



LARGE MARINE ECOSYSTEMS

DATA AND INFORMATION MANAGEMENT GUIDELINES FOR GEF LME PROJECTS

*To ensure sustainability of spatial and
other project data and information in GEF
LME projects*



*Empowered lives.
Resilient nations.*



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Cover image by Virginie Hart

www.iwlearn.net/marine

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LIST OF ACRONYMS

ABNJ	Areas beyond National Jurisdiction	IUCN	International Union for Conservation of Nature
AfDB	African Development Bank	IW	International Waters
ADB	Asian Development Bank	IWC	GEF International Waters Conference
ASCLME	Agulhas and Somali Currents Large Marine Ecosystems Project	IW:LEARN	International Waters Learning Exchange and Resource Network
CAF	Development Bank of Latin America	IWRM	Integrated Water Resource Management
CI	Conservation International	LME	Large Marine Ecosystem
CMLE	Caribbean and North Brazil Shelf Large Marine Ecosystems	LME:LEARN	Large Marine Ecosystems Learning Exchange and Resource Network
CBD	Convention on Biological Diversity	MPA	Marine Protected Area
DIM WG	LME:LEARN Data and Information Working Group	MSP	Marine Spatial Planning
EIA	Environmental Impact Assessment	NOAA	U.S. National Oceanic and Atmospheric Administration
EBRD	European Bank for Reconstruction and Development	OECD	Organization for Economic Co-operation and Development
FAO	Food and Agricultural Organization of the United Nations	PIF	Project Identification Form
GEF	Global Environment Facility	SAP	Strategic Action Programme
GOOS	Global Ocean Observing System	SDG	Sustainable Development Goal
GIS	Geographic Information System	SEIS	Shared Environmental Information System
HELCOM	Baltic Marine Environment Protection Commission - Helsinki Commission	STAP	Scientific and Technical Advisory Panel
IADB	Inter-American Development Bank	TDA	Transboundary Diagnostic Analysis
ICPDR	The International Commission for the Protection of the Danube River	TWAP	Transboundary Waters Assessment Programme
ICZM	Integrated Coastal Zone Management	UN	United Nations
IFAD	International Fund for Agricultural Development	UNDP	United Nations Development Programme
IOC-UNESCO	Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization	UNEP	United Nations Environment Programme
		UNIDO	United Nations Industrial Development Organization
		WB	World Bank
		WCMC	UN Environment World Conservation Monitoring Centre
		WWF	World Wildlife Fund



SUMMARY OF PRIORITY ACTIONS

The LME:LEARN Data and Information Working Group (DIM WG) developed three complimentary reports in support of ensuring a more harmonised and strengthened approach towards data and information management in Large Marine Ecosystem (LME) projects supported by the GEF:

- I. **Data and Information from the GEF Large Marine Ecosystem Portfolio - Metadata catalogue of available GEF marine project data and information.** This is a review and compilation of GEF LME project web-sites, tools and reports in relation to data and information management, as well as other key LME partners data and information web-sites.
- II. **Data and Information Management Guidelines for GEF LME Projects -To ensure sustainability of spatial and other project data and information in GEF LME projects.** These guidelines present overall recommendations for GEF LME projects to consider to ensure a more integrated and comparable approach to data and information management across the IW LME portfolio. It also will include tools and best practices from GEF LME projects and other international and regional organizations that can be applied and adapted within LME projects, and supports the implementation of the recommendations presented in the Data and Information Management Guidelines for GEF LME projects
- III. **Identifying Common LME Indicators - Towards common reporting and comparability between LMEs.** Given the common issues that the majority of the LME projects address and also the increasing need to align reporting between regions and the Sustainable Development Goals (SDGs), this presents an overview of current indicator systems and proposes a series of common indicators that can be considered by LME's for future reporting of key targets and Strategic Action Programs (SAPs).

The Data and Information Management Guidelines for GEF LME Projects details the objectives, outputs and actions recommended (see [Figure 1](#)) and the key priority actions for LME projects which can be summarized as follows:

OBJECTIVE A: Ensure a systematic approach to make available project information online and on the IW:LEARN web-site, including reports, assessments, lessons learned and experience notes, as well as communication products such as videos, newsletters/items, MOOCs etc.

- ✓ Make available online key documents (TDA, SAP, SAP implementation reports, assessments) and ensure they are also provided to IW:LEARN along with Experience and Results notes on a regular basis, at the minimum once a year prior to the Annual LME Consultative Meeting (Outputs 2 and 3);

OBJECTIVE B: To strengthen project data management and make available information regarding the sources of data used for TDA/SAPs, assessments and overall monitoring of the LME, including agreed indicators.

- ✓ Ensure a more strategic approach to data management, including identifying and making available national, regional and global data used in project activities, and data generated through the support of the project (Output 4 and 6), including integration of data into national/regional data platforms as appropriate (Output 9);
- ✓ Ensure a regular quantitative reporting of SAP target implementation, using agreed indicators and tracking tools in line with relevant SDGs (Outputs 7 and 9);
- ✓ Establish data working groups with national and regional experts and institutions, to also coordinate and define how each can contribute to regional state of environment type assessments and SDG 14 reporting, through support to VNR reports but also to joint regional assessments (Output 5 and 6);

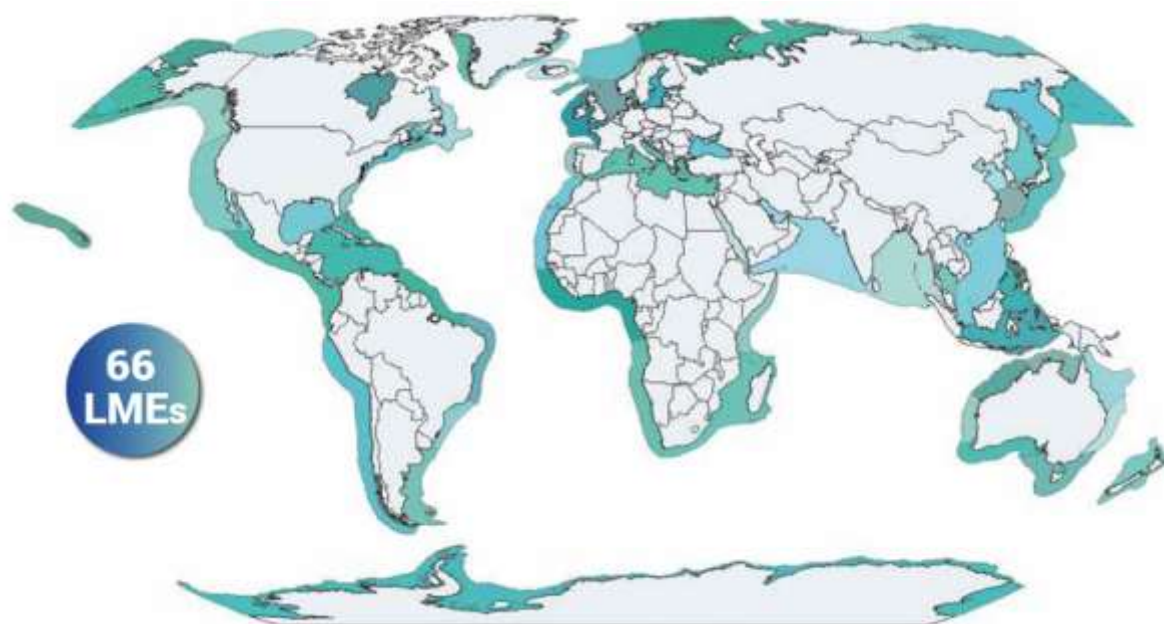
RECOMMENDED NEXT STEPS

- i. LME:LEARN and the DIM WG to continue to support LME projects through the exchange of best-practices and tools on data management (building upon the 1st [DIM Working Group Meeting and Training](#), July 2019), through sharing and exchanges between projects as well as information and training on global data and information initiatives and tools;
- ii. LME projects to assess data availability on the common indicators (see “Identifying Common LME Indicators” report) and to integrate the agreed common indicators as appropriate into their project, SAP and state of environment reporting;
- iii. LME projects to integrate DIM guidelines into project implementation and workplans, and in particular to coordinate closely with all key stakeholders to ensure common and if possible joint approaches to data management and reporting within the region; and
- iv. LME’s to report to LME:LEARN and IW:LEARN on progress and challenges to implement the DIM guidelines and integrate common indicators, and specify needs for additional support.

1. INTRODUCTION

Large Marine Ecosystems (LMEs) are relatively large areas of ocean space of about 200,000 km² or more, adjacent to the continents in coastal waters and extending out seaward to the break or slope of the continental shelf or out to the seaward extent of a well-defined current system along coasts lacking continental shelves. The 66 LMEs were identified by the [US National Oceanic and Atmospheric Administration \(NOAA\)](#) to identify areas of the oceans for conservation purposes and the [Global Environment Facility \(GEF\)](#) has been the main donor supporting countries to improve the management of their LMEs. In the last 20-25 years, since its creation, GEF has provided direct funding in the order of US\$ 800 million to support this ecosystem-based management process globally (including the Ecosystem Approach to Fisheries) through close to 100 projects, many of them sequential to the TDA-SAP and SAP implementation process. Information on the GEF LME related projects, along with guidance, tools and best-practices can be accessed through the [LME:LEARN](#) and [IW:LEARN](#) project web-sites.

Map of the 66 LMEs, from LME-Learn LMEs and the Sustainable Development Goals brochure



LME:LEARN is a GEF-UNDP-UNESCO-IOC project designed to improve global ecosystem-based governance of Large Marine Ecosystems and their coasts. This is achieved by generating knowledge, building capacity, harnessing public and private partners and supporting south-to-south learning and north-to-south learning.

In order to guide and support the data sharing and integration work that will result in improved availability and accessibility of consistent data and indicators on large marine ecosystems (as well as integrated coastal management and marine protected areas) in a meaningful way for use by LME:LEARN stakeholders and the wider public, the LME:LEARN project supports the **Data and Information Working Group (DIM WG)**. The DIM WG was established as an informal body to guide the process with a clear mandate to create learning exchanges on data and information management tools to be used by the LME community of practitioners. The expected outcome of the DIM WG includes more harmonious data and information management across LMEs, as well as improved capacity of projects to report progress and results across for example, Strategic Action Program implementation as well as SDG targets.

This work builds upon the past DIM meetings and is in line with analysis and recommendations from the IW:Science project and the GEF Scientific and Technical Advisory Panel (GEF STAP). The [Enhancing the Use of Science in International Waters Projects to Improve Project Results](#) (IW:Science) project (GEF ID 3343) provided a number of recommendations to enhance the use of science in GEF projects (Mee, 2012), several of which are relevant to the work of the DIM WG including:

- Recommendation 1: All GEF IW projects should incorporate a scientific evidence panel (SEP) that includes local scientists, ensures data or metadata archiving and produces a separate summary report of the science used in the intervention;
- Recommendation 2: During the preparation of the project proposal, a gap analysis should be undertaken to identify likely limitations in the scientific information to support project implementation. A strategy for bridging the gaps should be proposed and financial support for this should be part of final project design. Targeted research is a legitimate approach for bridging identified gaps;
- Recommendation 6: Greater attention should be paid to improve the storage and dissemination of the scientific data from GEF projects in order to make it more accessible for further analysis. This should not be limited to standard project reports but should provide an access route to the data and information that underpins them.

More recently, in order to strengthen knowledge management throughout the GEF portfolio of projects, the Scientific and Technical Advisory Panel (STAP) published the *“Managing knowledge for a sustainable future”* Report (Stocking, 2018), which identified the need to strengthen knowledge management in order to maximise global environmental benefits, and deliver transformational change at scale that requires the GEF to ensure that it makes full and effective use of what it already knows and has learned from its previous investments. It identified a number of recommendations including the need to mainstream knowledge management systematically into the GEF project cycle from the PIF stage onward.



2. THE ROLE OF DATA AND INFORMATION WITHIN GEF LME PROJECTS

Data and information play a crucial role in LME projects. Firstly, they are the foundation of the Transboundary Diagnostic Analysis (TDA), developed for many of the LMEs, which assess the current status of environmental issues, causes, sources and impacts. Many regions have developed additional assessments on the status of their LMEs, including State of Environment reports, thematic assessments (with regards to pollution, biodiversity, fisheries, and also considering climate change and socio-economic aspects) as well as national and local level environmental impact assessments etc. Data and information also functions as an on-going component of the development and assessment of management policies, strategies and interventions; it promotes new legislative and policy initiatives for sustainable resource management and pollution prevention; and it facilitates improved enforcement, decision-making and individual action.

The data and information from the GEF Large Marine Ecosystem portfolio contained in the catalogue of project data and information covering over 100 past and present projects in 24 LMEs (GEF LME:LEARN, 2019) also includes the main data and GIS platforms within each LME not supported through the GEF projects. This includes:

- Project web-sites, information portals and document repositories;
- TDAs and assessments;
- Marine and coastal related databases; and
- Online geographic information systems (GIS).

The objective of these LME projects is to increase the understanding of the marine ecosystem from an environmental and socioeconomic aspect as well as the impacts of human activities on these ecosystems, in order to develop effective, efficient and sustainable ecosystem-based management options for the preservation or remediation of impacted areas. Sustainable development and the relationship between healthy ecosystems and human well-being is a core part of these projects and there are strong linkages with many of the Sustainable Development Goals (SDGs) adopted in 2030 Agenda for Sustainable Development in 2015, which in particular (but not limited to) include:

- Goal 1. End poverty in all its forms everywhere;
- Goal 3. Ensure healthy lives and promote well-being for all at all ages;
- Goal 6. Ensure availability and sustainable management of water and sanitation for all;
- Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;

- Goal 12. Ensure sustainable consumption and production patterns;
- Goal 13. Take urgent action to combat climate change and its impacts;
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development; and
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

UNDP reviewed the relationship between the SDG targets and the Transboundary Diagnostic Analysis (TDA) and Strategic Action Programmes (SAPs) developed in many of the LMEs in the 2017 report (UNDP, 2017). It is noted that data and information gathered through the projects should provide an important contribution to the reporting of the SDG targets, in particular regarding the regional aspects of SDG 14.





3. ACTION PLAN TOWARDS A MORE COORDINATED AND SUSTAINABLE MANAGEMENT OF PROJECT DATA AND INFORMATION

LME projects have taken a number of different approaches to data and information gathering and management. In some cases, this includes: (i) data gathering and monitoring (i.e. FAO Nansen fisheries surveys, support to national monitoring and socio-economic evaluations), (ii) using existing data and information through cooperation with national and regional institutions, or (iii) global databases to fill in gaps, or a combination of all three as appropriate. The approach used depends on the objectives of the project, funds available for data and information gathering and major gaps in data available, and is more than often developed during project development phase and inception phase of the project.

Given the wealth of information and assessments produced over the years by the LME projects, it is recognized that a more coordinated effort is needed for the sustainable management of this data and information, to provide a baseline for future actions at the regional level, but also to enable greater comparability and exchange between regions as well as their contribution to the reporting and implementation of SDG targets and indicators. Overall, it is recommended for:

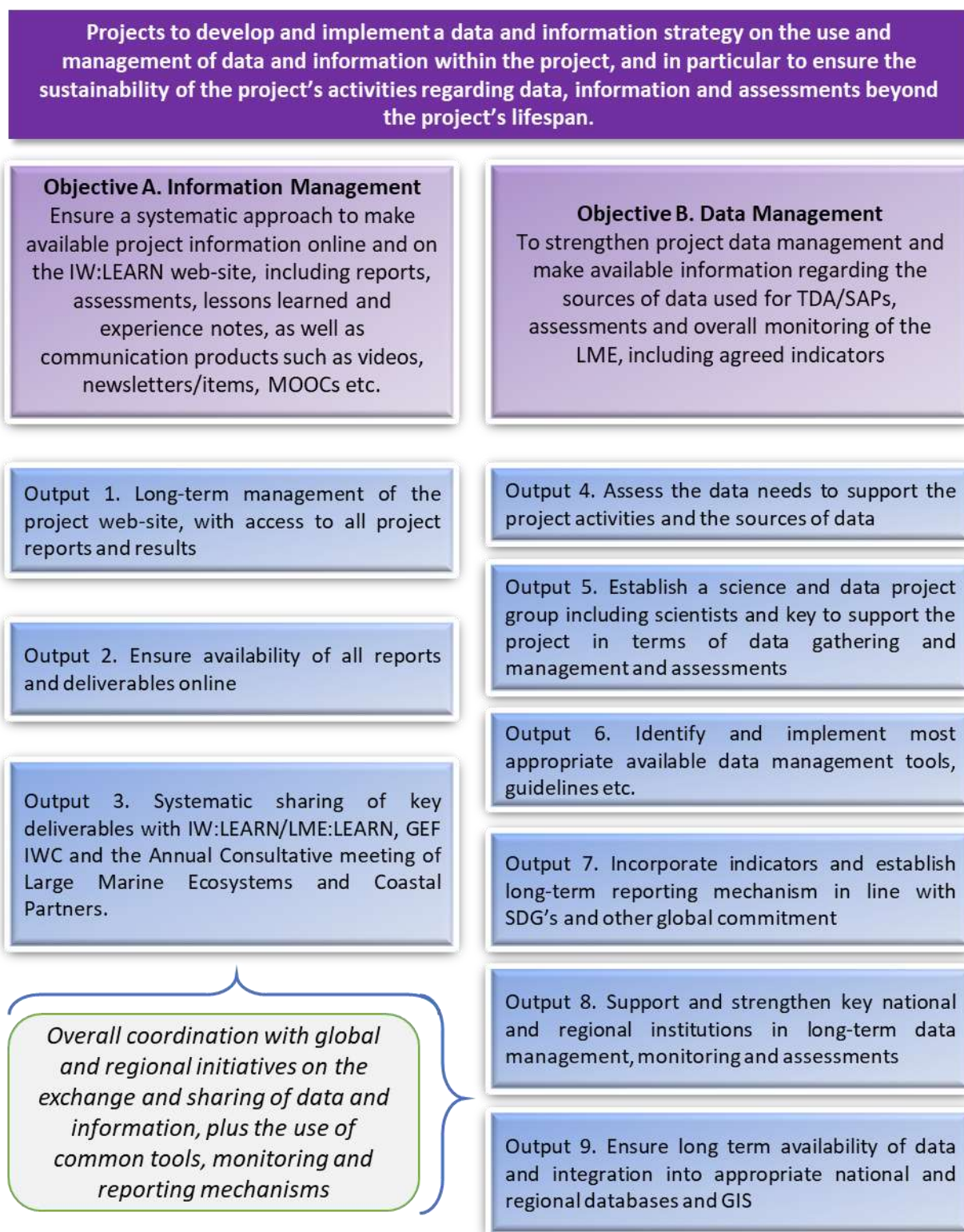
Projects to develop and implement a data and information strategy on the use and management of data and information within the project, and in particular to ensure the sustainability of the project's activities regarding data, information and assessments beyond the project's lifespan.

The data and information strategy should address the issues of information and data management separately to achieve the following two objectives:

- **OBJECTIVE A:** Ensure a systematic approach to make available project information online and on the IW:LEARN web-site, including reports, assessments, lessons learned and experience notes, as well as communication products such as videos, newsletters/items, MOOCs etc.
- **OBJECTIVE B:** To strengthen project data management and make available information regarding the sources of data used for TDA/SAPs, assessments and overall monitoring of the LME, including agreed indicators.

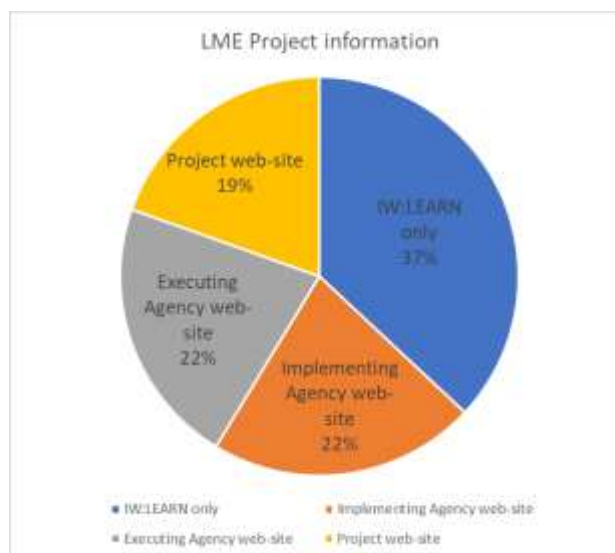
Figure 1 presents the overall objectives and outputs of the DIM Management Plan.

Figure 1. Objectives and Outputs of the DIM Management Plan



3.1 OBJECTIVE A. Ensuring availability of information and reports in LME projects

Of the GEF LME projects reviewed, approximately 63% have either their own self-standing project web-site, or they are affiliated with the regional executing organization or UN agency. Of the remaining 37%, in many cases project web-sites have closed or links no longer work, and project results and reports (if available) can be found on other partners' web-sites and in particular on the IW:LEARN website. For a number of past projects, especially where web-sites have not been maintained following project closure, the main repository for information and documentation is the IW:LEARN web-site.



In the last 20-25 years, since its creation, GEF has provided direct funding to support this ecosystem-based management process globally (including the Ecosystem Approach to Fisheries) through a total of about 100 projects, which have resulted in thousands of important reports, strategies and plans, EIAs, maps, assessments, training etc., as well as communication tools such as films, storybooks, newsletters and lessons learned publications.

LME projects should therefore consider as part of their **data and information strategy**, to include achievement of the following outputs (as appropriate) to ensure long-term availability of project information:

- OUTPUT 1. Ensure Long-term management of the project web-site, with access to all project reports and results;
- OUTPUT 2. Ensure availability of all reports and deliverables online; and
- OUTPUT 3. Systematic sharing of key deliverables with IW:LEARN/LME:LEARN, GEF IWC and the Annual Consultative meeting of Large Marine Ecosystems and Coastal Partners.

OUTPUT 1. Ensure the long-term management of the project web-site, with access to all project reports and results.

Recommendations:

- a) Project web-sites based on GEF IW:LEARN web-site guidelines, and taking into account good examples of project web-sites (see [Table 1](#)); and
- b) Project web-sites should be designed with long-term sustainability in mind. Either to be developed within Executing or Implementing Agency web-site, or if self-standing they should include plan for their long-term maintenance following project closure, and archiving on the IW:LEARN web-site archive.

Good Practices and Tools

Project web-sites should be developed with the aim to be sustainable beyond the life-span of the project, and reports, results and data/information will continue to be made available. In recent years many project web-sites have closed, and whilst IW:LEARN ensures a back-up of many of these sites, the information is no longer updated. Therefore, if project web-sites are self-standing, then there should be agreement on who will maintain the web-site after project closure. Alternatively these projects should cooperate with IW:LEARN to ensure their project web site is archived on the IW:LEARN web-site archive (<http://archive.iwlearn.net/>). Ideally, project information should be part of an appropriate executing partner's web-site that will be responsible for the long-term management of reports and data, or with the Implementation Agency's web site to ensure sustainability. Also whether the project web-site is developed as a self-standing web-site or integrated into the Executing/Implementing Agency web-site, GEF mandates establishment of a project website in accordance with the [GEF IW:LEARN Website Guidelines](#), that would need to be considered.

A typical project web-site should include the following sections:

- ✓ Background: About the project, objectives, outputs etc, management and coordination structure, Steering Committee and any other bodies;
- ✓ Key activities, demonstrations, results and achievements;
- ✓ News and media;
- ✓ Reports, documents and assessments etc.; and
- ✓ Useful links to partners web-sites and any other key regional information and project web-sites that complement the project.

A full listing of project web-sites available are compiled in Metadata catalogue of available GEF marine project data and information (GEF LME:LEARN, 2019b) and below in [Table 1](#) are some examples good regional LME project web-sites. All International Waters Projects can be found on the IW:LEARN website (<https://iwlearn.net/iw-projects>) with links to individual project sites where available and with [archived web-sites](#) for completed projects, and basic information on all projects can be searched in the [GEF web-site](#).

Table 1. Good examples of past and current LME project web-sites

Project Title	Web-site
REGIONAL PROJECTS	
Programme for the Agulhas and Somali Current Large Marine Ecosystems: Agulhas and Somali Current Large Marine Ecosystems Project (ASCLMEs) (GEF ID 1462)	http://www.asclme.org/
Implementation of the Strategic Action Programme (SAP) Toward Achievement of the Integrated Management of the Benguela Current Large Marine Ecosystem (LME) (GEF ID 789)	http://www.benguelacc.org/
Protection of the Canary Current Large Marine Ecosystem (LME) (GEF ID 1909)	http://www.fao.org/in-action/canary-current-lme/en/
Testing a Prototype Caribbean Regional Fund for Wastewater Management (CReW) (GEF ID 3766)	http://www.gefcrew.org/
Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States (IWEco)	http://www.iweco.org/
Catalyzing Implementation of the Strategic Action Programme for the Sustainable Management of Shared Living Marine Resources in the Caribbean and North Brazil Shelf Large Marine Ecosystems (CMLE+) (GEF ID 5542)	https://www.clmeproject.org/
R2R - Testing the Integration of Water, Land, Forest & Coastal Management to Preserve Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods in Pacific Island Countries (GEF ID 5404)	https://www.pacific-r2r.org/
GLOBAL PROJECTS	
Strengthening Global Capacity to Sustain Transboundary Waters: The International Waters Learning Exchange and Resource Network (IW:LEARN)	http://iwlearn.net http://iwlearn.net/visualization http://geonode.iwlearn.org/
Strengthening Global Governance of Large Marine Ecosystems and their Coasts through Enhanced Sharing and Application of LME/ICM/MPA Knowledge and Information Tools (GEF ID 5278)	https://iwlearn.net/marine
A Transboundary Waters Assessment Programme: Aquifers, Lake/Reservoir Basins, River Basins, Large Marine Ecosystems, and Open Ocean to Catalyze Sound Environmental Management (GEF ID 4489)	http://www.geftwap.org/
Promoting Ecosystem-based Approaches to Fisheries Conservation and LMEs (GEF ID 2474)	http://www.seaaroundus.org http://www.seaaroundus.org/books-and-reports/
Common Oceans - A partnership for sustainability in the Areas beyond National Jurisdiction (ABNJ) (GEF ID 4580, 4581, 4660, 4582, 5827)	http://www.fao.org/in-action/commonoceans/en/

Many of the GEF LME project web-sites are integrated into the Implementing or Executing agencies web-sites, including all project information and reports. This ensures in principal the sustainability of project information after the project's completion. **Table 2** presents the main Implementing Agencies for GEF International Waters projects with corresponding web-sites, project databases and resources. The FAO-GEF web-site is a good example which provides clear information on all FAO GEF funded

projects, which can be searched by Focal Area, location, status etc., with project deliverables, project web-site (if relevant), evaluation and other publications, guidelines, tools and approaches. Also UNDP has also developed an innovative “Transparency Portal” with a map of all UNDP projects which can be searched by donor, country/region, SDG and theme.

Table 2. GEF Implementing Agency and links to project databases and resources

Implementing Agency	Web-site
African Development Bank (AfDB)	AfDB GEF Project database Data and Research (GEF and non-GEF) Publications (GEF and non-GEF)
Asian Development Bank (ADB)	Project database (GEF and non-GEF) Knowledge products (GEF) Data Portal (GEF and non-GEF)
Conservation International (CI)	GEF Project Database
Development Bank of Latin America (CAF)	Knowledge products and data (GEF and non-GEF)
European Bank for Reconstruction and Development (EBRD)	Project Database (GEF and non-GEF)
Food and Agriculture Organization of the United Nations (FAO)	GEF Project database GEF Resources (publications, guidelines, tools and approaches)
Inter-American Development Bank (IADB)	Project database (GEF and non-GEF) Data (and indicators), training and reports (GEF and non-GEF)
International Fund for Agricultural Development (IFAD)	Evaluation and Knowledge for GEF and non GEF actions and projects
International Union for Conservation of Nature (IUCN)	GEF Project database and reports
The World Bank Group (WBG)	Project database with maps and reports
United Nations Development Programme (UNDP)	Project database (UNDP Transparency Portal)
United Nations Environment Programme (UNEP)	GEF project resources and publications
United Nations Industrial Development Organization (UNIDO)	Resources and evaluation documents for GEF and non-GEF projects
World Wildlife Fund (WWF-US)	GEF Project database WWF Publications (GEF and non GEF)

Other regional web-sites that can be considered as good examples even though not currently executing GEF LME projects include:

- The [International Commission for the Protection of the Danube River](#) (ICPDR) which includes a list of all projects and produced a significant number of studies supported by the GEF as part of the Developing the [Danube River Basin Pollution Reduction Programme](#) (GEF ID 342), including a Transboundary Analysis report with maps, data and graphics, a Strategic Action Plan for the Danube (1995-2005), a series of maps on land-use, population, hotspots and rivers

and wetlands in addition to water quality model, which are all online. This work was continued following project completion and contributed to the updated 2015 [Danube River Basin Management Plan Update and the Flood Risk Management Plan for the Danube River Basin](#), as well as contribution to the [Danube GIS](#) and [river basin quality database](#).

- The [Baltic Marine Environment Protection Commission - Helsinki Commission \(HELCOM\)](#), which executed the GEF Baltic Sea Regional Project (*GEF ID 922*), completed in 2007. This foundational work has since evolved into a detailed monitoring and assessment program, with assessments ([Baltic Sea Trends reports](#)), [data and maps](#), pollution loads and [development of indicators](#) available online.

OUTPUT 2. Ensure availability of all reports and deliverables online

Recommendations:

- a) All project documents, reports, experience and results notes, communication products etc., should be available online, easily accessible and with clear linkages to project outcomes, and outputs;
- b) Each report or document should have clear citation (year, title, author);
- c) If the project web-site is integrated into the executing or implementing agency web-site, project reports and deliverables should be distinct from other non-project reports and deliverables; and
- d) Projects should consider developing a bibliography of reports and deliverables in line with the projects results framework (example in Box 3), updated yearly and made available online and shared with IW:LEARN.

Good Practices and Tools

Reports, assessments, all deliverables and communication products should be easily accessible online, and where possible according to category of document. Types of reports and deliverables typically developed include:

- TDA and SAP reports;
- Project Identification Form (PIF), Project documents, Request for Project Endorsement, mid-term and final evaluation;
- Assessments (State of Environment, Quality Status, thematic assessments, socioeconomic assessments etc) at regional or national/local levels;
- Training material and guidelines;
- Policy/legislation documents, including review of legislation, regional and national thematic strategies and plans (i.e. ICZM, IWRM, MPAs, fisheries management, pollution from land-based sources) as well as policy briefs, draft legislation etc.;
- Meeting documents;
- Experience and results notes;
- Publications in journals or books;

- Progress and final synthesis reports;
- Communication products including newsletters, videos, presentations, posters, etc.; and
- Other web-based deliverables not in report format (i.e. models, databases, GIS etc.). Several projects have a number of web resources in addition to the main project web-site.

If the project site is part of the executing or implementing agency's web-site, the project deliverables should be distinct from other documents related to the organization. One good example is the **"Developing the Danube River Basin Pollution Reduction Programme"** (GEF ID 342) completed in 2003¹, hosted by the International Commission for the Protection of the Danube River basin (ICPDR).

Given that some full-scale projects produce up to 200 relevant reports on different subjects, it is also useful to present the relationship of reports and other deliverables with the project's results framework, outcomes and outputs. The MedPartnership (GEF ID 2600) completed in 2015, prepared a bibliography in relation to the project's results framework with over 200 reports with links to all reports (see **Box 1**).

Box 1. Extract from the MedPartnership bibliography

Project Objective/Outcome	Indicator/target	Report Title	Country	Activity no	Type	Language	Author	Year	Web links
1.2 Integrated Coastal Zone Management (ICZM) PAP/RAC									
Regional legislation addressing ICZM, as mechanisms to protect the Mediterranean from biodiversity loss and pollution from land based sources.	Analysis and proposal for the harmonization of national legislation with ICZM Protocol (in Croatia)	ICZM Protocol and spatial planning - with special reference to Croatia	CROATIA	1.2.1.2	Report	English	PAP/RAC	2012	http://195.97.36.231/dbases/MAPIlibraryHoldings/Medpartnership/FINAL REPORTS/Sub-Comp 1.2 ICZM/1.2.1 ICZM NAPs and IMF/ICZM Protocol - legal aspects/Legislation Croatia/ICZM Protocol and spatial planning_F.pdf
		Analysis of the Croatian legal framework in relation to the provisions of the Protocol on ICZM in the Mediterranean	CROATIA	1.2.1.2	Report	English	PAP/RAC	2012	http://195.97.36.231/dbases/MAPIlibraryHoldings/Medpartnership/FINAL REPORTS/Sub-Comp 1.2 ICZM/1.2.1 ICZM NAPs and IMF/ICZM Protocol - legal aspects/Legislation Croatia/Analysis of Croatian legal framework_F.pdf
		Assessment of Impacts of the Ratification of the Mediterranean Protocol on ICZM on Croatian Legislation, with a Focus on Article 8	CROATIA	1.2.1.2	Report	English	PAP/RAC	2012	http://195.97.36.231/dbases/MAPIlibraryHoldings/Medpartnership/FINAL REPORTS/Sub-Comp 1.2 ICZM/1.2.1 ICZM NAPs and IMF/ICZM Protocol - legal aspects/Legislation Croatia/Impacts of ICZM Protocol on CRO legislation Art 8_ENG_F.pdf
		Studija procjene učinaka ratifikacije Protokola o integralnom upravljanju obalnim područjima Sredozemlja na hrvatsko zakonodavstvo, kroz odredbu članka 8.	CROATIA	1.2.1.2	Report	Croatian	PAP/RAC	2012	http://195.97.36.231/dbases/MAPIlibraryHoldings/Medpartnership/FINAL REPORTS/Sub-Comp 1.2 ICZM/1.2.1 ICZM NAPs and IMF/ICZM Protocol - legal aspects/Legislation Croatia/Impacts of ICZM Protocol on CRO legislation Art 8_CRO_F.pdf
	At least three countries initiate/ratify the ICZM Protocol	Report of the Regional Workshop on harmonizing the national legal and institutional framework with the ICZM Protocol	REGIONAL	1.2.1.2	Report	English	PAP/RAC	2012	http://195.97.36.231/dbases/MAPIlibraryHoldings/Medpartnership/FINAL REPORTS/Sub-Comp 1.2 ICZM/1.2.1 ICZM NAPs and IMF/ICZM Protocol - legal aspects/Regional Workshop/REGIONAL WORKSHOP REPORT_F.pdf
		PAP/RAC and MedPartnership - together for the implementation of the ICZM Protocol	REGIONAL	1.2.1.2	Paper	English	PAP/RAC	2011	http://195.97.36.231/dbases/MAPIlibraryHoldings/Medpartnership/FINAL REPORTS/Sub-Comp 1.2 ICZM/1.2.1 ICZM NAPs and IMF/ICZM Protocol - legal aspects/PAP RAC_Povh_MedCoast_F.pdf
		A contribution to the interpretation of legal aspects of the Protocol on Integrated Coastal Zone Management in the Mediterranean ¹	REGIONAL	1.2.1.2	Report	English	PAP/RAC	2012	http://195.97.36.231/dbases/MAPIlibraryHoldings/Medpartnership/FINAL REPORTS/Sub-Comp 1.2 ICZM/1.2.1 ICZM NAPs and IMF/ICZM Protocol - legal aspects/Interpretation of legal aspects of ICZM Protocol_ENG_F.pdf
		Une contribution à l'interprétation des aspects juridiques du Protocole sur la gestion intégrée des zones côtières de la Méditerranée ²	REGIONAL	1.2.1.2	Report	French	PAP/RAC	2012	http://195.97.36.231/dbases/MAPIlibraryHoldings/Medpartnership/FINAL REPORTS/Sub-Comp 1.2 ICZM/1.2.1 ICZM NAPs and IMF/ICZM Protocol - legal aspects/Interpretation of legal aspects of ICZM Protocol_FRA_F.pdf
		Installation de zones non-construisibles dans les zones côtières: Rapport explicatif sur l'article 8 - 2 du Protocole GIZC, éléments à prendre en considération ³	REGIONAL	1.2.1.2	Report	French	PAP/RAC	2012	http://195.97.36.231/dbases/MAPIlibraryHoldings/Medpartnership/FINAL REPORTS/Sub-Comp 1.2 ICZM/1.2.1 ICZM NAPs and IMF/ICZM Protocol - legal aspects/Installation de zones non-construisibles - art8-2_F.pdf

¹ <https://www.icpdr.org/main/activities-projects/danube-pollution-reduction-programme>

OUTPUT 3. Ensure systematic sharing of key deliverables with IW:LEARN/LME:LEARN, GEF IWC and the Annual Consultative meeting of Large Marine Ecosystems and Coastal Partners

Recommendations:

Projects to undertake the following on a regular basis, but at least once a year, prior to the Consultation Meeting on Large Marine Ecosystems:

- a) Review of the IW:LEARN web-site project page, to verify that all information is correct and submit any new reports and deliverables as appropriate (see **Box 2**);
- b) For projects in full implementation, prepare a number of relevant experience notes, and if the project is close to completion, overall results notes for submission to IW:LEARN;
- c) Prepare a bibliography of project deliverables in line with the project outcomes/outputs and with links to all online reports/deliverables and submit to IW:LEARN;
- d) Provide any other key links to all project related web data and information resources; and
- e) Projects to contribute to the GEF IW Portfolio Results Archive, a database of project results from ongoing and past GEF IW projects.

In preparation for GEF International Waters Conference (IWC) projects to consider in addition to the above:

- f) In addition to the preparation of communication material and active participation in the IWC, as guided by IW:LEARN, prepare a brief report on the progress towards SAP implementation (if applicable) and the relevant SDG's;
- g) Completion of the Large Marine Ecosystem Scorecard (at the start and towards completion of the project)

There are several support and exchange mechanisms for IW projects. Overall, the [GEF web-site](#) has available GEF Council documents, work programs, publications, project templates and tracking tools, program management bulletins as well as the GEF project database, for all GEF funded projects under the different focal areas (International Waters, Biodiversity, Land Degradation, Chemicals and Waste, Climate Change Mitigation). The IW projects contribute to IW:LEARN and the GEF International Waters Conference (IWC) as a mandatory component of their project documents and nine [International Waters Conferences \(IWC\)](#) have been conducted since 2000 with key background documents and presentations available.

In addition to the IWC, many of the LME projects participate in the “*Annual Consultation Meetings on Large Marine Ecosystems and Coastal Partners*” (previously named Annual Large Marine Ecosystem meetings) which contributes to the development of the LME Partnership by engaging marine, coastal management, biodiversity and coastal climate change adaptation project leaders with the objective of sharing experiences and lessons with respect to ecosystem-based ocean governance and management. The [20th LME Consultative Meeting](#) was held back to back with the IWC9 on the 3-4 November.

Good Practices and Tools

REGULAR REPORTING (recommendations a to d). In order to strengthen project contribution to IW:LEARN, it is therefore suggested that projects undertake a number of actions on a regular basis (see recommendations and **Box 2**) that can be presented and discussed within the yearly Consultation Meeting on Large Marine Ecosystems.

Box 2. Minimum key reports/deliverables to be included on IW:LEARN project sites

- ✓ TDA and SAP reports, along with SAP implementation reports;
- ✓ Project Endorsement, mid-term and final evaluation;
- ✓ Main regional assessments;
- ✓ Strategies/plans developed and adopted (i.e. ICZM, IWRM, MPAs, fisheries management, pollution from land-based sources);
- ✓ Experience and results notes;
- ✓ Annual progress and final synthesis reports;
- ✓ Main communication products including newsletters, video's, etc.
- ✓ Links, if appropriate to project online resources (web-site, databases, GIS etc); and
- ✓ Full updated bibliography with links to all reports.

Projects are expected to produce a number of experience (www.iwlearn.net/experience) and results (www.iwlearn.net/results) notes, that summarize best-practices, challenges and key findings of specific activities that may be of benefit to other projects and regions. The template for the GEF IW Experience Note (<https://iwlearn.net/documents/26874>) can be used or adapted as required. Recent examples are included in **Box 3** and **Box 4**. Almost 100 experience notes and 110 results notes are available online. However, many of the LME projects have not submitted such notes.

It should also be noted that executing agencies and in particular their teams and partners at the national level are often engaged in publishing the results of project results (in particular in relation to scientific and socio-economic assessments and implementation of remediation actions at the national level) in relevant scientific and policy related journals, and these are not always compiled and made available on project web-sites but constitute an important resource. By undertaking the above prior to the yearly LME Consultation meetings, this will provide an opportunity for IW:LEARN and the projects to present and review key project updates, including main reports, experience and results notes and update bibliography, along with other online resources related to data and information.



INTERNATIONAL WATERS EXPERIENCE NOTES

<http://www.iwlearn.net/experience>

2017-10

Stakeholder engagement to develop applications for flood and drought planning



The Flood and Drought Management Tools (FDMT) project provides a decision support system (DSS) in the form of online tools accessed through a portal for transboundary basin organisations and water utilities to better cope with climate variability and the effects of climate change, especially floods and droughts. The Flood and Drought Portal (www.flooddroughtmonitor.com) offers a series of technical applications and a methodology to support existing planning approaches such as transboundary diagnostic analysis (TDA), strategic action programmes (SAP), integrated water resource management (IWRM), and waster safety planning (WSP).

DSSs often suffer from low uptake in practice, as the intended users may not be included in their inception, design and later stages. The FDMT project has employed a user-centered approach in designing, training and awareness-raising activities. The project has worked alongside pilot basin stakeholders from Volta, Lake Victoria and Chao Phraya basins and has sought input from a diverse range of stakeholders in the regions at every development stage.

A combination of engagement strategies have been used including: Face-to-face individual meetings and group meetings; skype follow-up calls; face-to-face trainings and workshops; participatory opportunity mapping for extending engagement and promotion in the region, etc. Developing a targeted engagement strategy with tailored messaging and activating local champions to promote the tools and support resources to a wider audience is key to overcoming the difficulties of stakeholder buy-in; language barriers and future sustainability.

See <https://iwlearn.net/documents/30063>

Box 4. GEF IW Experience note. Integrated Coastal Zone Management in Montenegro

Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem

Together for the Mediterranean Sea

MedPartnership



Experience Note



Photo: Island St Stefan © RLC Montenegro

Integrated Coastal Zone Management Strategy in Montenegro

AT A GLANCE

The Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem (MedPartnership) is a collective effort of leading environmental institutions and organizations together with countries sharing the Mediterranean Sea to address environmental challenges that Mediterranean marine and coastal ecosystems face. The project's 78 demonstration and the promotion and replication of good practices will maximize impact and ensure the sustainability of the project beyond its lifespan.

Total budget: 48 millions USD.
13 million USD: Global Environment Facility
35 million USD: Participating countries, executing agencies, and donors.



ABSTRACT

Preparation of the Integrated Coastal Zone Management (ICZM) Strategy for Montenegro was undertaken in parallel with the preparation of the Coastal Area Spatial Plan, the most important planning document for coastal areas in Montenegro.

Having in mind the fact that the Montenegrin coastline is only 300 km long, but with high pressure from coastal urbanization, as well as that a specific spatial plan for this same coastal zone is being prepared in parallel, the ICZM Strategy for Montenegro was designed to incorporate elements of the management plan as a guide for the preparation and implementation of the Coastal Area Spatial Plan, in line with the requirements of the ICZM Protocol.

Specific recommendations for the plan were based on the results of a vulnerability assessment adapted for use within coastal management strategies and plans. The main recommendations include criteria and guidelines for determining future land uses, the key instruments enabling their implementation, and proposing an appropriate mechanism for coordinated planning and management.

See <https://iwlearn.net/documents/30016>

SAP IMPLEMENTATION AND PROGRESS REPORT (recommendation f). There are currently very few reports available on the progress achieved in implementing SAP targets, for those LME's that are being supported with SAP follow-up projects. This is also due to the lack of resources allocated to the reporting of the agreed-upon indicators included in the SAP, some of which are ambitious or not clearly defined in order to be reported on. One example of a SAP progress report is the [Strategic Action Programme to Address Pollution from Land Based Activities in the Mediterranean region \(SAP-MED\) and National Action Plans' \(NAP\) implementation 2000 – 2015](#) (UNEP/MAP, 2015). The report used data and information from monitoring programmes, reporting and external sources (see **Box 5**).

Box 5. Exert from the Mediterranean SAP evaluation

Table 5. Level of achievement of SAP-MED targets based on 2003, 2008 and 2013 NBB data and E-PRTR 2013 data.

SAP-MED Category	Substance	SAP-MED target	Emission value (kg/year)			Trend 2013 vs 2003 ¹³
			2003	2008	2013 ¹⁴	
Nutrients and suspended solids	BOD5	Reduce 50% inputs of BOD by 2010	●	●	●	
POPs	Aldrin	Phase out inputs of 9 pesticides and PCBs and reduce to the fullest possible extent hexachloro benzene, dioxins and furans by 2010	-	133.1	127.1	-5% ¹⁵
	Dieldrin		-	69.59	124.23	79% ¹⁵
	Endrin		-	0.06	37.97	●
	Heptachlor		-	0.07	92.00	●
	Hexachloro-benzene		0.36	29.57	25.17	>100% ¹⁵
	PCB/PCT		5.2	14.93	7,289.15	>100% ¹⁵
	PCDD/PCDF		5.18	1,037.62	147,195.57	>100%
PAHs	PAH	Phase out to the fullest possible extent inputs of PAHs by 2010	512,331	421,053	12,434	-98%
Heavy metals (Hg, Cd, Pb) and organometallic compounds	Mercury	Phase out to the fullest possible extent discharges and emissions and losses of heavy metals by 2025	1,029,131	612,618	58,671	-94%
	Cadmium		21,057	11,347	38,506	83%
	Lead		1,760,068	1,245,723	342,117	-81%
Other heavy metals	Zinc	Reduce discharges, emissions and losses of zinc, copper and chrome by 2010	7,753,795	3,110,815	851,796	-89%
	Copper		107,641	226,923	10,520,102	>100%
	Chrome		●	8,516,046	1,602,495	-88%

LME SCORECARD (recommendation g). The [Large Marine Ecosystem \(LME\) Management Effectiveness Scorecard](#) provides LME managers and stakeholders with a tool to quickly evaluate management effectiveness to help improve decision making in LME implementation. Once completed by users, the scorecard will provide basic guidance that allow users to prioritize their efforts and determine tools to improve towards management targets. The goal of the scorecard is to provide LME managers and stakeholders with a dynamic approach for assessing their management performance against conservation and sustainable use standards, anchored on ecosystem-based management principles. The tool is tailored to relate with the ecological, governance, and social context of LMEs. The tool can be applied both at national, subnational scales, and at LME level, allowing the tool to provide a regional vision for effective management according to regional and national goals. The scorecard should be completed by the LME manager either with a core set of relevant actors, or with comprehensive group representative of all the stakeholders within the LME area. The application of this tool not only allows LME stakeholders to consolidate a baseline of the current management status of the area and to monitor management effectiveness over time, but also provides a vehicle to strengthen stakeholder engagement and participation to strengthen integrated and effective management of an LME.

B. Strengthening project data management and making available information

Whilst information and data are the foundation for many of the LME projects activities and assessments, there is limited information on the sources of scientific, socio-economic and policy related information and data used as the baseline for reports and deliverables. Projects rely typically on a combination of information and data from the following sources:

- National data from national institutions, universities, ministries and NGOs;
- From partners projects and initiatives within the region;
- National reporting obligations, such as to regional seas conventions; and
- From global databases (FAO, GOOS, etc.).

In addition, certain projects support the generation of new data to address key gaps, which can include support to national monitoring programmes and research cruises (i.e. the Canary Current LME project support to the [EAF-Nansen project](#)), and scientific and socio-economic data gathering in relation to specific activities or demonstrations, such as Environmental Impact Assessments (EIA) or other assessments. Whilst the analysis of such data is fully integrated into TDAs, State of Environment reports and other thematic assessments, as well as socio-economic assessments, it is also important that all meta-data and information gathered throughout the project should be recorded and made available. In order to achieve sustainability, the assessments and data gathered during the LME projects should be fully integrated into long-term regular mechanisms for data and information management such as databases and GISs that are updated beyond the lifespan of the project. In order to strengthen LME project data and information management a number of suggested actions are presented below for consideration as appropriate to each project.

In the design of the project, provision should be given to develop **an information and data management strategy** to be elaborated during the project inception phase. This strategy, depending on the type of project, could consider the including achievement of the following outputs (as appropriate) which are further elaborated below:

- OUTPUT 4. Assess the data needs to support the project activities and the sources of data;
- OUTPUT 5. Establish a science and data project group including scientists and key to support the project in terms of data gathering and management and assessments;
- OUTPUT 6. Identify and implement most appropriate available data management tools, guidelines etc.;
- OUTPUT 7. Incorporate indicators for long-term monitoring and establish a meta-data system for recording all data gathered and generated and make available online;
- OUTPUT 8. Support and strengthen key national and regional institutions in long-term data management, monitoring and assessments;
- OUTPUT 9. Define an approach to ensure long term availability of data and integration into appropriate national and regional databases and GIS

OUTPUT 4. Assess the data needs to support the project activities and the sources of data

Recommendations:

- a) Develop an information and data management strategy, including: (i) an assessment of available data and data needs for implementation of activities; (ii) identify corresponding gaps in data to monitor activities and possible data sources; (iii) Planned activities for the compilation of data through monitoring or through existing databases; and
- b) Identify data sources to be used throughout project implementation from local level monitoring, national, regional and global databases.

Good Practices and Tools

An initial assessment of data needs and sources is required before implementation of activities, and should be compiled whether from publications or reports, or from national institutions data, regional partners, or global databases. Projects should undertake a baseline analysis as part of the project development phase of data needs and sources, which can if needed then further elaborated at the beginning of the project. This is also an opportunity to identify partnerships to address data and information gaps identified. There are numerous databases available at the national, regional and global level that in addition to monitoring undertaken by the project. Projects should ideally utilize national and local data, but where significant gaps are found, and the project cannot fund monitoring, then regional and global databases can be used as appropriate.

GOOD EXAMPLES OF PROJECT DATABASES. A number of regional databases (see **Table 3**) are provided in the Metadata catalogue of available GEF marine project data and information (GEF LME:LEARN, 2019).

Table 3. Some good examples of LME information portals and databases

LME Information/data web-site	Available link
Arctic Monitoring and Assessment Programme (AMAP)	https://www.amap.no/data https://www.amap.no/maps-and-graphics
Baltic Sea - ICES Data Portal, datasets and maps	http://www.ices.dk/marine-data/data-portals/Pages/default.aspx http://www.ices.dk/marine-data/maps/Pages/default.aspx
HELCOM databases and maps	http://www.helcom.fi/baltic-sea-trends http://www.helcom.fi/baltic-sea-trends/data-maps/
Bay of Bengal MPA Atlas	http://boblme.reefbase.org/
Danube River Basin reports and maps Danube GIS and river basin database	https://www.icpdr.org/main/activities-projects/danube-pollution-reduction-programme https://www.danubegis.org/ https://www.icpdr.org/wq-db/
Caribbean and North Brazil Shelf Large Marine Ecosystems (CMLE+) knowledge and data hub Caribbean marine atlas for ICZM and CLME+ CaribNode information system and GIS	https://clmeplus.org/ https://www.caribbeanmarineatlas.net/ http://www.caribnode.org/
Mediterranean ICZM Platform: Capacity building and training, projects and reports and related activities and reports	http://iczmplatform.org/
Pacific Regional Environment Programme (SPREP) data portals and GIS Invasive species Climate change Protected areas and GIS	https://www.sprep.org/resources http://gis.sprep.org/ https://piln.sprep.org/ https://www.pacificclimatechange.net/ https://pipap.sprep.org/
Coral Triangle Initiative reports and Atlas CTI project mapping tool	http://ctatlas.reefbase.org/ http://maptool.regsec-cticff.org/
Pacific island Ridge to Reef	https://www.pacific-r2r.org/

GOOD EXAMPLES OF GLOBAL DATABASES. **Table 4** present some of the global databases available, in some cases with overlapping data.

Table 4. Global databases relevant for LMES

Database	Available link
Oceanographic	
IODE Ocean Data Portal	http://www.oceandataportal.org/
National Oceanic and Atmospheric Administration (NOAA)	https://www.nodc.noaa.gov/
COPERNICUS MARINE Satellite data	http://marine.copernicus.eu/
Fisheries	
FAO fisheries and aquaculture	http://www.fao.org/fishery/statistics/en
Sea Around Us database	http://www.seaaroundus.org
SOCIOECONOMIC	
The Organisation for Economic Co-operation and Development (OECD), which includes data on several sectors including the environment	https://data.oecd.org/
World Bank Database, socioeconomic data	https://datacatalog.worldbank.org/ http://datatopics.worldbank.org/world-development-indicators/
UNDP Human Development	http://hdr.undp.org/en/data
BIODIVERSITY AND GENERAL	
UN Environment World Conservation Monitoring Centre (UNEP WCMC)	http://data.unep-wcmc.org/
• Ocean+ portal	https://oceanplus.org/#/
• Biodiversity Indicators Partnership (BIP),	https://www.bipindicators.net/
UN Biodiversity data	https://www.unbiodiversitylab.org/
The Sustainable Development Goals indicators database	https://unstats-undesa.opendata.arcgis.com/
Our World in Data	https://ourworldindata.org/natural-disasters
UN Environment Situation Room (under development)	http://uneplive.unep.org/wesr/
GIS for biodiversity, climate, pollution and risks	https://wesr.unepgrid.ch?project=wesr-biodiversity https://wesr.unepgrid.ch?project=wesr-climate https://wesr.unepgrid.ch?project=wesr-pollution https://wesr.unepgrid.ch?project=wesr-risk

OUTPUT 5. Establish a science and data project group including scientists and key to support the project in terms of data gathering and management and assessments

Recommendations:

- a) Elaborate the main national and regional partners to coordinate on data sharing and if appropriate establish agreements of cooperation on data and information sharing for the project (and beyond) including joint assessments; and
- b) Establish a science and data project group of leading scientific and socio-economic experts.

In each LME, there are numerous other projects, institutions and organizations (at the national and regional level) engaged in data gathering on the marine and coastal environment, and the project should compile such a list of partners and elaborate the mechanism for data sharing and cooperation as appropriate to the activity. There are many good examples of LME cooperation for the purposes of sharing data and joint assessments, reports and activities, in particular with fisheries bodies and regional scientific organizations. Cooperation should be agreed in concrete terms with agreements on data exchange and joint actions such as monitoring and assessments. Projects should also establish a science and data working group, ideally building upon any such existing groups already established at the regional level (such as Regional Seas science bodies) and also ensuring inclusion of key experts engaged in SDG reporting as appropriate. This group should have a key role in the oversight and guidance for all data gathering, reporting and assessments conducted during the project's duration, as well as ensuring their incorporation into national, regional and global reporting and assessments.

Good Practices and Tools

The majority of LME projects establish partnerships or use existing partnerships for project implementation with regional and national organizations and scientific institutions in support of project implementation. However, as many of the project web-sites have closed following project completion, online information on partnerships and scientific working groups is limited. For example the Canary Current LME "Protection of the Canary Current Large Marine Ecosystem" project establishment of [ad hoc Technical Working Groups](#).

OUTPUT 6. Project data management based on the most appropriate available data management tools, guidelines, etc.

Recommendations:

- a) Identify a full list of appropriate good-practices and tools and elaborate how they will be incorporated into the project's activities;

Each project should identify the most appropriate tools, guidelines and best-practices to be considered, adapted and implemented within the project, building on past projects within the region but also experiences from other regions. This should be done initially in the project preparation phase and then finalized in the project inception phase, in close consultation with project stakeholders and policy makers to ensure resulting tools and data analysis are used for policy reforms.

Good Practices and Tools

There is a wealth of best practices, templates, tools and guidelines developed by LMEs and other relevant projects and initiatives which can provide valuable guidance in the development of future projects, as well as the many other guidelines and best-practices exist through global and regional work on fisheries assessments and management, the SDGs, and assessment of marine biodiversity. However, there is a need to further compile best-practices, tools and guidelines that have been developed either through projects or regional and global organizations. Below are an initial of such good practices and tools in addition to **Table 3** which provides good examples of project databases and **Table 4** examples of global databases.

GUIDELINES AND ONLINE RESOURCES. Some examples include:

- **IW:LEARN** [GEF Transboundary Diagnostic Analysis/Strategic Action Programme Manual](#) (2013/2018 updates) including guidance on how to develop a TDA and SAP;
- **LME:LEARN** [Large Marine Ecosystem \(LME\) Management Effectiveness Scorecard](#) provides LME managers and stakeholders with a tool to quickly evaluate management effectiveness to help improve decision making in LME implementation.
- **IW:LEARN** [Economic Valuation of Wet Ecosystems](#) which provides information on how environmental economic methods can be used to produce information to support decision-making in the context of LME, MPA, ICM, Marine Spatial Planning (MSP) and climate change adaptation.
- **IW:LEARN** [Spatial Lab](#) for sharing geospatial data and maps where projects and partners can upload GIS maps and documents directly and guidance is provided (see [Geonode Toolkit](#));
- **FAO** [Fisheries and Resources Monitoring System \(FIRMS\)](#), provides access to a wide range of high-quality information on the global monitoring and management of fishery marine resources.
- **Regional Seas** [Follow Up and Review of the Sustainable Development Goals \(SDGs\): Conceptual Guidelines](#), which provides an overview, with good examples and practical guidance to enhance the role and contribution of regional seas to the SDG follow-up and review process, in line with UN General Assembly and UNEA resolutions and Global Meetings for the Regional Seas Conventions and Action Plans.
- **UN Environment WCMC** guidelines for [Data use in natural capital assessments - Full Report](#)

TRAINING

- **IOC-UNESCO** [Ocean Teacher](#) which provides courses on various aspects of ocean data and information management etc.

- [FAO E-learning Centre](#) including on Monitoring, Evaluation and Impact Assessment;
- WEBINAR: [Data for Areas Beyond National Jurisdiction](#) (ABNJ)

OUTPUT 7. Incorporate indicators for long-term monitoring and establish a meta-data system for recording all data gathered and generated and make available online

Recommendations:

- Ensure a core set of indicators are monitoring and reported on to support the LME SAPs, SDG's and other key targets;
- An agreed template for the recording of meta-data, (in line with other core reporting i.e. the SDGs) should be developed and should be completed as part of each activity and demonstration where data is gathered or generated, and be made available online and
- Contribute to Regional Assessments.

Good Practices and Tools

The majority of LME's have developed and adopted [Strategic Action Programs](#) including targets and indicators for the monitoring and reporting of SAP implementation and progress towards address key objectives. There is however need in the majority of regions to establish regular monitoring and reporting of SAP and other relevant indicators to the region. Further details on the harmonization of key indicators is conducted by the LME:LEARN DIM working group and available in the Identifying Common LME Indicators report ([GEF LME:LEARN, 2019b](#)).

Meta-data reporting templates should be developed and used as a basis for reporting against agreed indicators. These should be in line with indicators and meta-data reporting used by other regional organizations (such as the Regional Seas) if appropriate. Few examples are currently available online. The Agulhas and Somali Current Large Marine Ecosystems Project (ASCLME) project (*GEF ID 1462*) established a [data and information management plan and recorded meta-data](#) used in the project. More recently the Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States (IWEco) project (*GEF ID 4932*) developed [Field Data sheets](#) for national actions in relation to land degradation and coastal zones. It is key to consider temporal and spatial aspects in reporting, depending on the indicator/parameter being monitored at either the national or local level.

In addition to the projects, there are several examples of meta-data templates and reporting:

- At the global level, the SDG indicators and [meta-data repository](#)
- Wider Caribbean: Coastal water quality monitoring, linked to the 2018 State of the Convention Area Report
- Mediterranean: [Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria \(IMAP\)](#); [Mediterranean Strategy for Sustainable Development](#) reporting;

- Baltic Sea: [HELCOM Monitoring and Assessment Strategy](#) – 2013 (with updates in 2015, 2016, 2017)
- North-East Atlantic: [OSPARs Data and Information Management System](#)

In terms of contribution to **regional assessments**, several Regional Seas have been supported by the GEF in the preparation of [Transboundary Diagnostic Analysis's \(TDA's\)](#) which identify the core issues, impacts and causes of environment issues of transboundary importance in the marine and coastal environment of their corresponding Large Marine Ecosystems (LME's). This includes the South China Sea (2000), Baltic Sea (revised 2003), Mediterranean (revised 2005), Black Sea (revised 2007), Yellow Sea (2007), Western Indian Ocean (2009), Gulf of Mexico (revised 2011), Caribbean (2011) and Russian Arctic (2011). These TDAs were based on existing scientific and socio-economic information and data, which for many regions is limited, and would therefore benefit if revised in the future, from more recent data available at the national, regional and global level.

Other regional assessments recently completed include:

- Caribbean State of Convention Area Report (SOCAR) Report (2019, to be published);
- Pacific State of Environment Report and [toolkit](#) (2017);
- Baltic Sea [Second Holistic Assessment of Ecosystem Health in the Baltic Sea](#) (HOLAS II) (2017);
- Mediterranean [Quality Status Report](#) (2017);
- Northeast Atlantic [Intermediate Assessment](#) (2017);
- West-Indian Ocean [State of the Coast Report](#) (2015);
- Red Sea and Gulf of Aden State of Marine Environment Report (2015); and
- Northwest Pacific [State of the Marine Environment Report](#) (2014).

OUTPUT 8. Identify how the project can contribute and strengthen key national and regional institutions in data management, monitoring and assessments

Recommendations:

- Elaborate how the project will support national and regional organizations/institutions with regards to coordinated monitoring and data gathering and enhanced databases; and
- Ensure close coordination between the project and relevant national and regional organizations/institutions towards a more systematic and comparable reporting of data to fulfil regional and global reporting requirements (SDG's etc).

Good Practices and Tools

In the majority of the GEF supported LMEs, national institutions require additional support in terms of capacity building and financing in order to implement monitoring programmes to assess the marine and coastal environment, produce quality-controlled data on pollution and biodiversity as gathering

socio-economic data. It is becoming increasingly important to ensure that efforts in data gathering are not duplicated and methodologies are comparable, so that data can also contribute to regional and global data reporting requirements, such as the SDGs, CBD, etc. The Global Environmental Outlook (GEO-6) report summarizes the current status of data availability (UNEP, 2019) and future data and knowledge needs (UNEP, 2019b). Therefore, by strengthening coordination between GEF and other projects with regional and national organizations/institutions, projects can be designed to contribute to strengthening the monitoring and data management of key national institutions, with regards to the project but also in line with their national commitments and reporting requirements under regional and global agreements and the SDGs. It can also encourage good practices in terms of the sharing of data within the region (building upon good practices and guidelines), such as the SEIS principles (see Box 6).

Box 6. Shared Environment Information System (SEIS) principles

- Information should be managed as close as possible to its source;
- Information should be collected once, and shared with others for many purposes;
- Information should be readily available to public authorities and enable them to easily fulfil their legal reporting obligations;
- Information should be readily accessible to end-users, primarily public authorities at all levels, to enable them to assess in a timely fashion the state of the environment and the effectiveness of their policies, and to design new policy;
- Information should also be accessible to enable end-users, both public authorities and citizens, to make comparisons at the appropriate geographical scale (e.g. countries, cities, catchments areas) and to participate meaningfully in the development and implementation of environmental policy;
- Information should be fully available to the general public, after due consideration of the

OUTPUT 9. Define an approach to ensure long term availability of data and integration into appropriate national and regional databases and GIS

Recommendations:

- a) Ensure integration of data and information in relevant national/regional platforms that will be sustainable beyond the project's duration;
- b) Upload GIS data to the GEF IW project spatial data (<http://geonode.iwlearn.org/>);
- c) Ensure the project contributes to a long-term monitoring and reporting of SAP targets and SDGs and if required update SAP targets and indicators to be closely aligned with the relevant SDGs as well as other global reporting requirement.

Good Practices and Tools

An approach should be defined to ensure long term availability of data and integration into appropriate national and regional databases and GIS with the view to ensuring integration and longer-

term monitoring and reporting, including Convention and SDG reporting, regional platforms etc. and, if required, establish agreements of cooperation on data management. Examples of LME related databases and GIS are provided in the DIM metadata catalogue (GEF LME:LEARN, 2019), many of which have been supported through the GEF. In recent years many online databases and GIS have been developed, and there is increasing a concern of duplication between these platforms, coupled with platforms that are no longer updated when project or other resources end. It is therefore essential that projects assess the most sustainable, efficient and effective online storage of data and GIS, and also considering how the data generated by the project may be in line and contribute to national reporting obligations related to the marine and coastal environment (Regional Conventions, CBD, SDGs etc.).

IW:LEARN has developed a geonode/spatial data portal in order to centralize GEF IW project spatial data (<http://geonode.iwlearn.org/>). Projects are encouraged to register and contribute their spatial data (based on the [guidance provided](#)). Projects should identify spatial data for inclusion in the geonode.

Within each LME, numerous strategies and action plans have been developed with objectives, targets and indicators for the purpose of assessing implementation and also for the regular assessing of the state of the environment. Whilst many of the LME have adopted Strategic Action Programmes (SAPs), there a relatively few examples of regular progress reports on implementation including the monitoring of indicators. LME projects as well as supporting implementation of SAP and other strategic priorities, should support those regional organizations responsible for implementation in the regular reporting of targets and indicators. Consideration should be given to ensure that project information and assessments can contribute to regular reporting on SAP and other strategic documents' implementation and that the project contributes to the long-term monitoring of reporting of core SAP targets and indicators, as well as the SDGs. For this purpose, SAP indicators may need further revision and alignment with the SDGs and other global reporting obligations.

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Annex 1. Suggested next steps to enhance data and information management across LMEs

Each LME to establish a coordination mechanism with relevant partners and regional organizations (based on existing partnerships) in order to ensure a more integrated regional approach to data and information management at the regional level, including:

- ✓ To agree on the key actions to implement the recommendations of the “Data and Information Guidelines for GEF LME projects”, as well as gaps and needs for additional strengthening of data and information management in the future;
- ✓ To include data and information management in the agenda of relevant regional meetings, with regards to data sharing and coordination, in alignment with global commitments including the SDGs, and to include the identification and training on best practices and tools (both regional and global) on data management;
- ✓ To establish partnerships with other LMEs for the exchange of best practices in data and information management, especially in relation to methodologies for the development of state of environment and other assessment reports;
- ✓ To review the “Identifying Common LME Indicators” and based on their current indicator frameworks in the region, and undertake a mapping for each of the 24 Core Indicators, the status of data available, the steps to ensure regular reporting in partnerships with other relevant organizations as appropriate, and the actions to align indicators and reporting between SAPs and other regional key strategies (as appropriate) towards a more systematic and integrated reporting (including state of environment reporting) in line with global obligations and the SDGs;

LME:LEARN and IW:LEARN to follow up with LME’s on the implementation of the “Data and Information Guidelines for GEF LME projects” and “Identifying Common LME Indicators”, including:

- ✓ To coordinate with LMEs on the status of actions implemented on data and information management, and provide regular updates;
- ✓ Coordinate future DIM meetings and trainings between LMEs with the view to move towards more comparable approaches to data and information management and reporting across LME’s and common approaches to state of environment reporting, which could lead to more quantifiable global assessments of LMEs.
- ✓ Based on identified common issues and gaps, develop targeted activities to further support LME’s in data and information management. Possible activities may be considered include:
 - Support to LMEs to undertake regional coordination and training on data and information management;
 - Support twinning activities and exchanges between LMEs on various aspects of data and information management (such as state of environment reporting and the development of monitoring and reporting mechanisms);
 - Report on the status of indicator monitoring and reporting within LME’s;
 - Development of an online indicator toolbox based on the “Identifying Common LME Indicators” including methodologies and sources of data;

- Updated report on best practices and tools on data and information management, building upon the experiences of regional and international organizations and make available to all LMEs;
- Initiate possible cooperation with key regional and global organizations to support LME's in data and data-base management, reporting and assessments (i.e. UNEP GRID, UNEP-WCMC, FAO, IOC-UNESCO etc.);
- Update contents of "Data and Information from The GEF Large Marine Ecosystem Portfolio - Metadata catalogue of available GEF marine project data and information" report on a regular basis (such as every 2 years);