MED4EBM technical team was obliged to start and continue the EBM-DSS process mainly online, dealing with logistic issues and by overcoming obstacles to successfully coordinate the workshops from distance. In some cases, the lack of informatic support and weak internet connections risked jeopardising the outcomes. The constructive and constant communication among the national partners on the one hand, and the partners with their own local stakeholders on the other, gave us the opportunity to find very flexible solutions, tailored to the different requests from the partners, their team and stakeholders. During each MED4EBM EBM workshop, the main aspects that were challenging during the Dominican project, such as gathering standardized and robust data from several sources and institutions were introduced and explained to all partners and stakeholders, gently suggesting and hinting at the most appropriate strategies in order to early prevent any delay in achieving the project's targets right from an early stage. Moreover, in order to have only one repository for data and metadata, the data enter is now performed using a new technological tool, that is working in tandem with the Integrated Spatial Planning Software.

One of the targets of MED4EBM is to capitalise the EB-ICZM results creating the Mediterranean Centre for disseminating EBM tools and methods, a platform that promotes synergy and linkages between projects and the competent management bodies in the field of coastal and marine ecosystem resources. Moreover, the project took part in the 2020 Forum of Marine Protected Areas in the Mediterranean ([https://medpan.org/main\\_activities/mpa-forum/](https://medpan.org/main_activities/mpa-forum/)). This forum aimed to contribute to the finalisation of the Post-2020 Roadmap for Mediterranean Marine Protected Areas. MED4EBM was keen to give its contribution and, at the same time, inform the participants of the opportunity of the centre for dissemination of the EBM approach.

In conclusion, EBM-DSS applications deal with complex situations that can be facilitated through functional regional nodes, that share similar cultural and political conditions. By working together, the active stakeholders can disseminate successful experiences and confront common challenges, thus replicating and upscaling proper management regimes within and beyond national boundaries.

**KEYWORDS:** EBM-DSS, Natural resources, Sustainable development, Synergies, Networking

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