

Large Marine Ecosystems & Sustainable Development

A review of Strategic Management Processes and Goals



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Large Marine Ecosystems and Sustainable Development: A review of Strategic Management Processes and Goals

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Large Marine Ecosystems and Sustainable Development: A review of Strategic Management Processes and Goals

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LARGE MARINE ECOSYSTEMS SUSTAINABLE DEVELOPMENT &

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Acronyms and Abbreviations

CBA	Cost-benefit Analysis	IUU	Illegal, Unreported or Unregulated (Fisheries)	UNEP	United Nations Environment Programme
CCA	Causal Chain Analysis	IW:LEARN	International Waters: Learning Exchange and Resource Network	SAP	Strategic Action Programme
EAF	Ecosystem Approach to Fisheries	LDC	Least Developed Country	SDG	Sustainable Development Goal(s)
EIA	Environmental Impact Assessment	LME	Large Marine Ecosystem	SIDS	Small Island Developing States
EBM	Ecosystem-Based Management	LMR	Living Marine Resources	SEA	Strategic Environmental Assessment
EBSA	Ecologically or Biologically Significant Area	MARPOL	Marine Pollution Convention	UNCLOS	United Nations Convention on the Law of the Sea
EEZ	Exclusive Economic Zone	MEDA	Marine Ecosystem Diagnostic Analysis	UNESCO	United Nations Educational, Scientific and Cultural Organisation
EQO	Ecosystem Quality Objective	MoU	Memorandum of Understanding	VCA	Value Chain Analysis
FAO	Food and Agriculture Organisation (of the United Nations)	MPA	Marine Protected Area	WIOSEA	Western Indian Ocean Sustainable Ecosystem Alliance
GEF	Global Environment Facility	MSP	Marine Spatial Planning		
GIS	Geographic Information System	NAP	National Action Plan		
ICM	Integrated Coastal Management	PEMSEA	Partnerships in Environmental Management for the Seas of East Asia		
		TDA	Transboundary Diagnostic Analysis		





EXECUTIVE SUMMARY

The Transboundary Diagnostic Analysis and Strategic Action Programme development approach for the management of Large Marine Ecosystems is consistently used to develop management strategies for the Large Marine Ecosystems.

The two primary objectives of this report were 1) to review the TDA-SAP Process and identify the common issues, threats, causes and barriers and how each of the LMEs are addressing these through the SAP implementation process, and 2) based on this synopsis and 'round-up' of TDA SAP

delivery, identify the linkages between the TDA-SAP processes and the SDG 14 Targets.

This report has reviewed this assessment and management process in 24 of the world's LMEs through 18 GEF-funded projects and initiatives. It concludes that the TDA and the SAP process are 'fit-for-purpose' and have evolved good practices and implementation objectives after two decades of trial and improvements. There are some important areas which could be improved however and these are

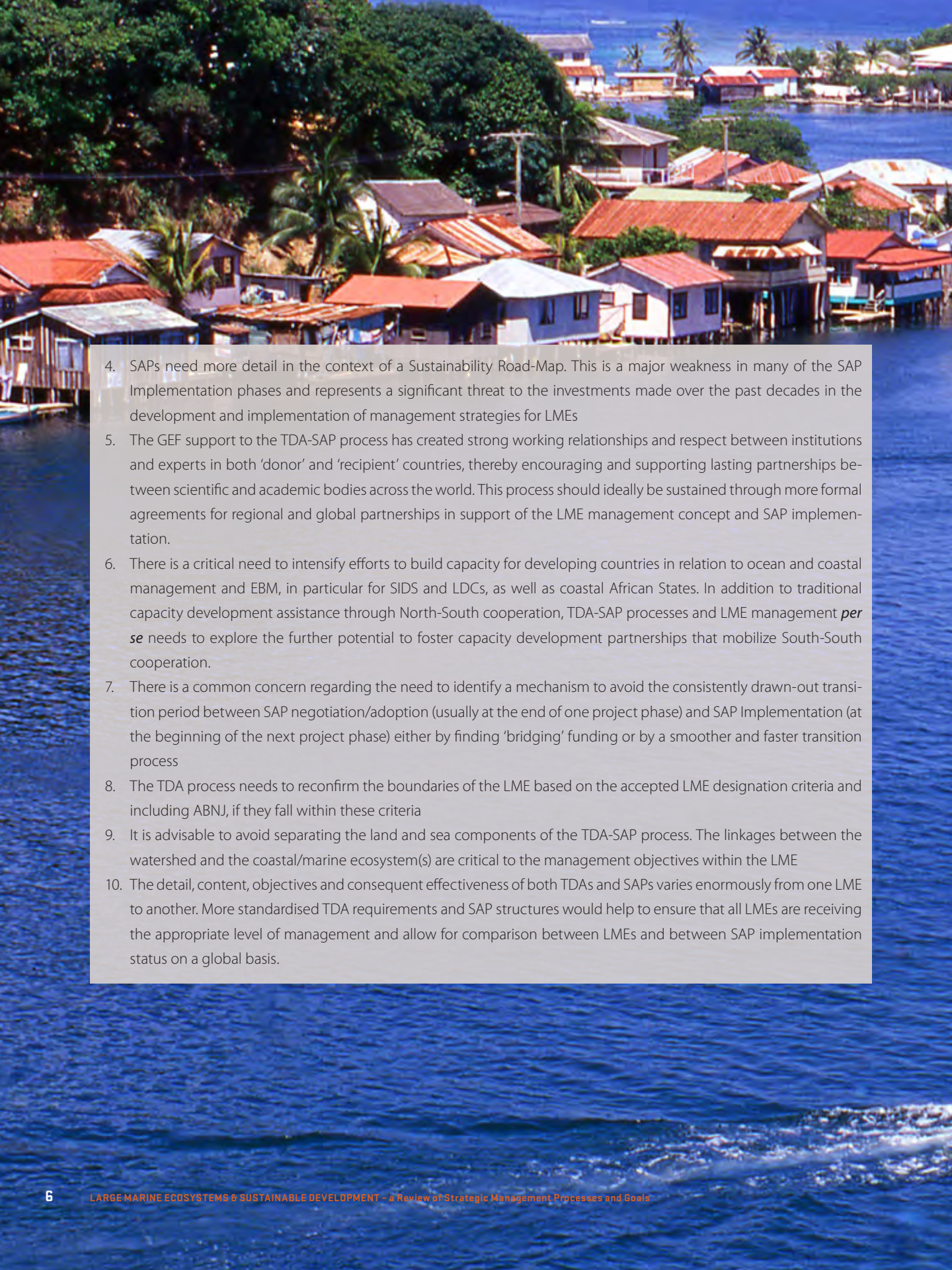
captured under a set of Recommendations that address this need.

The review has then looked in detail at the interlinkages between the LME SAP process and objectives and those of the SDG 14 and other SDGs. It confirms that there is **an intrinsic alignment between the two processes** and that the **TDA-SAP processes and SAP Implementation will inevitably and significantly assist with the delivery on most, if not all, of the SDG 14 Targets and Indicators** and, indeed on many of the other SDG Targets.

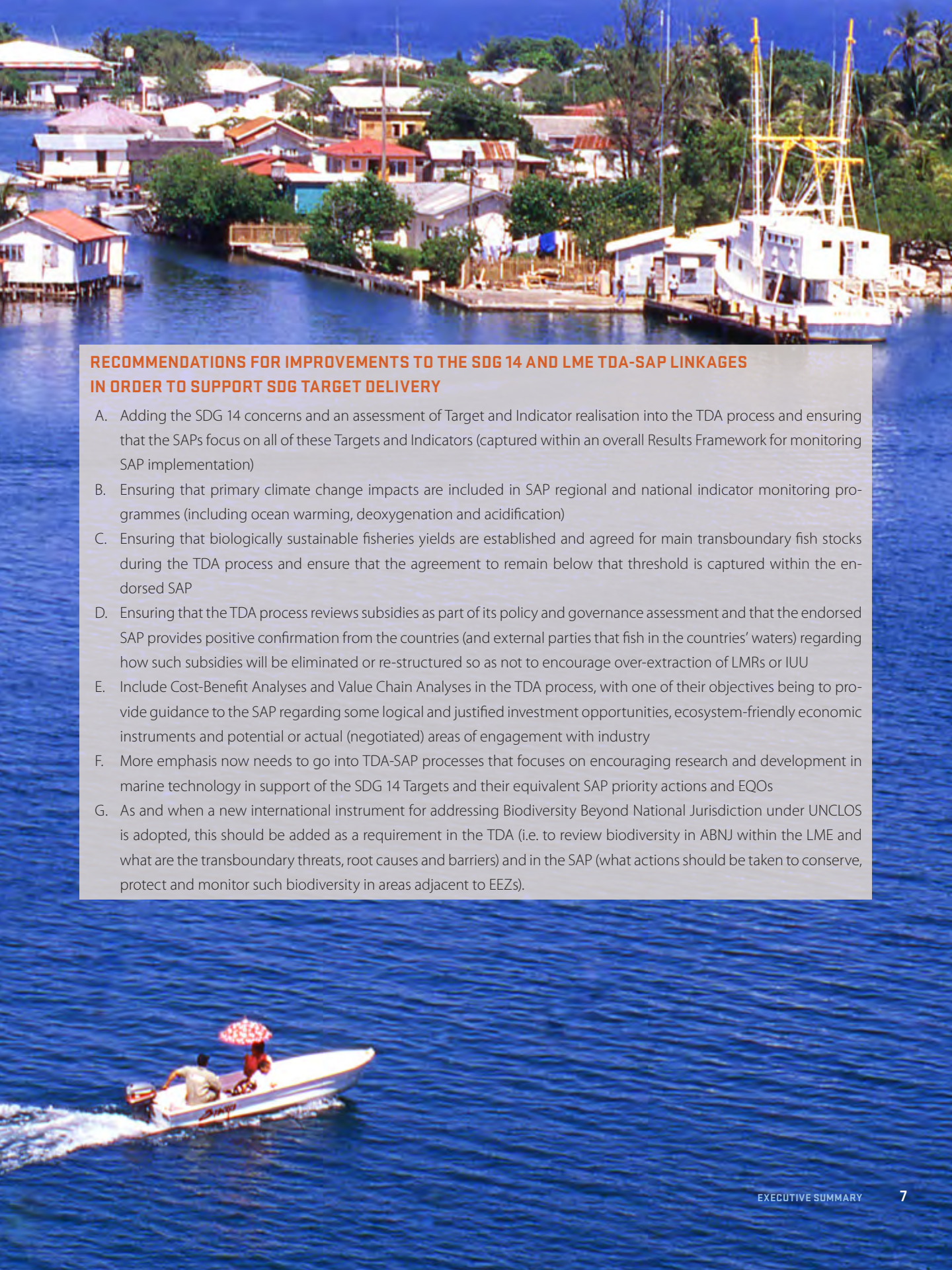
A number of best practices as well as constraints and shortfalls in the TDA-SAP process have been identified by the review as they have for the SDG 14 LME TDA-SAP interlinkages. As a result, a number of recommendations have arisen and are captured in full detail toward the end of this review document. The main, priority recommendations arising from the overall review process are captured and summarised under two headings and are presented here:

MAIN RECOMMENDATIONS DIRECTLY RELATED TO IMPROVING THE TDA-SAP PROCESS

1. Urgent need for more formal coordination arrangements and agreements on roles and responsibilities between the mandated regional bodies that deal with the various aspects of ecosystem-based management of living marine resources. There is also a need to 'anchor' the entire LME process within and under such a formal agreement so that the LME process is being promoted and implemented within the regional seas areas and across the transboundary interfaces a) where LMEs overlap across two or more regional seas areas and b) into the adjacent high seas areas, which are also subject to transboundary interactions
2. There are a number of existing and potential models of institutional and administrative management of the SAP process. However, any decision on where the SAP Implementation process (and thus the LME management and administrative home) should be anchored must be by agreement of the participating transboundary countries
3. Urgent requirement for more effective translation of scientific results and information into adaptive management recommendations and policy guidance



4. SAPs need more detail in the context of a Sustainability Road-Map. This is a major weakness in many of the SAP Implementation phases and represents a significant threat to the investments made over the past decades in the development and implementation of management strategies for LMEs
5. The GEF support to the TDA-SAP process has created strong working relationships and respect between institutions and experts in both 'donor' and 'recipient' countries, thereby encouraging and supporting lasting partnerships between scientific and academic bodies across the world. This process should ideally be sustained through more formal agreements for regional and global partnerships in support of the LME management concept and SAP implementation.
6. There is a critical need to intensify efforts to build capacity for developing countries in relation to ocean and coastal management and EBM, in particular for SIDS and LDCs, as well as coastal African States. In addition to traditional capacity development assistance through North-South cooperation, TDA-SAP processes and LME management *per se* needs to explore the further potential to foster capacity development partnerships that mobilize South-South cooperation.
7. There is a common concern regarding the need to identify a mechanism to avoid the consistently drawn-out transition period between SAP negotiation/adoption (usually at the end of one project phase) and SAP Implementation (at the beginning of the next project phase) either by finding 'bridging' funding or by a smoother and faster transition process
8. The TDA process needs to reconfirm the boundaries of the LME based on the accepted LME designation criteria and including ABNJ, if they fall within these criteria
9. It is advisable to avoid separating the land and sea components of the TDA-SAP process. The linkages between the watershed and the coastal/marine ecosystem(s) are critical to the management objectives within the LME
10. The detail, content, objectives and consequent effectiveness of both TDAs and SAPs varies enormously from one LME to another. More standardised TDA requirements and SAP structures would help to ensure that all LMEs are receiving the appropriate level of management and allow for comparison between LMEs and between SAP implementation status on a global basis.



RECOMMENDATIONS FOR IMPROVEMENTS TO THE SDG 14 AND LME TDA-SAP LINKAGES IN ORDER TO SUPPORT SDG TARGET DELIVERY

- A. Adding the SDG 14 concerns and an assessment of Target and Indicator realisation into the TDA process and ensuring that the SAPs focus on all of these Targets and Indicators (captured within an overall Results Framework for monitoring SAP implementation)
- B. Ensuring that primary climate change impacts are included in SAP regional and national indicator monitoring programmes (including ocean warming, deoxygenation and acidification)
- C. Ensuring that biologically sustainable fisheries yields are established and agreed for main transboundary fish stocks during the TDA process and ensure that the agreement to remain below that threshold is captured within the endorsed SAP
- D. Ensuring that the TDA process reviews subsidies as part of its policy and governance assessment and that the endorsed SAP provides positive confirmation from the countries (and external parties that fish in the countries' waters) regarding how such subsidies will be eliminated or re-structured so as not to encourage over-extraction of LMRs or IUU
- E. Include Cost-Benefit Analyses and Value Chain Analyses in the TDA process, with one of their objectives being to provide guidance to the SAP regarding some logical and justified investment opportunities, ecosystem-friendly economic instruments and potential or actual (negotiated) areas of engagement with industry
- F. More emphasis now needs to go into TDA-SAP processes that focuses on encouraging research and development in marine technology in support of the SDG 14 Targets and their equivalent SAP priority actions and EQOs
- G. As and when a new international instrument for addressing Biodiversity Beyond National Jurisdiction under UNCLOS is adopted, this should be added as a requirement in the TDA (i.e. to review biodiversity in ABNJ within the LME and what are the transboundary threats, root causes and barriers) and in the SAP (what actions should be taken to conserve, protect and monitor such biodiversity in areas adjacent to EEZs).



DEVELOPING A MANAGEMENT STRATEGY FOR USE WITHIN LARGE MARINE ECOSYSTEMS:

Background to the Transboundary Diagnostic Analysis – Strategic Action Programme Process

The development of a Transboundary Diagnostic Analysis (TDA) and the subsequent negotiation and agreement of a Strategic Action Programme (SAP) is a management development process that has been commonly embraced by the Global Environment Facility and its Implementing Agencies for identifying and adopting management and governance processes for International Waters areas over the last 20 years.

According to the GEF, International Waters are transboundary water systems which include: river basins where water flows from one country to another; multi-country lake basins; groundwater resources shared by several countries; or large marine ecosystems (LMEs) bounded by more than one nation.

Large Marine Ecosystems (LMEs) are regions of the world's oceans, encompassing coastal areas from river basins and estuaries to the seaward boundaries of continental shelves and the outer margins of the major ocean current systems. They are rel-

atively large regions around 200,000 km² in extent, or greater, and are characterized by distinct bathymetry, hydrography, productivity, and trophically-dependent populations. Although they cover only the continental margins and not the deep oceans and oceanic islands, the 66 LMEs produce approximately 95% of the annual global marine fisheries biomass yields. Most of the global ocean pollution, overexploitation, and coastal habitat alteration occur within their waters

The objective of the TDA is to i) work with local/regional expertise to identify and confirm (with credible scientific and socioeconomic evidence) what the priority impacts are that are threatening the welfare and sustainability of the LME, its goods and services and dependent communities, ii) undertake a causal chain analysis to establish what is causing or driving these impacts, iii) diagnose what the root causes are and, iv) identify the barriers preventing mitigation or removal of these root causes. In this context, the TDA is a factual summa-



ry of the existing problems and constraints to effective and sustainable management within the LME.

The aim of the SAP is to review the outcome of the TDA, as per the identified barriers and constraints to effective management and good governance, and to define the broad objectives and specific actions that will overcome these barriers and constraints. In order to achieve this,

the countries and their supportive partners will need to a) agree first on what their expectations are in the long-term, relative to the state of the ecosystem (by identifying Ecosystem Quality Objectives) and b) negotiate and agree on the long-term actions that need to be taken to achieve and maintain these Ecosystem Quality Objectives. The SAP is therefore a politically-negotiated and endorsed documentation which defines the management and governance arrangements which the LME countries and their partners will take

In consideration of a) the successful use of the TDA-SAP process for developing and implementing management and governance in the world's LMEs, and b) the urgency to meet the targets set for the Sustainable Development Goal 14, the aim of this current report is to review the TDA-SAP process and SAP implementation for the 24 LME areas supported by 18 GEF projects (see Annex 1) in order to:

- » Establish what the shared common concerns are from one LME to another regarding threats and



impacts as well as the causes and barriers

- » Identify the various instruments used to achieve a comprehensive TDA and an endorsed SAP and its Implementation
- » Capture best lessons and practices as well as constraints and challenge arising
- » Compare and contrast this process (and the shared objectives of the various LMEs in the context of management and governance) with the targets for Sustainable Development Goal 14

- » Provide conclusions and recommendations to strengthen the linkages between the LME management and governance development process (as promoted by GEF and its Implementing Agencies) and the targets and indicators associated with SDG 14.

Annex 1 lists the TDA-SAP Processes (GEF Projects) by date of endorsement of the Strategic Action Programme starting with the Black Sea in 1996 and ending with the latest endorsed SAP for the Humboldt Cur-

rent in 2016. These 18 projects actually addressed 24 LMEs as some projects included more than one LME (e.g. Agulhas and Somali Current LMEs project; Russian Arctic; Arafura and Timor Seas; Caribbean +). Annex 1 therefore also lists the LMEs addressed by each specific project as well as the current status of GEF support.



THE TRANSBOUNDARY DIAGNOSTIC ANALYSIS:

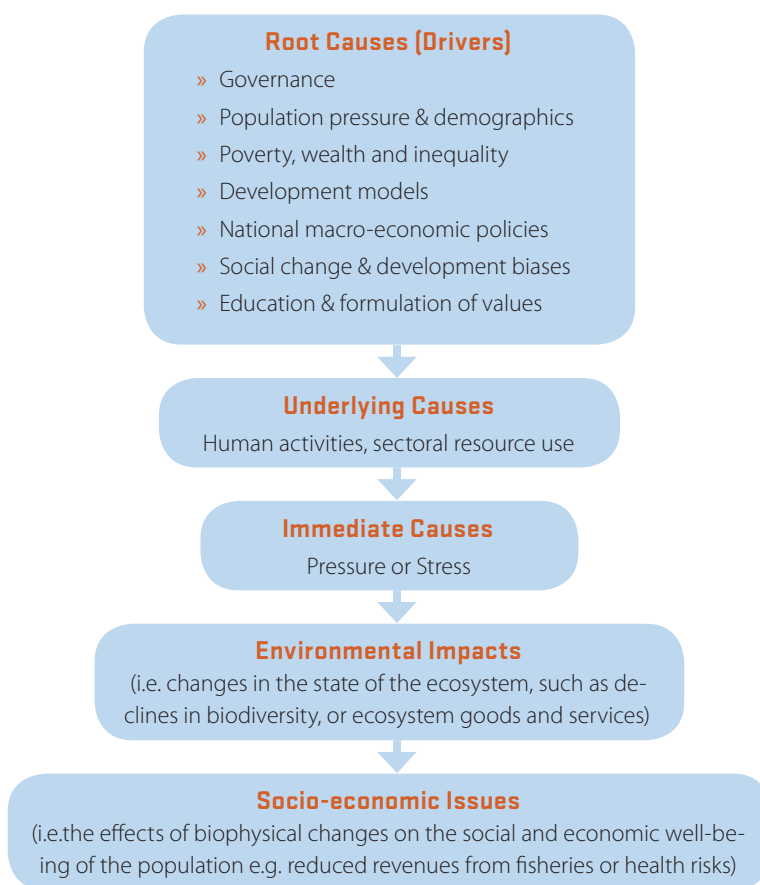
Common Threats to LMEs, their Root Causes and Common Governance Shortfalls

The TDA Process general follows what is referred to as a Causal Chain Analysis (CCA). The Causal Chain Analysis confirms the impacts/threats to the ecosystem and the as-

sociated environmental and socio-economic consequences. It then traces the linkages or 'chain' back up from these through the obvious direct or Immediate Causes of pressure. Through the

Underlying Causes (e.g. detrimental human activities) to the Root Causes, which are frequently at the policy, fiscal or social level (see Figure 1).

Figure 1: The Causal Chain Analysis approach used in the TDA



A simple theoretical example of this could be as follows:

Socioeconomic Issues: Threat to community livelihood (e.g. significant fall in small-scale fishery catches and reduced tourism)

Environmental Impact: Falling biodiversity associated with habitat degradation
Consequent disappearance of preferred food-fish

Immediate Causes: Land-Based Pollution (agricultural and wastewater) degrading reef and associated biological habitat types and communities
Over-Exploitation of the fishery in the immediate area

Underlying Cause: Eutrophication resulting from excessive nutrient discharges
Open access fisheries allow unregulated commercial fishing fleet into an area that then outcompete small-scale fishers in terms of catch efficiency

Root Causes: Government does not place high priority on wastewater treatment
National policy on agricultural subsidies encourage excessive use of fertilizers, etc.

No effective fisheries management strategies. If they do exist then there is no effective monitoring and enforcement

The aim of the TDA process is to trace back and identify the root cause to the problem; find the potential solutions; and determine why these are not being already being applied (i.e. identify the barriers to resolving the issues). This information then provides the foundation for the development and negotiation of a Strategic Action Programme for sustainable management of the LME and its goods and services.

This reporting process has undertaken a review of all 24 LMEs that GEF has supported to date (Annex 1) with the aim of identifying the significant delivery and outputs from the LME TDA-SAP process and how they complement and support the SDG 14 Targets. This review has looked at the findings of the TDA and the subsequently endorsed actions that the countries have formally agreed to adopt and implement in order to address the ecosystem threats and socio-economic issues through removal of the identified barriers. It further looked at the various policy, legislative and institutional reforms that were required through the SAP as well as the investment strategies used, partnership and management arrangements, tools and instruments (e.g. MPAs, MSP, ICM, GIS, etc.) and it has also harvested the best practices as well as any shortfalls and constraint during the process. Annex 2

shows the matrix used to extract this information from the 24 LMEs under review.

Annex 3 provides a detailed analysis of the prioritized **Threats**, their **Immediate Causes**, the identified **Root Causes** and the **Barriers** to their removal or mitigation. It further provides a listing of all the various **Priority Actions** (responses) formally adopted for implementation through the various SAPs. Annex 2 then ranks these across the 18 projects and 24 LMEs to identify which were the most common **Threats, Causes and Root Causes** identified in each of the TDAs, the frequency of the recurring **Barriers**, and the most commonly employed **Priority Actions to Address Threats and Barrier Removal** which were then adopted through the SAPs. The findings of this LME review process are discussed:

FREQUENCY AND RANKING OF TDA RESULTS

The following discussion highlight the findings of the Ranking by Frequency Assessment as captured in Annex 3. The discussion prioritised all of the main threats identified by the GEF projects in their TDA/CCA process and then focuses on causes, root causes and barriers that represent a common frequency in the majority of the LMEs reviewed.

The Tables show the **Number of SAPs** in which threat, cause or barrier occurs, while the **Frequency** rating shows the percentage occurrence of the concern, cause or barrier across all of the 24 LMEs.

Discussion of Priority Threats: Declines in Living Marine Resources Resulting from Over-Exploitation of Ecosystem Goods and

Services ranks as the most frequent threat to the LMEs, being a priority issues within all 18 TDAs processes and thus all 24 LMEs. Clearly this addresses the global concern over poor fisheries management and the need for an Ecosystem-Based Approach to Fisheries to be adopted within all of the LMEs in order to control fisheries within sustainable yields and reduce bycatch and discards. It also reflects a wider concern related to the overall decline in the integrity and well-being of the ecosystem as an interactive whole, along with its various biological habitat-types and communities, which then has a 'knock-on' effect on living marine resources.

The second most frequent threat to the LMEs, **Habitat and Community Modification, Degradation and Loss**, ranks as a very close second (across all but one of the LMEs reviewed) in its frequency of concern

PRIORITY THREATS FROM 23 LMEs	No. of SAPs	Frequency
Declines in LMRs as a result of over-exploitation of ecosystem goods and services	18	100%
Habitat and Community Modification/ Degradation/Loss	17	94%
Water Quality Degradation from various polluting sources	16	89%
General loss of Biodiversity and Key Species and collapse in ecosystem integrity	10	56%
Environmental Variability and Extreme Events (including from Climate Change, HABs and low-oxygen events)	7	39%
Direct Human Health Risks	2	11%

across the LMEs but also is directly linked to declines in living marine resources (see above) as well as water quality (see below). An example of this linkage would be the loss of coastal habitats such as mangrove which are important nursery and refuge areas for juvenile food-fish, which may be important at both the subsistence and commercial level. Over-exploitation of mangrove through extraction or modification (and, similarly, of coral reefs by blast fishing and other impacts) reduces the capacity of the ecosystem to support these goods and services.

Water Quality Degradation from Various Polluting Sources also ranks highly as a major priority issue/threat within 16 of the 18 TDAs re-

viewed. This includes eutrophication from nutrients as well as introduction of pesticides, sedimentation and wastewater, etc. these are noted as concerns (along with other sources) within the causal chain analyses.

10 of the 18 TDAs (a little more than half) recorded a **General Loss of Biodiversity/Key Species and Collapse in Ecosystem Integrity as being a priority**. Again, this priority links in with all of the previous ones and cannot be addressed in isolation from them, or from their root causes as has come out clearly in the causal chain analyses

Environmental Variability and Extreme Events (including from

Climate Change, HABs and low-oxygen events) was identified as a specific priority concern in just 7 of the 18 TDAs (less than 40%). This broad heading covers such impacts as extreme weather events; sea level change; ocean acidification; changes in seawater temperatures; changes to hydrodynamics and ocean circulation; changes in productivity (shifts in primary and secondary production); unpredictable geohazards (tsunamis, volcanic eruptions, earthquakes). Many of these are treated by the TDA-SAP process as cross-cutting.

Finally, only 2 TDAs listed **Direct Human Health Risks** as a concern.

IMMEDIATE CAUSES FROM 23 LMEs	No. of SAPs	Frequency
Over-exploitation of biological/ecosystem resources especially unsustainable/destructive fishing practices and excessive bycatch and discards	15	83%
Exotic and non-native species invasion	11	61%
Alterations in 'environmental flow' (e.g. changed or blocked water courses, coastal erosion, etc.)	11	61%
Land-based pollution of ecosystem from various sources	10	56%
Increasing expansion of coastal aquaculture and consequent pollution and coastal degradation	10	56%
Inadequate sewage treatment and disposal	10	56%
Solid waste disposal (including at sea, and with an emphasis on plastics)	9	50%
Land degradation and poor land-use planning (including coastal development, dredging, etc.)	9	50%

Discussion of Immediate Causes:

Over-exploitation of resources from unsustainable or destructive fishing practices, excessive bycatch and discards from fishing practices ranked highest as the most common immediate cause and was identified by all of the TDAs reviewed across all of the LMEs addressed.

Invasive species and changes in environmental flow were the next highest cause of the main threats. Invasive species can be an immediate cause of declines in other living marine resources and can also modify habitats and communities significantly. This can result in a loss of key species and a breakdown in the integrity of certain

aspects of the ecosystem. Changes in environmental flow are more likely to impact on water quality degradation and degradation/modification of habitats and communities.

Almost on the same level of frequency comes the effects of land-based sources of pollution and inadequate sewage treatment (which clearly have similar impacts) as well as the effects from coastal aquaculture. These are closely followed by solid waste disposal and the effects of poorly managed coastal planning and development.

The remaining Immediate Causes tend to be more specific to certain LMEs. For example, access to cheaper and more efficient technology for exploitation

and extraction (especially in the fishing sector) is having a noticeable impact on fisheries off the west coast of Africa in the Benguela LME, In the Indonesian Sea and in the South China seas

Discussion of Root Causes:

Some of the most significant and frequent Root Causes that are creating or influencing the immediate impacts and threats to the world's LMEs include the absence of understanding of the importance and value of ecosystems and their goods and services, and the need to raise awareness on these values (and the associated threats) across all sectors. This also links in to more specific lack of knowledge and understanding in the different sectors, such as the maritime and ports

ROOT CAUSES FROM 23 LMEs	No. of SAPs	Frequency
Lack of knowledge and awareness (All sectors of society)	14	78%
Inadequate management of maritime activities (e.g. in relation to port reception facilities, ballast water management and/or effective management over activities such as oil/gas exploration)	12	67%
Absence of available guidance and advice upon which decision-makers can base management and policy decisions	12	67%
Ineffective and unenforced environmental legislation	11	61%
Lack of robust legal framework 'fit-for-purpose' for effective management of sustainable ecosystem goods and services	10	56%
Inadequate or ineffective fisheries management	9	50%
Absent or inadequate monitoring and evaluation of changes in the ecosystem and/or lack of collaboration on same at regional/ecosystem level	9	50%
Weak national strategic planning and regulatory frameworks for sustainable development	9	50%
Inadequate broad stakeholder and/or intersectoral participation in management and governance	9	50%

industry sector, where many activities and inappropriate management strategies are a significant threat to LMEs. But the TDA and Causal Chain process also recognises and identifies the fact that, even if the knowledge gaps are closed and good information is available, this is of little use unless that information and the consequences of poor ecosystem management can be transmitted to the right people in the right format. Ineffective enforcement of environmental legislation, inappropriate and/or weak regulatory frameworks to support this, and generally inadequate management of ecosystems goods and services will only be resolved if those entities responsible for management and for policy are fully aware of the value of ecosystem goods and services and of the consequences of losing such goods and services at the socioeconomic and human community level. Neither is this a 'one-off' process as this sort of information needs regular review and

updating based on data and information gathering and analysis to identify changes and additional impacts, and packaging into appropriate updated guidance and advice to managers and decision-makers. All of these issues are captured across the LMEs as being important root causes to ineffective LME management and the loss of LME goods and services. Finally, the TDA process has recognised the necessity for a variety of stakeholders from all sectors to be engaged into the management and governance process to ensure a more impartial strategic approach and that the interests of all are being addressed and not just those of the few in government which may have their own short-term agendas.

The Root Causes are the 'real' target of the TDA and its Causal Chain Analysis. Identifying these creates the opportunity to determine and assess what are the barriers that are preventing the resolution or removal of these root causes,

the next link in the TDA and causal chain analyses.

Discussion of Main Barriers:

The TDA process in the 24 LMEs has identified 13 shared and common barriers to the removal or mitigation of the main causes of threat to LME sustainability and the conservation and management of associated goods and services. The outstanding one is nearly always a lack of financial commitment to the management and protection of the ecosystem. This then leads to inadequate emphasis and effort going into regulatory mechanisms and enforcement as this environmental and ecosystem-related issues are not seen to be of major national or regional importance. This tends to be underpinned and further exacerbated by the lack of understanding of the value of these goods and services, primarily as no-one has ever put a value or price on them. In most cases that value is significant as these are mostly renewable

MAIN BARRIERS FROM 23 LMEs	No. of SAPs	Frequency
Inadequate sustainable financial support allocated to removing threats to ecosystem goods and services in order to address problems	12	67%
Lack of effective regulatory mechanisms and enforcement in relation to environmental/ecosystem threats and problems	11	61%
Undervalued or unvalued ecosystem goods and services	10	56%
Hitherto irremediable poverty and inequality	9	50%

goods and services and therefore their annual value will continue across generations into the foreseeable future. Undoubtedly, the high levels of poverty (especially in so many of the poorer countries which border and are part of the LMEs) is a major issue as such poverty, food security and livelihood issues inevitably attract prioritisation of financial support. However, this barrier links back to the previous concern regarding undervaluing or not knowing the value at all of ecosystem goods and services, many of which support these poorer communities or are their only source of nutrition and subsistence livelihood. The loss of these goods and services, as a result of inadequate funding to support effective management, would cause enormous deprivation, health concerns and quite possibly loss of lives. This argument then further justifies and strengthens the need for effectively-packaged information and awareness as a high priority for removing barriers to appropriate management strategies within the LMEs.



THE STRATEGIC ACTION PROGRAMME RESPONSE

Based on the findings of the TDA and its Causal Chain Analysis, the next step in this process involves careful consideration of the identified threats against what the countries would consider to be the preferred situation within the LME. This commonly establishes a set of Ecosystem Quality Objectives which represent the preferred status quo for the LME as agreed

by the countries participating in the joint transboundary management process. In order to achieve this vision for the sustainable condition of the LME, the next step then is to establish and formally agree on the actions that need to be taken to address the barriers and to mitigate and remove the root causes. Further to this, agreement needs to be reached on who will under-

take these actions, what institutional arrangements will be needed to carry them out, and how will this be supervised, coordinated and monitored. This then effectively becomes the Strategic Action Programme which the countries and their partners formally adopt for the sustainable management of goods and services within the LME and for the control and elimination of



harmful impacts and threats to those goods and services.

Annex 3 provides a review of the common priority actions that have been agreed by the countries and their partners in order to remove the barriers that prevent the mitigation or elimination of the transboundary root causes to impacts and threats on the LMEs. As with the TDA review, this covers the same 18 GEF-supported projects across 24 LMEs and, also as with the TDA review, these have been ranked based on their frequency of use. As is to be expected, there are quite a

number of actions that have been taken and nearly all of them have a high frequency of use across the 24 LMEs. They tend to fall into the two distinct categories of altered or improved **Governance** and **Management** practices (on the basis of the following definitions):

Governance uses a single, overall vision or objective as the basis to define the establishment of policies, identifying the mechanisms and accountability to deliver on those policies, and the continuous monitoring of the overall efficacy of this process by the 'members'

of a governing organisation (in this case, the countries within the LME SAP).

Management is the organisation and use of instruments/tools and the coordination of activities for delivering the governance objective through specifically-designated bodies and practices.

These categories and the respective proposed SAP actions are captured and summarised under the following main headings:

GOVERNANCE REFORMS/REALIGNMENTS	No. of SAPs	Frequency
General improvement in the governance of all management practices related to EBM and EAF	17	94%
Institutional development and/or strengthening for national and regional transboundary management and collaboration	16	89%
Major policy and regulatory emphasis on reducing and controlling land-based pollution and contaminants and implementing MARPOL for marine pollution mitigation	16	89%
Legislative and regulatory realignment and reform and enforcement with transboundary ecosystem-based management requirements	15	83%
Regional level improvement in strengthening the weak role, poor coordination and overall involvement of international institutions responsible for transboundary issues threatening the ecosystem (e.g. RSPs, Fisheries bodies, etc.)	13	72%
Policy realignment and reform in line with transboundary ecosystem-based management requirements	11	61%
Increased government investment in pollution reduction, better coastal planning, better fisheries management and other EBM improvements	11	61%
Mainstreaming Climate Change and adaptation to natural events and disasters into national and transboundary management strategies and policies	10	56%

The emphasis under the Governance requirements and proposed actions focuses on institutional development and realignment for transboundary management and coordination both at the national and the regional level. The countries recognise the need for significant changes and improvements in legislation and regulatory mechanisms if the threats and their root causes are to be addressed and removed. They also recognise the advantages of developing and realigning such policies and legislation in a coordinated and harmonised manner so as to share best practices and experiences as well as to ensure a compatibility of codification, law and administration throughout the transboundary LME management area, regardless of political boundaries. This also assists in ensuring an equality of effort and a similarity of commitment across all of the countries within the management area. Mainstreaming responses to climate change and other major natural/environmental events through transboundary policies also assist the countries in developing a united response to such potentially massive and uncontrollable transboundary impacts. One very important aspect arising from the review

of the actions required by the LME SAP process is the urgent need to strengthen the role of international agreements and treaties and associated institutional arrangements already dealing with transboundary issues. This also requires further and significant improvements in coordination between those bodies responsible for, or mandated to deal with environmental and resource issues at a regional level, such as Regional Seas Conventions, Regional Fisheries Management or Advisory Bodies, etc. Any effective LME governance and management approach needs to interact closely and even sit within such formal agreements and arrangements if duplication or contradiction of effort is to be avoided.

A variety of management strategies and associated tools are available that can support and assist in the implementation of an overall transboundary LME management approach. Some of the ones most commonly used during SAP Implementation (and often during the TDA process) are covered separately in a section below. The 24 LMEs have recognised the importance of certain approaches with the overall focus inevitably being toward an Ecosystem-Based Management approach

and specifically an Ecosystem-Based Approach to Fisheries. However, the SAPs also recognise that, in order to promote the adoption of such ecosystem-based governance and management practices at the policy level as well as at the senior management level, the benefits of such ecosystem-based management needs to be highlighted and justified and the most effective way of doing this it to demonstrate the value of the renewable LME goods and services, and the cost to the countries in socio-economic terms of losing such goods and services (i.e. broadly, at the ecosystem level, through Cost-Benefit Analyses and more specifically at the sectoral or commercial species level through Value Chain Analyses).

*A **Cost Benefit Analysis** can be defined as a systematic approach to estimating the strengths and weaknesses of alternative management approaches. It considers the overall value of goods and services to be managed (utilized and sustained). It then considers the various options that provide the best approach to achieving effective management and sustainable benefits. It can be used therefore to provide justification and leverage support for the EBM approach.*

LME MANAGEMENT STRATEGIES FOR SAP IMPLEMENTATION	No. of SAPs	Frequency
Cost-Benefit Analysis of overall EBM approach and/or Value Chain Analysis for specific sectors (e.g. specific fisheries) to justify political support to EBM approach	16	89%
Identification and adoption of management areas for maintenance of biodiversity and related goods and services, including marine and coastal connectivity	16	89%
Adoption of an effective EAF for the management of living marine resources & fisheries focusing on food security	14	78%
Overall regional interaction and coordination on EBM and EAF issues	14	78%
National and Region-wide standard application of successful procedures and tools such as EIA, SEA, ICM, MSP, GIS in the transboundary context	14	78%
National adoption of an EBM and EAF approach with associated effective monitoring and enforcement	12	67%
Development of a regional network of connected MPAs and EBSAs	10	56%
Adoption of new 'best practice' cost-effective technologies to address threats and impacts to the ecosystem	9	50%
Improvements in mariculture techniques to reduce pressure on LMRs and the ecosystem	8	44%
Restoration of natural ecosystem processes (e.g. within watersheds, mangrove restoration, artificial coral propagation, etc.)	8	44%

*A **Value Chain Analysis** is used to analyze individual internal activities within a system. Its goal is to recognize, which activities are the most valuable, which ones need priority management and sustainability, and which ones could be improved to provide competitive advantage. In the LME context, A VCA can be a valuable analysis tool for the management and improvement as sectors such as fisheries and tourism.*

Furthermore, having recognised the overall value of the ecosystem as well as that of specific goods and services it provides, the SAP captures the need to identify sensitive and/or critically important habitat types and communities for management purposes that will maintain and sustain those goods and services. Such management areas should not exist 'in isolation' but need to have interconnectivity if they are to be sustainable in the context of the species

which they support. Because such interconnectivity and similarities of management needs and practices are transboundary, the requirement for coordination and networking of such areas across the LME and between the counties is essential. In some cases, these management areas and/or critical habitats may need additional assistance through restoration of their natural processes or of the actual species themselves. As a long-term strategy, the sustaina-

bility of such management areas will depend on the continued improvements in ecosystem quality. Therefore, one other important effort must be through the adoption of better practise and technologies to reduce further impacts.

The review of the 24 LME SAPs to date confirms that SAP Implementation is a long-term process which therefore requires long-term support and commitment from the countries and their partners. The SAP process is a dynamic and adaptive one. Even its dependency on the TDA and causal chain analyses is a continuous and on-going process in the context of monitoring indicators of change in the ecosystem which can then be fed into an adaptive

management process that responds to such changes. Often the TDA and the SAP development processes require specific expertise to be identified and used. If the SAP and its activities is to be sustainable then such expertise and capacity (both in terms of human resources and institutional/scientific facilities) needs to be entrenched and maintained within the LME region wherever possible. Consequently, capacity building and training has an unsurprisingly high ranking and frequency across the LMEs. The sustainability of the SAP implementation process and its activities is also dependent on two other significant and important requirements. The first is financial commitment and the LME SAPs have recognised this need as

well as recognising various sources and options for long-term financial support. These include engagement with the private sector (through their interest in investment opportunities) and exploring innovative investment and economic instruments. The various options are logically captured then under an overall long-term financial plan for supporting the SAP. The second important requirement is an open and fully participatory management approach whereby all stakeholders are engaged and have input to the adaptive management process. This is essential if there is to be long-term support for the EBM approach across all sectors, both within and beyond governments themselves. It has become increasingly obvious that effective EBM and

LME MANAGEMENT SUSTAINABILITY PRACTICES	No. of SAPs	Frequency
Strategic and planned Capacity Building and EBM-related training	15	83%
Formal participation of all appropriate stakeholders into the management and governance process, including intersectoral management and governance	12	72%
Innovative investment and economic instruments to address threats and impacts to the ecosystem	10	67%
Specific mechanisms for private sector participation and interactive governance recognising a 'blue economy' strategy	9	56%
Long-term financial sustainability plan/mechanisms for SAP implementation and the EBM approach	6	50%
Involvement of communities and promotion of community resilience and sustainable livelihoods with a focus on health and food security and alternative livelihoods	15	33%



LME MONITORING, INFORMATION MANAGEMENT AND AWARENESS	No. of SAPs	Frequency
Enhanced and regionally-coordinated scientific monitoring, investigation and data collection/management for identification of change as well as outreach and awareness of results	18	100%
Improvements in information handling and awareness/outreach	17	94%
More effective analysis and translation of knowledge and ecosystem monitoring results into adaptive management and policy decisions	13	72%
Development and adoption of a regional programme for environmental awareness, educational strategies, media information and general training in EBM	11	61%

SAP implementation can only be assured if the coastal communities operating at the 'grass-roots' level are involved and active.

However, it is notable that many of the LMEs and the SAPs often contain very little discussion of the need for these sustainability activities or explanation of how they will occur (especially in relation to sources of long-term financial support or confirmed regional capacity building and training programmes.

Information is one of the most powerful tools for ecosystem-based management. The importance of cost-benefit analysis and value chain

analysis has already been recognised. Any effective SAP implementation needs to be founded on an 'adaptive management' approach whereby the TDA provides the foundational baseline for identifying the threats and impacts, but further monitoring of targets and indicators then provides updates that identify changes or additional threats and which can form the basis of new guidance and advice to managers and decision-makers. Consequently, the entire suite of tools and institutional arrangements for information capture, analysis and delivery is central to the adaptive management process and therefore central to the entire SAP

and management process. One of the weaknesses identified in many SAPs is the poor management of information in the context of using it to raise awareness within target audiences. These can be political, academic (e.g. school or university), civil society, community and/or commercial audiences (among others).

Yet, few SAPs include a clear mechanism either for an 'adaptive management' process that delivers information and analysis of change to managers and decision-makers or for improved use of information in raising awareness generally.



Instruments and Tools used for Supporting and Implementing Sustainable Ecosystem Based Management and Governance within Large Marine Ecosystems

A variety of tools and instruments have evolved over time which are of value to the LMEs in the TDA and SAP implementation process. The following is a list of the most common tools used across nearly all of the LMEs with a description of their aims and objectives

The Ecosystem Based Management Approach

EBM is an approach to management that recognises the entire suite of interactions that happen within an ecosystem rather than trying to manage at a more restrictive species, community, sectoral or area level. EBM, by its nature, needs to be flexible and adaptive (see below) so that it can respond to on-going incoming information and changes in understanding. It is also cross-sectoral, taking into account the interactions between various different sectors of human usage and activity. It seeks to reach an acceptable compromise and trade-off between the various sectors with its primary objective being the long-term maintenance and sustainability of ecosystem goods and services. Clearly, in order to be effective and non-conflicting in nature, EBM needs to be fully participatory at all levels.

An Ecosystem Based Approach to Fisheries

This management approach requires fisheries managers to take into account all of the various interactions between a particularly target fish stock and all other activities happening within the geographical range of that target fish stock that can impact on it or be impacted by changes in the fish stock. It considers the interaction between the stock and its food source/prey and its predators (including humans) as well as other competitive species. It also takes into account the interaction between the human exploiters and consumers of the fish-stock and the socioeconomic implications of their efforts and impacts (e.g. commercial versus small-scale fisheries and the effect on stock levels). Furthermore, a truly comprehensive EAF approach needs to also take into account the effects of weather and climate on fisheries biology (e.g. breeding patterns, coastal migrations, etc.). Any EBM approach would naturally need to include an EAF approach. 100% of the LMEs reviewed noted declines in living marine resources as a result of overexploitation to be a major threat. Consequently, nearly all of them (94%) recognised the need for both EBM and an EAF to be a core strategy of the SAP, and nearly 80% of them identified the need to adopt an effective EAF if they

are to address the on-going problem of food security.

Ridge-to-Reef Processes

The Ridge-to-Reef process recognises the interactive nature of ecosystems as well as the communities within those ecosystems (including human communities) and the activities they undertake. It takes into account that everything within the water catchment areas within the landward border to LMEs has an interactive relationship with the LME itself. In this context, the LME TDA-SAP process recognises the importance of a taking a full 'watershed' approach when dealing with LMEs whereby the entire area behind the coastline and up to the nearest watershed is considered to be part of the required management system boundary for the LME on the basis that activities within that entire area will impact on (and to some extent be affected by) the coastal marine ecosystems. Ridge-to-Reef is also variously referred to as Catchment-to-Coast or Source-to-Sea. Recognition of the need for this approach is particularly important to the Small Island Developing States wherein the entire ecosystem of the island(s) are generally dependent on and directly interacting with the coastal and marine environment.

Adaptive Management and the Use of Monitoring and Scientific Information

Adaptive management is, as its name implies, a management process which

has built-in flexibility that allows management strategies and policy decisions to be altered and fine-tuned on the basis of updated inputs and information. As has been discussed above, the TDA process is not, in itself, a singular 'one-off' process. Once agreement has been reached on the threats, root causes and barriers within an LME, then indicators specific to those threats and root causes and that can assess barrier removal need to be adopted and a strategy for reviewing and assessing those indicators (in order to measure change) also needs to be identified and agreed, along with a clear assignment of responsibility. However, the collection of this important information is relatively pointless to the management exercise unless the implications arising from any changes identified can be crafted into reliable guidance for managers and advice to decision-makers. Translating the results of observation and monitoring programs into adaptive management governance is frequently rather more complex than it first appears. This is because there has to be either: (a) clear confidence limits (in the scientific and statistical sense) in support of any conclusions, or (b) a fairly rigorous process of review and consensus/agreement on the strength and reliability of any trends or directional changes that imply action should be taken. Although most of the TDA-SAP processes undertaken to date (72%) recognise that information and knowledge needs to feed into the management process through some sort of strategy, only

one or two LMEs have managed to identify this as a specific requirement for Adaptive Management and to propose potential mechanisms that can carry this forward (notably the Agulhas and Somali Large Marine Ecosystems which includes such a process and mechanism within the endorsed SAP, and the Benguela Current LME and its Commission which confirms the need for such a process to now be developed)

Integrated Coastal Management (ICM)

ICM aims to promote a more sustainable management approach to coastal areas, capturing the interests of all involved parties. In this context, it aims to achieve a balance between environmental, social, economic, recreational and cultural demands and objectives. ICM is a management strategy that requires the input and cooperation of all stakeholders within the agreed/proposed management area. This approach aims to 'integrate' through broad sectoral input, the use of multiple instruments and various levels of administration and institutional guidance. The objectives of ICM are, in many ways, similar to Marine Spatial Planning (MSP – see next section) but primarily with a coastal focus. MSP is starting to gain ground as a management tool now with the advantage of more advanced technologies related to GIS and satellite mapping. It also tends to have a broader geographical and sectoral outreach.

Marine Spatial Planning (MSP)

MSP is an accepted methodology both within LMEs and within national waters for identifying and developing a more rational, transparent and shared approach to the sustainable management and use of marine ecosystem goods and services. It recognises the various interests and the interactions between the users and stakeholders within a given marine system boundary (in this case the LME) and sets priorities within a broad consensus agreement. MSP aims to capture the spatial and temporal distribution of activities to ensure a balance in the needs and demands of all sectors while protecting the social, economic, developmental and ecological objectives and requirements of a country or region. MSP is a common tool included in SAPs nowadays and, to a great extent, has replaced the more 'restrictive' concept and approach used in ICM which tends to focus more on the immediate coastal area and its development and activities. MSP includes the waters out to the edge of EEZs and even beyond (especially in the transboundary context). It also embraces the ridge-to-reef or source-to-sea approach recognising that upstream activities can have significant consequences within the marine environment. In short, MSP allows for spatial planning and management of resources and human activities, to

reduce conflict between sectors, and to ensure that critical ecosystem services are protected.

Geographic Information Systems (GIS)

GIS is a process that integrates different layers of data in as seamless a manner as possible. In the context of LMEs, GIS is an essential and commonly used tool in support of LME management and SAP implementation, particularly as part of ICM and MSP. With a sufficient and thorough input of knowledge into a GIS system it is then quite feasible to undertake an effective ICM/ MSP strategy and arrive at an acceptable and adoptable management plan for all activities within the LME. A thorough understanding of ecosystem interactions is a pre-requisite for an effective GIS that can then support MSP. Consequently, lack of data or the ability to analyse such data is a recognised constraint and highlights the need for an effective information gathering and handling process with associated capacity and training.

Managed and Protected Marine Areas

The use of Marine Protected Areas (MPAs) as a management tool for ICM, MSP and LME SAPs has come a long way in the last two decades. The historic concept of identifying an area

of coastline or a discrete marine community or marine ecosystem, creating a set of stringent rules for activities within that area, and then designating it as an MPA through a formal bulletin is no longer the method-of-choice. Nowadays, as with the overall concept of EBM, an interactive and participatory approach is adopted whereby different management scenarios and requirements are considered based on the long-term objectives. The Marine Spatial Planning process (see below) incorporates the identification of such zoning and management requirements into its interactive planning strategy and will frequently start by identifying the most critical areas (the Ecologically or Biologically Sensitive Areas) where the majority of activities need to be restricted. It is also now quite common to consider the development and adoption of Locally Managed Marine Areas which, as their name implies, are under the management and jurisdiction of the local communities that depend on their goods and services. Some areas are specifically planned and adopted to be Refugia or Replenishment Areas for adjacent fisheries. The general identification and adoption of MPAs and associated management mechanisms is thus a core tool for LME SAP Implementation.

Strategies for Sustainability Adopted through the LME SAP Process

Three principal strategies stand out from the TDA-SAP process that address the long-term sustainability of LME governance and coordination of management. These are 1) the Institutional Arrangements, 2) The Financial Arrangements and 3) Partnership Agreements for sharing responsibility and effort. Annex 4 provides the specific allocation of arrangements and mechanisms for each of the 18 TDA-SAP processes. The following Tables give a summary of the frequency of their use by the various TDA-SAP Processes.

A variety of Institutional arrangements have evolved within the LME SAP development process. The most frequent approach (at a frequency of 33%) is the use of non-legally binding agreements

for collaboration and cooperation between countries and their partners. Following this the most common approaches are to anchor the institutional arrangements within a permanent new Commission, or within an existing Regional-Seas related Convention and Action Plan or similar body. In two rare cases, namely the Russian Arctic and Gulf of Mexico, the overall LME process is managed primarily at the country level. In the case of the former this is due to the fact that the TDA-SAP process for several neighbouring LMEs falls within a single-country jurisdiction. In the case of the latter, constraints on a choice of an appropriate regional body that would cover the entire LME prevent a comprehensive and coordinated regional administrative arrangement.

It is clear from the above review of the institutional arrangements used by SAPs to date that a diverse assortment of potential institutional and coordination arrangements exist that can be used to manage the SAP Implementation process. There is no 'one-size-fits-all' and the choice by the countries and their partners will depend on the availability of appropriate and acceptable existing regional bodies and the political appetite for more formal and legally-binding agreements (which typically take much longer to negotiate) versus less formal management arrangements, which can also often deliver good results just through simple understanding and agreement on mutual aims.

INSTITUTIONAL ARRANGEMENTS FOR SAP IMPLEMENTATION	No. of SAPs	Frequency
Non-Legally Binding Framework and Institutional Arrangements based on MoUs or similar agreements	6	33%
LME Commission created based on a Convention with a Permanent Secretariat	4	22%
National and Regional level policy and technical groups to be anchored under a strengthened existing regional body(s) or agreement	4	22%
Anchored within an existing Regional Seas Convention Action Plan framework and institutional arrangement	4	22%
Managed at national government level (NAPs) through coordination agreements and institutional reforms	2	11%

Clearly, financial sustainability is a key element for the long-term delivery and adaptive management process supporting the SAP. However, a quick review of the instruments and arrangements identified by the SAPs confirms that there is still a dependency and an expectation that continued donor funding will support the process, even in the long-term. While some of the SAPs do identify specific areas where they intend /hope to obtain long-term financial support, very few SAPs have any clear financial sustainability strategy outlined

let alone agreed. Various proposed mechanisms include developing and strengthening the relationship with the private sector, evolving a national fee-based approach, the need to develop investment plans and portfolios, etc. But, generally, these are at the stage of 'wish-lists' in the existing SAPs even though they may be identified as an important product or output from the SAP implementation process itself. This means that most of the SAPs have a suite of logically-evolved and agreed actions to address root causes and their barriers

(through the TDA-SAP development process and GEF project support) but no clearly defined means of financing them except through a further stage of donor funding. Understandable, when countries then move on into a SAP implementation phase with donor funding approved, the donors (particularly GEF) are insisting on some form of 'exit-strategy' that provides a clear road-map for replacement of donor funds with other confirmed sources of funding for long-term SAP implementation.

FINANCIAL INSTRUMENTS/ MECHANISMS FOR SAP IMPLEMENTATION	No. of SAPs	Frequency
Continued Donor Funding	9	50%
Loose detail in SAP focusing generally on all options	7	39%
Alliances/Partnerships for supporting the SAP Implementation in the long-term	5	28%
Development of Private-Public Partnership	5	28%
Details of Investment needs and Plans in SAP and identified need for an Investment Plan and Portfolio	3	17%
Funding Commitments captured in National Action Plans	1	6%
A Special Funding Arrangement (Trust Fund or similar)	1	6%
Fee-based financial strategy paid as direct support through a Secretariat or commission	1	6%
No Detail in SAP on financial arrangements	1	6%
Direct budget support from national government	1	6%

One potential financial support mechanism that has been explored and is proving to be both valuable and reliable is the evolution of partnerships for SAP Implementation. The concept behind this process recognises that the countries do not have the resources or finances to address all of the priority actions necessary to meet and maintain their ecosystem quality objectives alone. However, many of these objectives are similar to those of other regional and international bod-

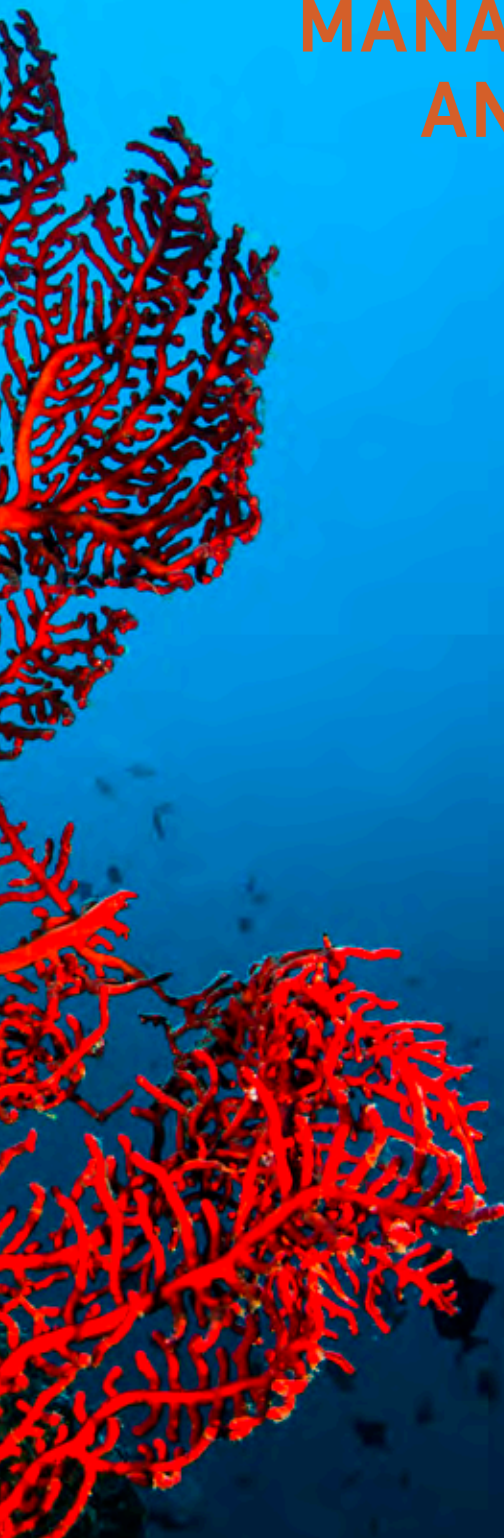
ies who would be willing to work alongside the countries and share resources and funding in a joint effort to meet those objectives. Consequently, both formal (through MoUs and other Agreements) and Informal partnerships are now a frequent instrument developed as part of the SAP and as part of its Implementation Plan. Many of these partnerships arise naturally from the TDA-SAP process, both during the technical elaboration of the TDA and at the stage of negotiation of the SAP. This means

that agreements can be reached (e.g. for mutual cooperation between the countries, NGOs, IGOs, Industry, Academia, etc.), even as a formal component of the SAP. If the partners bring funding with them to support SAP actions and delivery then this can, to some extent) help to ease the constraints on financial sustainability noted above. Other mechanisms that are being tested by SAP implementation processes include more formal agreements with industry and with Regional Economic Communities.

PARTNERSHIPS FOR SAP IMPLEMENTATION PROCESS	No. of SAPs	Frequency
Formal Alliances agreed through MoUs and Aides-Memoires (e.g. PEMSEA)	6	33%
Nothing Specific in SAP	5	28%
Informal partnerships with intent to collaborate	4	22%
SAP focuses on Public-Private Partnership opportunities	3	17%
Economic Cooperation Agreements that support the SAP	2	11%
SAP Implementation Steering/stakeholder Partnership	2	11%



LME GOVERNANCE LINKAGES TO OTHER ECOSYSTEM MANAGEMENT MECHANISMS AND INTERESTED BODIES



The ecosystem-based management approach is central to the LME adaptive management process and the SAP Implementation process. It is also a core principle of the ecosystem-based approach to fisheries. At the same time, the Regional Seas Programmes and other regional management arrangements and bodies have specific responsibilities and formal mandates (through Conventions and Treaties) for coastal and ocean management at the regional level. The Management of Large Marine Ecosystems is a strategic and negotiated approach which does not always naturally fall within the purview of one single body (as is apparent from the variety of institutional and administrative arrangements adopted by various SAPs). This can and does create challenges, duplication and even potential rivalry between prospective bodies or organisations that would defend their mandates, and this can be further exacerbated in the presence of available funding to support the LME process which then needs to be administered at a regional level.

A number of organisations are involved with or linked to the LME strategic approach and its administration. These include:

- A. The various Regional Seas Programmes which deal primarily with coastal and marine environmental issues such as pollution, habitat degradation, etc. but not fisheries issues. A number of these are administered through the United Nations Environment Programme (UNEP) or they are administered through other regional bodies, or are independent in nature.
- B. Regional Fisheries Bodies that constitute a group of States and/or organisations that have formally agreed on an international fishery arrangement. Such RFBs have diverse scopes and mandates but can be broadly divided into i) multilateral management entities such as Regional Fisheries Management Organisations or Regional Fisheries Management Agreements

through which member countries directly establish management measures, ii) Advisory bodies that provide their members with scientific and management advice and also usually provide a regional coordination and development function, and (iii) scientific research organizations that provide only scientific and data advice. Many of these are administered or supported by the United Nations Food and Agriculture Organisation (FAO)

- C. Special Areas and Particularly Sensitive Sea Areas as administered by the International Maritime Organisation. The MARPOL Convention defines certain sea areas as 'Special Areas' in which, for technical reasons relating to their oceanographic and ecological condition and to their sea traffic, the adoption of special mandatory methods for the prevention of sea pollution is required. Under the Convention, these special areas are provided with a higher level of protection than other areas of the sea. A

'Particularly Sensitive Sea Area' (PSSA) is an area that needs special protection through action by IMO because of its significance for recognized ecological or socio-economic or scientific reasons and which may be vulnerable to damage by international maritime activities.

- D. The Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO). The purpose of the Commission is to promote international cooperation and to coordinate programmes in research, services and capacity-building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and the decision-making processes of its Member States. In addition, IOC is recognized through the United Nations Convention on the Law of the Sea (UNCLOS) as the competent international

organization in the fields of Marine Scientific Research (Part XIII) and Transfer of Marine Technology (Part XIV).

Because most of these are linked with UN bodies, they tend to fall within a global international administrative structure and formal model.

At the more regional level there are also a number of bodies that have been formally created by country groupings to coordinate and manage their interest within certain areas

Then there is the NGO community which operates at the national, regional and international level in the context of linkages to LME management objectives. The number of organisations are far too numerous to mention all, but some of the larger globally-administered NGO bodies that are directly involved in LME management and SAP Implementation include IUCN, WWF, Conservation International, etc.



Finally, there are the regional banks (e.g. African Development Bank, European Bank for Reconstruction and Development, etc.) and the World Bank, all of which have an interest in supporting the LME management and SAP implementation process.

With such a wealth of potential support and possible partnerships for ecosystem-based management at the LME level, it would seem reasonable to assume that many of the required priority actions for LME management and for effective and sustainable SAP Implementation can be addressed through existing mandates and responsibilities. This might well be the case if it was not for the deficiency, within most LMEs (to a greater or lesser extent) of fully effective interaction, cooperation and coordination between the various bodies and organisations.

It has been noted in many formal evaluations of LME projects that this lack of coordination between those entities mandated with responsibility for the coastal and marine areas (in the context of environmental is-

sues, fisheries, maritime activities or scientific research, etc.) hinders the effective interactive and intersectoral ecosystem-based management of the LME. The LME and SAP process itself has no pre-determined legal, institutional basis and needs to be 'anchored' within some formal regional entity. Yet, part of the problem here is that there is rarely if ever such a body that has a formal responsibility that captures most or all of the LME management requirements, while there are usually several bodies that can 'claim responsibility' for part of the SAP implementation requirements. This problem is further highlighted in the above review process in the uncertainties in selecting or agreeing on an overarching body for LME management and SAP implementation. As a consequence, joint management and governance of the oceans at an ecosystem level is still very fragmented and will remain so until this problem can be resolved. Even the creation of new 'Commission' in certain LMEs has not really sorted this problem out as the LME area may then 'clash' with a larger regional seas area or only be a partial fit.

One logical solution to this may be to entrench the LME approach and ecosystem-based management within legal regional entities that already exist (e.g. the Regional Seas Programmes and their Conventions). This would provide one overarching body with administrative responsibility for the LMEs where they exist within and adjacent to EEZs (thus including high seas transboundary issues). It would then be possible to ensure that all of the ecosystem quality objectives, priority LME actions, and interests of the development sectors as well as the environment sectors are captured through appropriate inter-agency agreements, with the RSP administrative secretariat or body having the overall, formal administrative and coordination function. For Regional Seas programs featuring 'in-force' conventions, it would in principle also strengthen SAP commitment and action by embedding the SAPs in a formal legal framework such as a Protocol





BEST PRACTICES IDENTIFIED FROM THE TDA-SAP IMPLEMENTATION PROCESS

These **Best Practices** (along with the **Challenges and Shortfalls** below) have been captured both through the review templates of each TDA-SAP project (including the Terminal Evaluations) and through the review processes highlighted above

- » Starting the TDA process at the country level with national Marine Ecosystem Diagnostic Analyses is a valuable tool for building ownership of the TDA-SAP process at the country level and also has the advantage of creating technical

working groups in-country that can later evolve into more permanent entities to support NAP and SAP development and longer term monitoring.

- » An effective and comprehensive SAP delivering appropriate management practices can only be as good as the TDA upon which it is based. Significant effort and expertise needs to be focused on the TDA, its Causal Chain Analysis and other TDA-related instruments such as Cost-Benefit Analyses, Governance Assessments and Institutional

Reviews. These then become part of the underlying 'justification' during SAP negotiations.

- » Identifying an appropriate existing institution for SAP implementation during the TDA-SAP process definitely helps to create ownership and to provide for sustainability and collaboration. The important emphasis here is on the word 'appropriate'. Anchoring the TDA-SAP process within a weak institution may create an impression of poor performance and lack of interest in the LME process unless effective



capacity building and long-term sustainability can be provided. TDA development and SAP implementation Projects that have been anchored within a well-recognised existing body (e.g. a Convention Secretariat) have benefitted from that bodies experience of working in those regions and from the facilitation that it has given to political level decision-making at the regional level.

- » Including the development of National Action Plans within the SAP Implementation process is an evolving approach within the various LMEs that has proven to be very beneficial, as long as the NAPs reflect the objectives and activities of the SAPs at the national level, thereby providing further support to the transboundary management process. In this context, strong linkages between regional Conventions already working with the countries on NAPs (e.g. for environmental issues) and the institution(s) delivering SAP implementation is a necessity (see **Recommendations** regarding coordination between agencies supporting SAP Implementation).
- » Partnerships have been shown to provide a valuable mechanism for 'sharing the load' in the context of activities and even financing. The majority of LMEs with a SAP are now negotiating or already using such partnerships to distribute responsibilities among various stakeholders and interested parties.

- » The use of Activity/Thematic Centres or the development of Centres of Excellence for SAP Implementation can be a very valuable contribution both to the necessary baseline scientific data collection and to the longer-term monitoring commitments under the SAP Implementation. This has been tried in a number of LMEs whereby countries have taken responsibility for such a centre and recognised their vested interest in identifying/providing funding to sustain it.
- » Strategic Action Programme Briefs (e.g. 5-page summaries) can be a very useful document for awareness-raising and for sharing information amongst other stakeholders that have not been so directly involved in SAP development. This also applies to the TDA which is often not seen by senior government personnel as they tend to be very large documents.
- » Undertaking a broad Cost-Benefit Analysis (and even Value Chain Analyses for specific sectors) at an early stage, ideally during the TDA process, provides the TDA-SAP development process/project with the necessary 'awareness tools' and socioeconomic justification with which to convince senior management and policy-makers of the necessity for EBM and for their support to the SAP negotiation and implementation process. They can also help to identify actual and potential alternative livelihood initiatives and mechanisms/strategies

for sustainable use of LMRs and ecosystem goods and services.

- » Where they have been included in the TDA process, governance assessments are also a very valuable tool for demonstrating the shortcomings of existing governance arrangements, especially if used and demonstrated in parallel with a cost-benefit analysis
- » On-the-ground demonstrations of SAP implementation priorities are a valuable instrument for trial and testing of potential remediation and mitigation measures and can provide best lessons for transfer at a wider national and regional level, thereby encouraging replication of such measures and aiding in the delivery of SAP priorities. Furthermore, it can create greater ownership of the objectives by delivering as a series of country packages that can be seen to have benefits at the national/local level.
- » The TDA-SAP process has nurtured strong working relationships and respect between institutions and experts in both 'donor' and 'recipient' countries and has developed lasting partnerships between scientific and academic bodies across the world.
- » A vast array of valuable publications, manuals and guidelines have been generated by the various TDA-SAP processes and are generally available on the IW:LEARN website (<http://iwlearn.net/>)





CHALLENGES AND SHORTFALLS IDENTIFIED FROM THE TDA-SAP IMPLEMENTATION PROCESS

A fisherman in a small boat is silhouetted against a vibrant sunset sky. He is pulling a large, intricate fishing net that stretches across the frame. The water reflects the warm orange and yellow light of the setting sun. The overall mood is serene yet industrious.

All TDA-SAP processes to date have shown shortfalls (and subsequent need) in more clarity on financial arrangements. Too many of the LMEs that are currently implementing their SAPs still have no formal road-map for mid-to-long-term financial stability. Sustainability road-maps should be considered as priority, possibly even at the initial SAP endorsement stage

- » The TDA-SAP processes vary enormously. In particular, the apparent definitions chosen for the sequential causal chain analysis levels (Immediate Cause, Underlying Cause, Root Cause, Barrier) and the level of descriptive detail assigned to each is highly variable and can then undermine the efficacy of the SAP and its priorities and actions.
- » A shortcoming in earlier TDA-SAP project design has been the lack of consideration of meaningful

involvement at an early stage in TDA-SAP development of a) the private sector and b) other stakeholders from coastal communities, subsistence and artisanal fishers and other grassroots constituents. This is improving but still needs to be driven more through identifying 'best practices'.

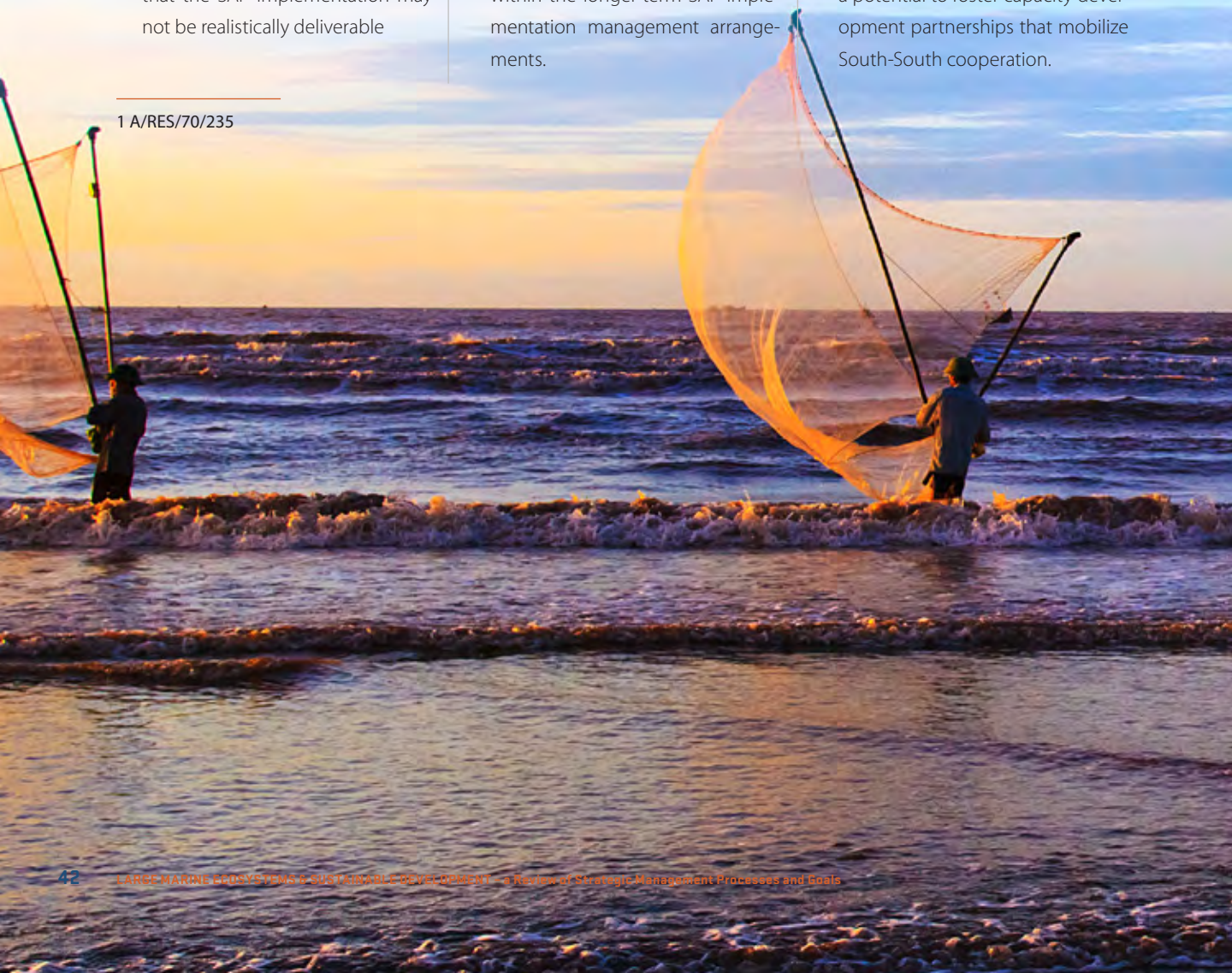
- » In a number of TDA-SAP Processes and GEF-supported projects non GEF-eligible countries that are part of the LME were not necessarily involved in the Project Design and in further negotiations with GEF. This lack of involvement risks alienating these countries and thereby could also risk losing their support both technically and financially. It also risks the creation of 'free riders' who don't take on responsibility for implementing multi-country actions needed to address transboundary LME issues.

» Some projects delivering the TDA and the SAP have noted that they could have benefited throughout this process from the involvement and support of development financial institutions, such as the World Bank, and regional development banks) as well as the private sector. The lack of involvement of these key stakeholders is often due to the absence of activities, outputs and resources in the Project Document that directly relate to their interests. Without the direct involvement of development investors and of industries those projects have noted that the SAP implementation may not be realistically deliverable

» Lack of coordination between various formal agencies with regional mandates within the LME management boundaries has been recognised as a significant drawback and constraint to delivering a comprehensive cross-sectoral TDA and to the development of the SAP and its later implementation. Early negotiation of a more collaborative and coordinated process would have been both desirable and efficient, ideally through some form of MoU, followed by closer interaction within a single project management/steering committee and similarly within the longer-term SAP implementation management arrangements.

» Recognising the existing efforts being made by the majority of TDA-SAP projects within the LMEs, human capacity building remains a long-term challenge to ensure the sustainable of the LME management process and SAP delivery. The General Assembly has noted the critical need to intensify efforts to build capacity for developing countries, in particular for SIDS and LDCs, as well as coastal African States¹, and has further recognised that, in addition to traditional capacity development assistance through North-South cooperation, there is a potential to foster capacity development partnerships that mobilize South-South cooperation.

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- » Several projects noted that separating the land-based, coastal and offshore and fisheries components was counter-productive and introduced all sorts of agency territorialities and created factions which were inevitably detrimental to both the development of the SAP and its ultimate implementation. It was further noted that the separation of SAP components under different Implementing Agencies makes it very difficult to judge achievement or for the countries and their partners to see this SAP approach in an integrated and holistic LME manner.
- » The continuing and frequent long transition period, often of several

years, between the TDA-SAP development phase funded by GEF and the SAP implementation phase (which is also funded by GEF but may often be multi-donor) has created constant problems for effective LME management around the world. These include loss of awareness and ownership and loss of capacity in the region as well as uncertainty and confusion over 'what happens' next'. Some effort needs to be made to avoid this constant drawn-out transition period between SAP negotiation/adoption and SAP Implementation

- » Attempting to full harmonise law and policies between countries can be overly ambitious and can lose

political support for the SAP process. Very often all that is needed is a broad agreement on objectives and on collaboration and cooperation. This can often then lead to gradual convergence of legislation as all parties move toward the same objective and share practices and lessons

- » Although demonstrations of SAP priority actions can be a very valuable tool, careful negotiation of the demonstration sites and activities needs to be integral to the process (including a fair share of support across countries and regions) to avoid losing focus and ownership.





RECOMMENDATIONS DIRECTLY RELATED TO IMPROVING THE TDA-SAP PROCESS

These recommendations are captured under three collective headings:

1. TDA-SAP LME MANAGEMENT PROCESS AND PROJECT DESIGN


- A. There is an urgent need for inclusion of agreed and functional mechanisms within the SAP process (both at the national and regional levels) for more effective translation of scientific results and information into adaptive management recommendations and policy guidance. Focusing on strong, peer-reviewed 'trends' (sometimes referred to as the 'weight-of-evidence' approach) can support a more pro-active management approach and is being tested by some SAP processes. Therefore, SAPs should always include an Adaptive Management Mechanism with details of how this process should work.
- B. The frequent long transition periods between the TDA-SAP development phase and the SAP implementation phase has created loss of awareness and ownership and loss of capacity in many of the LME regions as well as uncer-

tainty and confusion over 'what happens' next'. Some mechanism needs to be made to avoid this constant drawn-out transition period between SAP negotiation/ adoption and SAP Implementation either by finding 'bridging' funding or by a smoother and faster transition process. This is a major concern expressed by all projects and all countries that are involved in the TDA-SAP LME management process

- C. The TDA process needs to define clearly the boundaries of the LME based on the accepted LME designation criteria. In many cases these include ABNJ and High Seas but currently these are frequently ignored and the LME process then effectively becomes just another geopolitical management process (which tends to duplicate existing multinational EEZ-based initiatives). This will also become increasingly more significant as a growing number of Extended Continental Shelf applications are approved. The original LME boundaries were defined over 25 years previously in 1991 and, even then, rarely extended beyond the geopolitical boundary designa-

tion for the EEZs. Much of the data on criteria that define LMEs were not available 20 years ago and are often still not available in any useful detail prior to the TDA process.

- D. It is advisable to avoid separating the land and sea components of the TDA-SAP process. The linkages between the watershed and the coastal/marine ecosystem(s) are critical to the management objectives within the LME. Any artificial division of the 'ridge-to-reef' (or 'Catchment-to-Coast') management area poses a threat to the evolving management architecture and sends forth and inappropriate message to stakeholders and decision-makers. In some cases where this has happened already in the TDA-SAP process, it has resulted in the development of more than one SAP, which has created confusion and distraction in an already-complex SAP implementation process
- E. The detail, content and consequent effectiveness of both TDAs and SAPs varies enormously from one LME to another. More standardised TDA requirements and SAP structures would help to ensure that all LMEs are receiving



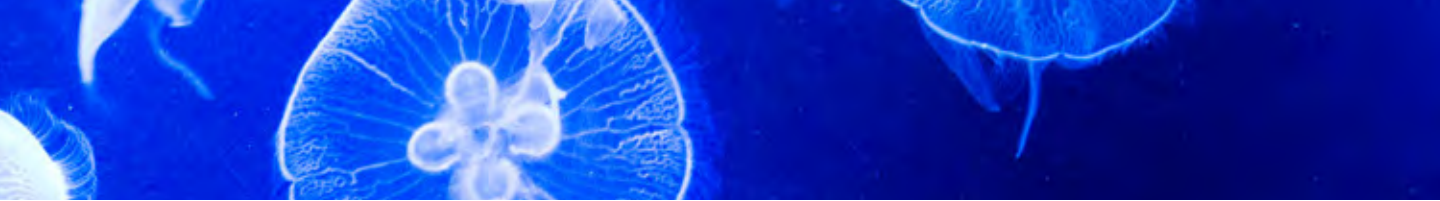
the appropriate level of management and allow for comparison between LMEs and between SAP implementation status on a global basis. In particular, the apparent definitions chosen for the sequential causal chain analysis levels (Immediate Cause, Underlying Cause, Root Cause, Barrier) and the level of descriptive detail assigned to each is highly variable and can then undermine the efficacy of the SAP and its priorities. Actions. Furthermore, a 'Logical Results Framework' approach with clear targets and indicators should become standard within SAPs along with a clear road-map and progress chart (on the website) for frequent evaluation of SAP delivery by the appropriate stakeholders. It would also be beneficial to include in the SAP an Implementation Plan and Pathways, based on the LogFrame, which show the priority actions along with a road-map showing when they need to be undertaken, in what logical sequence, how they will be funded and who will undertake them. This will help everyone agree on the way forward and to understand their individual and coordinated roles. It will also assist in avoiding an-

other common problem in SAPs which is the tendency to overdo the priorities and actions to be addressed and to frame them for implementation within too short a period.

- F. Creating country ownership is an important role of the TDA-SAP process. The use of the MEDA approach (whereby ecosystem diagnostic analyses are done at the national level first and then translated into a transboundary context) helps to create nation ownership, especially if a cost-benefit analysis is one of the tools included in this process. Similarly, the establishment of thematic/activity centres or centres of excellence in participating countries aids in continuing to build national ownership and commitment while providing valuable focus for SAP implementation. Often such Centres can arise from the MEDA process itself.
- G. One of the latest SAP Implementation projects does actually capture the linkages between the SDGs and the SAP activities. This should now become a standard requirement in any SAP document and therefore also part of the TDA process.

2. INSTITUTIONAL AND STAKEHOLDER COORDINATION

- A. There is also an urgent need for more formal coordination arrangements and agreements on roles and responsibilities between the mandated regional bodies that deal with the various aspects of ecosystem-based management of living marine resources. There is also a need to 'anchor' the entire LME process within and under such a formal agreement so that the LME process is being promoted and implemented within the regional seas areas and across the transboundary interfaces a) where LMEs overlap across two or more regional seas areas and b) into the adjacent high seas areas, which are also subject to transboundary interactions. Such an 'anchoring' process could be achieved through a formal instrument within an existing Convention.
- B. There are a number of existing and potential models of institutional and administrative management of the SAP process. However, any decision on where the SAP Implementation process (and thus the LME management and administrative home) should



be anchored must be by agreement of the participating trans-boundary countries.

- C. Attention needs to be given to the establishment of mechanisms for consultation with, and involvement of development banks and donors, and of the private sector. This needs to take place at an early stage, even during the Project Development (and certainly during the TDA) if these stakeholders are to be able to advise on their interests and potential involvement.

3. SUSTAINABILITY AND PARTNERSHIPS

- A. SAPs need more detail in the context of a Sustainability Road-Map. This is a major weakness in many of the SAP Implementation phases and represents a significant threat to the investments made over the past decades in the development and implementation of management strategies for LMEs. This should be promoted as one of the main requirements of the SAP, as much as possible at its Endorsement stage but certainly as one of the highest and earliest priorities during SAP Implementation. It would even be advisa-

ble for donor agencies to require such a detailed Sustainability Road-Map (with formal commitments for rolling over financial responsibility from donors) as part of any submission for further SAP Implementation funding

- B. The GEF support to the TDA-SAP process has created strong working relationships and respect between institutions and experts in both 'donor' and 'recipient' countries, thereby encouraging and supporting lasting partnerships between scientific and academic bodies across the world. This process should ideally be sustained through more formal agreements for regional and global partnerships in support of the LME management concept and SAP implementation
- C. There is a critical need to intensify efforts to build capacity for developing countries in relation to ocean and coastal management and EBM, in particular for SIDS and LDCs, as well as coastal African States. In addition to traditional capacity development assistance through North-South cooperation, TDA-SAP processes and LME management *per se* needs to explore the further potential to foster capacity development

partnerships that mobilize South-South cooperation

- D. Rapid endorsement of a SAP is not always desirable. The absence of sufficient specific detail or commitment in the SAP may well have been responsible for some of the more rapid endorsements while the slower endorsement process may actually deliver more realistic management objectives and more commitment in the long-run
- E. Partnerships are an important management tool if they are properly negotiated and documented, and can provide a potential 'vehicle' for longer term sustainability of the SAP objectives. Such partnership arrangements do require a strong regional, institutional and administrative coordinating arrangement.
- F. Both GEF eligible countries and non GEF-eligible countries that are part of the LME need to be involved in the Project Design and in any further negotiations with GEF, in order to make the project more attune to their needs and capacities to deliver, and to ensure that all countries/ stakeholders are ready for the implementation process.



A vertical photograph on the left side of the page shows a cityscape. In the foreground, there is a body of water with several small boats. Behind the water, a dense cluster of multi-story buildings with colorful facades (red, blue, yellow) is visible. In the background, a tall, slender minaret of a mosque rises above the trees. The sky is a clear, vibrant blue with some light, wispy clouds.

LINKAGES BETWEEN THE LME MANAGEMENT AND GOVERNANCE STRATEGIES AND SDG 14 TARGETS

Annex 5 compares the overall objective of SDG 14 with the summary of cross-cutting root causes threatening the global LMEs and the evolved common SAP response activities that broadly address these overall objectives.

Annex 5 then looks in detail at the SDG 14 Targets and their Indicators and links these to the more detailed specific root causes (from the LME TDA process) which represent threats to the LMEs, as well as the specific common actions that have been employed by the LME SAP implementation process to address these threats, and which therefore also assist in addressing the SDG 14 targets and help to deliver on their indicators.

The linkages between the TDA-SAP and SAP implementation process and the SDG 14 Targets are both significant and various. The formal definition of the ecosystem approach (as employed in the LME SAPs) is that it is a **Strategy for the Integrated Management of Land, Water and Living Resources that Promotes Conservation and**

Sustainable Use in an Equitable Way, and Which Recognises that People, with their Cultural and Varied Social Needs, are an Integral Part of Ecosystems. The overall objectives of SDG 14 are **To Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.** It is unquestionably clear that these two objectives are not only very similar in their aims but are, in fact, intrinsically aligned.

A few of the more obvious areas of compatibility are captured in the following Table below from which it is clear that the two processes overlap with similar, or even identical, objectives in most if not all areas. It is also quite clear that the on-going support for the TDA-SAP process along with the implementation of the various SAPs within the global LMES has and will continue to have a direct and positive effect on achieving the SDG 14 Targets. Annex 5 carries a more detailed analysis of specific relationships along these lines.

SDG 14 TARGET	DIRECT LINKAGES TO LME TAD-SAP ACTIVITIES
1: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.	Almost 90% of the LMEs recognise marine pollution to be an issue and identify policy and regulatory reforms and improvements for reducing and controlling both land-based and maritime pollution as priority actions. Nutrient pollution and eutrophication are recognised also as a major driver and cause of coastal pollution in more than 50% of the LMEs as is solid waste/plastics. A major emphasis across the LME SAPs is on increased government investment in land-based pollution reduction, with an increasing emphasis on private sector investment, including the promotion of Innovative investment and economic instruments to address threats and impacts to the ecosystem as well as more specific mechanisms for private sector participation and interactive governance recognising a 'blue economy' strategy.
2: By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	Nearly all of the activities undertaken during the TDA-SAP process directly or indirectly contribute to strengthening the resilience and improving the sustainable management and protection of marine and coastal ecosystems. Both habitat degradation and general loss of biodiversity rank highly as priorities that are being addressed through the SAPs. One of the main barriers to reversing the impacts is the fact that ecosystem goods and services are undervalued. Approximately 90% of all the TDA-SAP processes undertaken so far include the need for a cost benefit analysis/value chain analysis to justify political support for the EBM approach and to strengthen protection for ecosystem resilience. Many of the SAPs are specifically focusing on the restoration of natural ecosystem processes.
3: Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	One of the Priority areas that the SAPs address is that of Environmental Variability and Extreme Events (including Climate Change). Inevitably, this will include the impacts from ocean acidification. 100% of the SAPs are addressing the need for overall improvements and more coordinated scientific monitoring and investigation for general identification of changes within the LME, and this includes climate change parameters. The majority of them are also addressing the need to translate the results from this monitoring into adaptive management advice and guidance. Furthermore, the majority of the SAPs aim to Mainstreaming Climate Change and Adaptation to Natural Events and Disasters into National and Transboundary Management Strategies and Policies.

SDG 14 TARGET	DIRECT LINKAGES TO LME TAD-SAP ACTIVITIES
<p>4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics</p>	<p>All of the TDA-SAP processes recognise Declines in Living Marine Resources as a Result of Over-exploitation as being the main threat and a top Priority within the LMEs. Unsustainable/Destructive Fishing Practices and Excessive Bycatch and Discards ranks highly as a cause with Inadequate or Ineffective Fisheries Management being identified as the root cause. Virtually all of the SAPs have a strong focus on Adoption and Improvement of Management Practices for Ecosystem-Based Fisheries with a Focus on Food Security and greater than half of them are aiming specifically to Increase Government Investment in Better Fisheries Management. This overall adoption of an EAF approach across the LMEs includes Regional Coordination of the EAF Process as well as National Adoption of Associated Effective Monitoring and Enforcement.</p>
<p>5: By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information</p>	<p>Declines in LMRs, habitat degradation and general loss of biodiversity and key species are top priority threats identified in all of the TDAs undertaken for all of the LMEs. Once again, undervalued or unvalued ecosystem goods and services is identified as one of the main barriers to resolving these issues. The various SAPs are addressing these impacts and barrier removal through the application of national and region-wide use of such procedures and tools as ICM, MSP and GIS and through the development of regional networks of connected MPAs and EB-SAs. One of the common Measurable Indicators included in Results Frameworks in the TDA-SAP process is that of increased percentage coverage of protected and managed marine areas</p>
<p>6: By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation</p>	<p>It is already established above that the LME SAPs are focusing fully and specifically on addressing the impacts from over-fishing and its various causes. IUU fishing is noted in the TDAs as being an immediate cause of this over-exploitation and perverse subsidies for fishing effort (boats, gear, fuel, capital) as one of the root causes. As also noted above under Target 4, these causes of impacts are being addressed through the majority of the SAPs through adoption and improvement of management practices for ecosystem-based fisheries and through more effective monitoring and enforcement. Most of the SAPs include the need for policy realignment and reform in line with transboundary ecosystem-based management requirements, which could, at least provide a potential vehicle for elimination of subsidies at the LME regional level in the long term. However, this would require negotiation at a more global level to ensure that other countries which access LMRs in the LMEs remove the subsidies to their own fishing fleets. The 'Regional' nature of the SAP for LMEs and the coordination mechanisms built into the SAPs to support this provides for better management, monitoring and enforcement across the entire LME and its participating countries</p>



SDG 14 TARGET	DIRECT LINKAGES TO LME TAD-SAP ACTIVITIES
7: By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	The entire 'Ridge-to-Reef' approach that is adopted within the LME management strategies embraced by the SAPs is particularly valuable to the SIDS and recognises that there is no activity occurring on such islands that does not affect the marine environment and vice versa. Again, the 100% focus of all LMEs on sustainable fisheries and related food security is directly supporting the SIDS in the sustainable management and use of their fisheries. The specific SAP actions and responses that support the SIDS in increasing their economic benefits from the sustainable use of marine resources include value chain analyses for the fisheries, aquaculture and tourism sectors within a broader cost benefit analysis; specific mechanisms for private sector participation and interactive governance recognising a 'blue economy' strategy; innovative investment and economic instruments to address threats and impacts to the ecosystem and increased government investment in pollution reduction, better coastal planning and better fisheries management
A: Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular SIDS and least developed countries	Lack of knowledge and awareness across all sectors ranks highly within all of the TDA processes as a root cause, along with the absence of available advice upon which policy-makers and managers can base their management and policy decisions. This also links into the inadequacy of effective monitoring and evaluation of change within the LMEs as defined in the TDAs. There is an entire category of SAP responses and activities that falls under Monitoring, Information Management and Awareness that aims to address these deficiencies across all 24 LMEs. This will focus partly on strengthening and coordinating scientific monitoring and data collection and improvements in information handling and analyses leading to the need to then translate scientific findings and data into adaptive management and policy guidance. Clearly, there is a need for more studies and research in order to fill the gaps and strengthen the baseline upon which monitoring and ultimately adaptive management depend. The SAP focus on Alliances and Partnerships provides a valuable vehicle for supporting further studies and research (which many donors will not fund directly).

SDG 14 TARGET	DIRECT LINKAGES TO LME TAD-SAP ACTIVITIES
B: Provide access for small-scale artisanal fishers to marine resources and markets	The Ecosystem-Based Management approach and EAF being promoted by the LME SAPs has a strong focus on the management of small-scale fisheries and, in particular, the interaction between these artisanal or localised fisheries and the bigger commercial enterprises. Many of the countries within the LMEs that have adopted SAPs are specifically developing rights allocations for small-scale fishermen with associated legislation and regulations as well as improving landing facilities and marketing options. A number of SAP Implementation initiatives are focusing on this as well and providing funding to support the process.
C: Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want	Most of the SAPs recognise the need to strengthen the linkages to international conventions and to improve the coordination with and between such Conventions and Treaties. Most SAPs commonly include the requirement for ratification of appropriate international instruments that deal with LME and EBM related matters such as biodiversity, sustainable fisheries and other UNCLOS-related issues.

Annex 6 provides details of the actual funding commitments from GEF and its partners so far to the LME TDA-SAP processes (and consequently to the direct positive effects these are having on addressing the SDG 14 targets). 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

a total of 97 projects, many of them sequential to the TDA-SAP and SAP implementation process. Furthermore, it has formally leveraged close to a further US\$5.3 Billion in committed co-financing from the countries and other partners and stakeholders (an average of US\$6.6 leveraged for every US\$1 dollar donated from GEF). This includes all LME-related GEF International Waters projects that are completed, still active and conceptually or formally

approved. As can be seen from Annex 6, this is a continuing process with a number of LME projects currently in the 'start-up' phase.

There are some areas that could be improved or strengthened in relation to supporting realisation of the SDG 14 Targets. These apply both to any new TDA-SAP processes but also to any revisions of existing TDAs and SAPs.



RECOMMENDATIONS FOR IMPROVEMENTS TO THE SDG 14 AND LME TDA-SAP LINKAGES IN ORDER TO SUPPORT SDG TARGET DELIVERY

- A. Adding the SDG 14 concerns and an assessment of Target and Indicator realisation into the TDA process and ensuring that the SAPs focus on all of these Targets and Indicators (captured within an overall Results Framework for monitoring SAP implementation)
- B. Ensuring that primary climate change impacts are included in SAP regional and national indicator monitoring programmes (including ocean acidification, warming and deoxygenation)
- C. Ensuring that biologically sustainable fisheries yields are established and agreed for main transboundary fish stocks during the TDA process and ensure that the agreement to remain below that threshold is captured within the endorsed SAP
- D. Ensuring that the TDA process reviews subsidies as part of its policy and governance assessment and that the endorsed SAP provides positive confirmation from the LME and external countries regarding how such subsidies will be eliminated or re-structured so as not to encourage over-extraction of LMRs or IUU
- E. Include Cost-Benefit Analyses and Value Chain Analyses in the TDA process, with one of their objectives being to provide guidance to the SAP regarding some logical and justified investment opportunities, ecosystem-friendly economic instruments and potential or actual (negotiated) areas of engagement with industry
- F. More emphasis now needs to go into TDA-SAP processes that focus on encouraging research and development in marine technology in support of the SDG 14 Targets and their equivalent SAP priority actions and EQOs
- G. As and when a new international instrument for addressing Biodiversity Beyond National Jurisdiction under UNCLOS is adopted, add this as a requirement in the TDA (i.e. to review biodiversity in ABNJ within the LME and what are the transboundary threats, root causes and barriers) and in the SAP (what actions should be taken to conserve, protect and monitor such biodiversity in areas adjacent to EEZs).

OTHER SDG TARGETS BEING ADDRESSED BY THE TDA-SAP PROCESS

inevitably, the TDA-SAP process within the LMEs is not restricted to addressing only SDG 14. Briefly, the following list captures some of the other areas in which the LME SAPs are contributing to other SDGs.

SDG 1: End poverty in all its forms everywhere

Many SAPs are actively exploring alternative livelihoods for people working within or impacting on the ecosystem so as to a) relieve pressure on marine resources while b) finding sustainable work and income-generating opportunities in poor communities. Some SAPs are also developing mechanisms that protect the poor and those in vulnerable situations from disasters and shocks, including climate-related extreme events, through early warning and disaster risk reduction activities.

SDG 2: End hunger, achieve food security and adequate nutrition for all

SAPs are addressing Food Security in relation to Living Marine Resources and guaranteeing the rights of access and sustainable exploitation within small scale fisheries, some of which have catch yields far above commercial catches in the same area.

SDG 3: Attain healthy life for all at all ages

SAP activities are helping to reduce pollution throughout the watershed and into the oceans thereby increasing the chances of improving human health and well-being

SDG 6: Secure water and sanitation for all for a sustainable world

SAP implementation will assist in improving water quality by significantly reducing pollution, eliminating dumping of toxic materials, and improving wastewater management, recycling and reuse as part of its objective to reduce waste water and other pollutants throughout the watershed and into the oceans. In many cases, SAPs will actively support integrated water resources management and water use efficiency, including appropriate transboundary co-operation

SDG 8: Promotes strong, inclusive and sustainable economic growth and decent work for all

SAPs generally include activities that help to create incentives for the development of more sustainable coastal activities such as tourism, aquaculture and fisheries, and which take into account community participation and local culture



SDG 9: Promote sustainable industrialization

The 'Blue Economy' approach of the LME management process and the development of public-private partnerships is a common priority within SAPs, which focuses on making development (including industrialization) more sustainable. This includes upgrading existing industries with clean technologies and environmentally sound industrial processes to achieve improved energy and resource-efficiency

SDG 12: Promote sustainable consumption and production patterns

The SDG target to achieve sustainable management and efficient use of natural resources to enhance human welfare within the carrying capacity of ecosystems is directly aligned with SAP Implementation priorities, as is the creation of sustainable lifestyles, including through education, awareness raising, sustainability information on products and services, policies and incentives

SDG 13: Promote actions at all levels to address climate change

This is a core objective of the TDA-SAP process as well as supporting GEF projects. Mainstreaming climate change issues is a main objective under the SAPs

SDG 15: Protect and restore terrestrial ecosystems and halt all biodiversity loss

Because the LME concept and the TDA-SAP process recognise the interactions and interlinked nature of the terrestrial and marine environment (and how much of it forms one ecosystem – the LME), activities under the SAP inevitably provide protection to the terrestrial component of the watershed and its biodiversity as well.

SDG 17: Strengthen and enhance the means of implementation and global partnership for sustainable development

A major part of the SAP response to barrier removal is focused on the development of partnerships for sustainability





SUMMARY OF FINDINGS FROM THE REVIEW PROCESS

The *Transboundary Diagnostic Analysis and Strategic Action Programme* development approach for the management of Large Marine Ecosystems has proved itself to be a very useful sequential process for identifying threats to LMEs, finding the root causes of those threats and the barriers preventing their removal. It then takes the next step in addressing those causes and barriers through a negotiated transboundary agreement between the bordering countries that defines ecosystem quality objectives and the necessary actions that need to be taken for barrier removal and achievement and maintenance of the EQOs.

A detailed review of all of the TDA-SAP processes supported by GEF over the last 20 years (through 18 projects in total across 24 LMEs) reveals the prevalent and shared concerns, root causes and barriers that these 18 TDA-SAP processes have identified, and the common responsive actions taken by the participating countries and their partners in order to adopt and sustain an effective ecosystem-based management approach within these LMEs.

This has revealed that the LMEs share four main priority threats which are common to most of them, these being:

- » Declines in LMRs as a result of over-exploitation of ecosystem goods and services
- » Habitat and Community Modification/ Degradation/Loss
- » Water Quality Degradation from various polluting sources
- » General loss of Biodiversity and Key Species and collapse in ecosystem integrity

The root causes behind these threats vary from one LME to another. For the majority of LMEs however they can be identified as i) Lack of knowledge and awareness in all sectors of society, ii) Inadequate management of maritime activities, iii) Inadequate guidance and advice upon which decision-makers can base management and policy decisions, iv) Ineffective and unenforced environmental legislation, and v) Absence of a robust legal framework 'fit-for-purpose' for effective management of sustainable ecosystem goods and services.

In order to address these, the various LMEs have come up with similar response and actions. The most common of these can be summarised and grouped under three main headings in order of their significance as follows:

GOVERNANCE REFORMS/REALIGNMENTS

- » Improvement management practices related to EBM and EAF
- » Institutional strengthening for national and regional transboundary management
- » Improved policy and regulations for reducing and controlling pollution and contaminants
- » Transboundary-related realignment and reform of policy/legislation/regulations
- » Strengthening of the role and coordination of international institutions responsible for transboundary issues
- » Increased investment in pollution reduction, coastal planning and fisheries management
- » Mainstreaming Climate Change and adaptation at the national and regional level

LME MANAGEMENT STRATEGIES FOR SAP IMPLEMENTATION

- » Full LME Cost-Benefit Analysis and sector-specific Value Chain Analysis
- » Adoption of management areas for LME biodiversity and goods and services
- » Adoption of an EAF for the management of LMRs and focusing on food security
- » Improved regional interaction and coordination on EBM and EAF issues
- » Application of common tools such as EIA, SEA, ICM, MSP, GIS at national and regional level
- » National adoption, effective monitoring and enforcement for EBM and EAF
- » Development of a regional network of connected MPAs and EBSAs

LME MANAGEMENT SUSTAINABILITY PRACTICES

- » Strategic, programmed Capacity Building and EBM-related training
- » Formal participation of stakeholders into the management and governance process
- » Innovative investment and economic instruments to address threats and impacts
- » Mechanisms for private sector participation within a 'blue economy' strategy
- » Long-term financial sustainability mechanisms for SAP implementation

The overall long-term management of the LMEs and the TDA-SAP approach used to achieve this also depends on a set of common tools which are also discussed in this report and can be summarised as:

- A. The Ecosystem Based Management Approach
- B. An Ecosystem Based Approach to Fisheries
- C. Ridge-to-Reef Processes
- D. Adaptive Management and the Use of Monitoring and Scientific Information
- E. Integrated Coastal Management (ICM)
- F. Marine Spatial Planning (MSP)
- G. Geographic Information Systems (GIS)
- H. Managed and Protected Marine Areas

The report then reviews the 18 processes across the 24 LMEs to identify practices adopted for achieving sustainability. The most common efforts toward achieving sustainability are summarised under three main headings in order of their frequency of presence as follows:

INSTITUTIONAL ARRANGEMENTS FOR SAP IMPLEMENTATION

- » Non-Legally Binding Institutional Arrangements based on MoUs/Agreements
- » LME Commission with a Permanent Secretariat created, based on a Convention
- » Policy and technical groups anchored under an existing regional body/agreement
- » Anchored within an existing Regional Seas Convention Action Plan

FINANCIAL INSTRUMENTS/ MECHANISMS FOR SAP IMPLEMENTATION

- » Continued Donor Funding
- » Loose, non-committal detail in SAP focusing generally on all possible options
- » Alliances/Partnerships for supporting the SAP Implementation in the long-term
- » Development of Private-Public Partnership
- » Details of Investment needs and Plans in SAP with requirement for an Investment Plan

PARTNERSHIPS FOR SAP IMPLEMENTATION PROCESS

- » Formal Alliances agreed through MoUs and Aides-Memoire
- » Nothing Specific about partnerships captured in SAP
- » Informal partnerships noted with intent to collaborate
- » SAP focuses on Public-Private Partnership opportunities

The review then considers the **LME Governance Linkages to Other Ecosystem Management Mechanisms and Interested Bodies**, identifies poor coordination and overlap of activities and responsibilities as an issue and provides some recommendations to overcome this constraint to effective LME management.

The review then also considers the best practices as well as the challenges and shortfalls encountered during the various TD-SAP development and implementation processes. The priority issues from these are captured in a set of Recommendations that focusing on improving the TDA-SAP process.

Finally, the report considers the Objectives and Targets of the SDGs, particularly SDG 14, in relation to the Objectives and Actions/Deliverables from the TDA-SAP process. It concludes that there is an intrinsic alignment between the two processes and that the TDA-SAP process and SAP implementation itself will inevitably deliver on nearly all of the SDG 14 Targets and Indicators and, indeed on many of the other SDG Targets.



ANNEXES

ANNEX 1: List of all TDAs and SAPs Completed through GEF Projects

ANNEX 2: Matrix Template for Information Harvesting from the LME TDA-SAP Processes

ANNEX 3: Frequency and Ranking of Threats, Root Causes, Barriers and SAP Response Actions for all 23 LMEs supported by GEF as of Mid-2017

ANNEX 4: Frequency of Sustainability Tools used for 23 LMEs supported by GEF by Mid-2017

ANNEX 5: The Relationship between the Targets Set for SDG 14 and the Expected Outcomes from the GEF LME TDA-SAP Process



ANNEX 1: LIST OF ALL TDAs AND SAPs COMPLETED THROUGH GEF PROJECTS

No.	TDA-SAP Area	LMEs Covered	TDA Finished (Revised)	SAP Adopted (Revised)	Current GEF Support to LME
1	Black Sea	Black Sea	1996 Revised 2007	1996 Amended 2002 Revised 2007	No recorded current support from GEF
2	Baltic Sea	Baltic Sea	First Draft 1992 Revised 2003	First Draft 1998 Revised 2007	No recorded current support from GEF
3	Mediterranean Sea	Mediterranean	1997 Revised 2005	LBA SAP 1998 Biodiversity SAP 2004	Implementation of Ecosystem Approach in the Adriatic Sea through Marine Spatial Planning (Albania; Montenegro only) approved 2016
4	Red Sea	Red Sea	No TDA Undertaken	1998	No recorded current support from GEF
5	Benguela Current LME	Benguela Current	1999 Revised 2013	2002 Revised 2014	2nd SAP implementation ProDoc underway
6	Guinea Current Large Marine Ecosystem	Guinea Current	2006	2008	No recorded current support from GEF
7	South China Sea	South China Sea	2000	2000 Revised 2008	Implementing the Strategic Action Programme for the South China Sea approved for implementation 2016
8	Russian Arctic	Chukchi Sea East Siberian Sea Laptev Sea Kara Sea Barents Sea	2011	2009	Improvement of Environmental Governance and Knowledge Management for SAP-Arctic Implementation approved 2012. Not under implementation yet
9	Yellow Sea	Yellow Sea	Preliminary TDA 2000 Full TDA 2007	2009	Implementation of the Yellow Sea LME Strategic Action Programme for Adaptive Ecosystem-Based Management approved 2014. Currently under implementation
10	Gulf of Mexico	Gulf of Mexico	2005 Revised 2011	2012 Revised 2015	Implementation of the Strategic Action Program of the Gulf of Mexico Large Marine Ecosystem Project approved for Implementation as of Oct 2016

No.	TDA-SAP Area	LMEs Covered	TDA Finished (Revised)	SAP Adopted (Revised)	Current GEF Support to LME
11	Arafura and Timor Seas	The Indonesian Sea Northern Australian Shelf	2012	2013	Implementation of the Arafura and Timor Seas Regional and National Strategic Action Programs approved 2017
12	Caribbean + LME	Caribbean Sea North Brazil Shelf LME	2011	2013	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+ approved 2015 and under implementation
13	Sulu-Celebes Sea Large Marine Ecosystem	Sulu-Celebes Sea	2002 GIWA Revised as TDA 2014	2013	No recorded current support from GEF
14	Agulhas and Somali Currents Large Marine Ecosystems	Agulhas Current Somali Coastal Current	2012	2015	SAPPHIRE Project Inception 2017
15	TDA of Land-Based Sources and Activities in the Western Indian Ocean Region		2009	2009	WIOSAP Project Inception 2017
16	Bay of Bengal LME	Bay of Bengal	2012	2015	GEF Project under development
17	Canary Current LME	Canary Current	2016	2016	SAP Implementation Project Document under preparation
18	Humboldt Current LME	Humboldt Current LME	2015	2016	SAP implementation Project Concept approved by GEF 2016. Currently awaiting approval for full ProDoc

ANNEX 2: MATRIX TEMPLATE FOR INFORMATION HARVESTING FROM THE LME TDA-SAP PROCESSES

LME REVIEW PROCESS FOR SDG 14 TARGET GUIDANCE	
NAME OF LME	
NAME OF GEF PROJECT:	
COUNTRIES:	
PROJECT INCEPTION/APPROVAL:	PROJECT CLOSURE:
IMPLEMENTING AGENCY:	EXECUTING AGENCY:
OTHER KEY PARTNERS:	
DATE OF COMPLETION OF ORIGINAL TDA:	TDA REVISED:
DATE OF COMPLETION/SIGNATURE OF ORIGINAL SAP:	SAP REVISION:
PREAMBLE AND BACKGROUND	
REVIEW	
QUESTIONS AND CRITERIA	SUMMARY ASSESSMENT
REVIEW OF THE TDA PROCESS	
Main transboundary areas of concern identified	
Summary of Root Causes	
Summary of common underlying causes	
Management boundary – is it appropriately defined based on the TDA process?	
Cost-Benefit Analysis – overall value of LME (if available)	
TDA Revision and update?	
Adaptive Management (national and regional) and amendments to SAP arising from a TDA revision and update	
Other general comments and observations	

REVIEW OF THE SAP PROCESS	
Policy Reform Strategy for LME management	
Legal Reform Strategy	
Institutional Reform Strategy	
Capacity building and training Strategy	
Investment and Financial Support Strategy	
Partnerships for Implementation (especially involvement of mandated fisheries bodies, Regional Seas Conventions/Secretariats, and other IGOs)	
Management and Institutional Arrangements for SAP Implementation	
Tools and approaches intended for SAP Implementation (e.g. Integrated Coastal Management, Marine Protected Areas, Marine Spatial Planning, Ridge-to-Reef or Source to Sea, Ecosystem-based Approaches to Fisheries)	
Other general comments and observations (e.g. does SAP follow 5-Module approach to LMEs?)	
TDA-SAP COUPLING AND IMPLEMENTATION	
Has the SAP captured the conclusions of the TDA and will its implementation effectively address the TDA priority concerns?	
Other general comments and observations	
BEST PRACTICES AND/OR LESSONS LEARNED FOR DELIVERY OF GOVERNANCE REFORMS, INVESTMENTS, PARTNERSHIPS	
Best Practices and Lessons within the TDA-SAP Process	
Gaps, Challenges and Constraints within the TDA-SAP Process	
SAP IMPLEMENTATION STATUS?	
LIST OF SAP-IMPLEMENTATION RELATED PUBLICATIONS ARISING FROM TDA-SAP PROCESS	
ANY OTHER RECOMMENDATIONS OR OBSERVATIONS ARISING	

ANNEX 3: FREQUENCY AND RANKING OF THREATS, ROOT CAUSES, BARRIERS AND SAP RESPONSE ACTIONS FOR ALL 23 LMEs SUPPORTED BY GEF AS OF MID-2017

CAUSAL CHAIN ANALYSIS RESULTS		LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
		PRIORITY THREATS ↓																			
Declines in LMRs as a result of over-exploitation of ecosystem goods and services		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	100%
Habitat and Community Modification/ Degradation/Loss		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	94%
Water Quality Degradation from various polluting sources		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	89%
General loss of Biodiversity/Key Species and collapse in ecosystem integrity		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	56%
Environmental Variability and Extreme Events (including from Climate Change, HABs and low-oxygen events)						1	1	1	1	1	1	1	1	1	1	1				7	39%
Direct Human Health Risks			1						1											2	11%

IMMEDIATE CAUSES ↓																						
Over-exploitation of biological/ecosystem resources especially unsustainable/destructive fishing practices and excessive bycatch and discards	x	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	x	x	15	83%
Exotic and non-native species invasion	x	X	X				x		X	X	X	X	X	X	X	X	X	X	x	x	11	61%
Alterations in 'environmental flow' (e.g. changed or blocked water courses, coastal erosion, etc.)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	11	61%

CAUSUAL CHAIN ANALYSIS RESULTS	LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Land-based pollution of ecosystem from various sources	x	x	x	x				x				x	x	X	x			x	10	56%
Increasing expansion of coastal aquaculture and consequent pollution and coastal degradation				X	X	X			X	X			X		X	X	X	X	10	56%
Inadequate sewage treatment and disposal			X	X	X	X		X	X	X			X		X			X	10	56%
Solid waste disposal (including at sea, and with an emphasis on plastics)			X		X	X	X			X			X		X		X	X	9	50%
Land degradation and poor land-use planning (including coastal development, dredging, etc.)			X	X	X		X	X	X				x	X	X				9	50%
Unpredictable and unmonitored changes in biochemical and physical characteristics in the ecosystem		X			X					X			x	X	X		x		7	39%
Eutrophication and Harmful Algal Blooms (particularly as a result of excess nutrient input)	x	X	X		X				X						X			x	7	39%
IUU Fishing				X	X						X	X					x	x	6	33%
Maritime pollution from coastal and offshore commercial activities	x		X	X								x			X				5	28%
Increased impacts from tourism (as a result of expansion of the sector, poor planning and inadequate enforcement)			X	X			X							X		x			5	28%
inadequate spatial, legal and/or institutional management of key habitats and species				X	X											x			3	17%
cheaper and more efficient technology for exploitation/extraction (i.e. fishing boats and gear)					X		X					X							3	17%

ANNEX 3: FREQUENCY AND RANKING OF THREATS, ROOT CAUSES, BARRIERS AND SAP RESPONSE ACTIONS FOR ALL 23 LMEs SUPPORTED BY GEF AS OF MID-2017, cont.

CAUSAL CHAIN ANALYSIS RESULTS		LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
ROOT CAUSES ↓																					
Lack of knowledge and awareness (All sectors of society)	x		X	X	X	x	X	X	X	X	X		x	X	X			x	14	78%	
			X	X	X	X	X	X	X	X	X		X	X	X	X	X		12	67%	
		x	X	X	X	X	x	X	X	X	X		x	X				p	12	67%	
Ineffective and unenforced environmental legislation	x		X	X			X	X	X			X	x	X				x	11	61%	
Lack of robust legal framework 'fit-for-purpose' for effective management of sustainable ecosystem goods and services	x	x	X	X	X	x		X	X	x				X	x				10	56%	
Inadequate or ineffective fisheries management			X	X			X	X	X		X		P	X			p	x	9	50%	
Absent or inadequate monitoring and evaluation of changes in the ecosystem and/or lack of collaboration on same at regional/ecosystem level		X	X	X		x			X				x	X	X			x	9	50%	
Weak national strategic planning and regulatory frameworks for sustainable development	x	x		X	X	x			X		X			X	x				9	50%	
Inadequate broad stakeholder and/or intersectoral participation in management and governance	X		X	X	X			X	X				X		X	X	X		9	50%	

CAUSAL CHAIN ANALYSIS RESULTS	LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Increasing population pressure, especially on the coast	x			X			X		X	x			x	X	x				8	44%
Generally inadequate or inappropriate governance measures driving poor management			X	X		x			X	x	X			X	x				8	44%
Lack of investment and available resources/capacity to support effective reduction of impacts on the ecosystem (e.g. water and waste water management and reception facilities)			X	X					X	X	X			X	x			x	7	39%
Lack of applicable (best available and affordable) technology to reduce impacts on ecosystems (e.g. from wastewater, land-based pollution, maritime commercial activities, etc.)			X	X				X	X		X				x			x	7	39%
Higher consumer demand leading to Increasing fishing effort, especially from trawlers and purse seiners				X			X		X				P	X		x		x	7	39%
Concentration of communities and poor coastal planning		X					X	X			X		x	X		x			7	39%
limited Capacity and absence of appropriate training		X		X	X	x			X				x		X				7	39%
increased food security demands, especially for coastal poor				X			X		X		X			X		x		x	7	39%
Open access to fishing grounds				X					X					X		x	x		5	28%
Lack of empathy and balance between economic and environmental needs and sustainability				X				X	X		X			X					5	28%
Limited Options' nature of economic dependence							X	X					x	X					4	22%

ANNEX 3: FREQUENCY AND RANKING OF THREATS, ROOT CAUSES, BARRIERS AND SAP RESPONSE ACTIONS FOR ALL 23 LMEs SUPPORTED BY GEF AS OF MID-2017, cont.

CAUSUAL CHAIN ANALYSIS RESULTS		LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Fre- quency
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Cultural traditions and day-to-day needs override environmental concerns					X					X					X	X				4	22%
Increased internal/external market demands for natural resources and materials								X			x				X	x				4	22%
Need to adapt to climate change (loss of agricultural livelihoods leading to more pressure on fishery; changes in fisheries patterns; influx of exotic alien species))										X			X		X					3	17%
National emphasis on increasing fishing catches								X		X							x			3	17%
Perverse subsidies for A. fishing effort (boats, gear, fuel, capital) and B. Agriculture (fertilizer subsidies)				X															x	2	11%
Migration of industrial development into cheap-labour and low-regulation commercial environment within countries					X												x			2	11%

MAIN BARRIERS ↓																
Inadequate sustainable financial support allocated to removing threats to ecosystem goods and services in order to address problems	X		X		X	X	X	X	X	X	X	X	X	X	12	67%
Lack of effective regulatory mechanisms and enforcement in relation to environmental/ecosystem threats and problems	x		X		X	x	X	x	X				x	X	11	61%
Undervalued or unvalued ecosystem goods and services		x		X			X	X	X	X	X	X	X	X	10	56%

CAUSAL CHAIN ANALYSIS RESULTS	LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Hitherto irremediable poverty and inequality	x			X		x	X			x		x	x	X	X				9	50%
Poor or absent coordination of national or inter-regional government actions regarding problems and solutions							X	x			X		x	X		x			6	33%
Absence of realistic alternative livelihood options and/or financial support for change that could remove pressure from over-exploitation of resources				X			X		X						x		X		5	28%
Insufficient commitment to investment in appropriate infrastructure (ports, harbours, waste treatment, pollution reduction technologies)			X	X					X		X				x				5	28%
limited progress towards agreed actions/targets in related international conventions and treaties			X						X		X				x	x			5	28%
Inappropriate or 'unfit' institutional arrangements (national and regional/ecosystem-wise)		x				x					X				x				4	22%
Absence of mechanisms and institutional responsibilities for translation of background and updated science and knowledge into adaptive management recommendations and policy guidance		x							X		X				X				4	22%
Inadequate public awareness (that could otherwise effectively convince management institutions and policy-makers of the importance and value of ecosystem goods and services)			X	X				X						X					4	22%
Technological limitations to improving fishing practices and selectivity in line with an EAF strategy																	X		1	6%
Frequent Political Change hampering continuity of awareness and support	x																		1	6%
SAP PRIORITY ACTIONS TO ADDRESS THREATS AND BARRIER REMOVAL ↓																				

ANNEX 3: FREQUENCY AND RANKING OF THREATS, ROOT CAUSES, BARRIERS AND SAP RESPONSE ACTIONS FOR ALL 23 LMEs SUPPORTED BY GEF AS OF MID-2017, cont.

CAUSAL CHAIN ANALYSIS RESULTS		LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Enhanced and regionally-coordinated scientific monitoring, investigation and data collection/management for identification of change as well as outreach and awareness of results		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	18	100%
General improvement in the governance of all management practices related to EBM and EAF		X	X		x	X	X	X	X	X	X	X	X	X	x	X	X	X	X	17	94%
Improvements in information handling and awareness/outreach		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		17	94%
Identification and adoption of management areas for maintenance of biodiversity and related goods and services, including marine and coastal connectivity (MPAs, LMMAs, EBSAs, Fisheries Replenishment Areas)		X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	16	89%
Major policy and regulatory emphasis on reducing and controlling land-based pollution and contaminants and implementing MARPOL for marine pollution mitigation		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	16	89%
Institutional development and/or strengthening for national and regional transboundary management and collaboration		X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	16	89%
Cost Benefit Analysis of EBM approach and/or Value Chain Analysis for specific sectors (e.g. specific fisheries) to justify political support to EBM approach		X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	16	89%

CAUSAL CHAIN ANALYSIS RESULTS	LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Legislative and regulatory realignment and reform and enforcement with transboundary ecosystem-based management requirements	X	X	X		X	X		X		X	X	X	X	X	X	X	X	X	15	83%
Strategic and planned Capacity Building and EBM-related training	X		X		X	X	X		X	X	X	X	X	X	X	X	X	X	15	83%
Adoption of an effective EAF for the management of living marine resources & fisheries focusing on food security	X	X			X	X	X		X		X	X	X	x	X	X	X	X	14	78%
Overall regional interaction and coordination on EBM and EAF issues	X	X	X	X	X	X	X			X	X	X	X		X		X	X	14	78%
National and Region-wide standard application of successful procedures and tools such as EIA, SEA, ICM, MSP, GIS in the transboundary context	X	X	X	X	X		X		X	X		X	X		X	X	X	X	14	78%
More effective analysis and translation of knowledge and ecosystem monitoring results into adaptive management and policy decisions	X	X		X	X			X	X	X	X	X	X		X	X	X		13	72%
Formal participation of all appropriate stakeholders into the management and governance process, including intersectoral management and governance	X		X	X	X	X			X	X	X	X	X	X	X	X			13	72%
Regional level improvement in strengthening the weak role, poor coordination and overall involvement of international institutions responsible for transboundary issues threatening the ecosystem (e.g. RSPs, Fisheries bodies, etc.)	X	X	X	X	XX		X		X		X	X	X		X	X	X		13	72%
Innovative investment and economic instruments to address threats and impacts to the ecosystem	X	X			X	X		X			X	X	X		X	X	X	X	12	67%

ANNEX 3: FREQUENCY AND RANKING OF THREATS, ROOT CAUSES, BARRIERS AND SAP RESPONSE ACTIONS FOR ALL 23 LMEs SUPPORTED BY GEF AS OF MID-2017, cont.

CAUSAL CHAIN ANALYSIS RESULTS		LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
National adoption of an EBM and EAF approach with associated effective monitoring and enforcement		X	X	X	X	X			X	X		X	X	X	X			X		12	67%
Policy realignment and reform in line with trans-boundary ecosystem-based management requirements			x	X	X	X				X	X	X	X	X	X			X		11	61%
Increased government investment in pollution reduction, better coastal planning, better fisheries management and other EBM improvements		X	X	X	X	X		X		X	X	X	X		X	X			X	11	61%
Development and adoption of a regional programme for environmental awareness, educational strategies, media information and general training in EBM		X	X		X	X		X	X	X		X		X	X	X				11	61%
Specific mechanisms for private sector participation and interactive governance recognising a 'blue economy' strategy				X	X	X	X	X		X	X	X	X	X	X	X				10	56%
Mainstreaming Climate Change and Adaptation to natural events and disasters into national and trans-boundary management strategies and policies						X		X	X	X	X	X	X		X	X	X	X	X	10	56%
Development of a regional network of connected MPAs and EBSAs			X		X	X	X		X	X	X	X	X		X			X		10	56%

CAUSAL CHAIN ANALYSIS RESULTS		LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Adoption of new 'best practice' cost-effective technologies to address threats and impacts to the ecosystem		X		X	X	X		X			X	X		X		X	X			9	50%
Long-term financial sustainability plan/mechanisms for SAP implementation and the EBM approach			X			X		X	X			X	X		X				X	9	50%
Improvements in Mariculture techniques to reduce pressure on LMRs and the ecosystem				X	X	X			X						X	X				8	44%
Restoration of natural ecosystem processes (e.g. within watersheds, mangrove restoration, artificial coral propagation, etc.)					X			X			X	X	X			X	X	X		8	44%
Involvement of communities and promotion of community resilience and sustainable livelihoods with a focus on health and food security and alternative livelihoods									X		X	X	X		X		X			6	33%

ANNEX 4: FREQUENCY OF SUSTAINABILITY TOOLS USED FOR ALL 23 LMEs SUPPORTED BY GEF AS OF MID-2017

SUSTAINABILITY ANALYSIS RESULTS		LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
INSTITUTIONAL ARRANGEMENTS FOR SAP IMPLEMENTATION																					
Non-Legally Binding Framework and Institutional Arrangements based on MoUs or similar agreements								X		X		X	X		X		X			6	33%
LME Commission created based on a Convention with a Permanent Secretariat		X	X			X														4	22%
National and Regional level policy and technical groups to be anchored under a strengthened existing regional body(s) or agreement											X				X			X	X	4	22%
Anchored within an existing Regional Seas Convention Action Plan framework and institutional arrangement				X	X			X									X			4	22%
Managed at national government level (NAPs) through coordination agreements and institutional reforms									X											2	11%

FINANCIAL INSTRUMENTS/ MECHANISMS FOR SAP IMPLEMENTATION																		
Continued Donor Funding						X	X				X	X	X	X	X	X	9	50%
Loose detail in SAP focusing generally on all options						X	X			X		X	X	X	X	X	7	39%
Alliances/Partnerships for supporting the SAP Im- plementation in the long-term						X				X		X	X				5	28%
Development of Private-Public Partnership	X					X				X							5	28%

SUSTAINABILITY ANALYSIS RESULTS	LARGE MARINE ECOSYSTEM TDA-SAP AREA/PROJECT NUMBER																		No. of SAPs	Frequency
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Details of Investment needs and Plans in SAP and identified need for an Investment Plan and Portfolio			X	X									X						3	17%
Funding Commitments captured in National Action Plans	X																		1	6%
A Special Funding Arrangement (Trust Fund or similar)		X																	1	6%
Fee-based financial strategy paid as direct support through as Secretariat or commission					X														1	6%
No Detail in SAP on financial arrangements											X								1	6%
Direct budget support from national government								X											1	6%

PARTNERSHIPS FOR SAP IMPLEMENTATION PROCESS																					Frequency
Formal Alliances agreed through MoUs and Aides-Memoires (e.g. PEMSEA WIOSEA)					X				X	X			X			X					33%
Nothing Specific in SAP			X				X				X			X							28%
Informal partnerships with intent to collaborate													X	X		X					22%
SAP focuses on Public-Private Partnership opportunities				X									X				X				17%
Economic Cooperation Agreements that support the SAP	X					X															11%
SAP Implementation Steering/stakeholder Partnership		X										X									11%

ANNEX 5: THE RELATIONSHIP BETWEEN THE TARGETS SET FOR SDG 14 AND THE EXPECTED OUTCOMES FROM THE GEF LME TDA-SAP PROCESS

SUSTAINABLE DEVELOPMENT GOAL 14 – OVER-ALL OBJECTIVE	Cross-Cutting Root Causes within the global LMEs that directly relate to the overall objective of the SDG	Common SAP Response Actions that broadly address the overall objective of the SDG at a Transboundary LME level
<i>To Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development</i>	<ul style="list-style-type: none"> » Lack of empathy and balance between economic and environmental needs and sustainability » Generally inadequate or inappropriate governance measures driving poor management » Inadequate management of maritime activities » Absence of available guidance and advice upon which decision-makers can base management and policy decisions » Ineffective and unenforced environmental legislation » Lack of robust legal framework ‘fit-for-purpose’ for effective management of sustainable ecosystem goods and service 	<ul style="list-style-type: none"> » General improvement in all management practices related to EBM and EAF » More effective analysis and translation of knowledge and ecosystem monitoring results into adaptive management and policy decisions » Capacity Building and EBM-related training » Institutional development and/or strengthening for national and regional transboundary management and collaboration » Legislative and regulatory realignment and reform and enforcement with transboundary ecosystem-based management requirements » Overall regional interaction and coordination on EBM and EAF issues » More effective analysis and translation of knowledge and ecosystem monitoring results into adaptive management and policy decisions » Formal participation of all appropriate stakeholders into the management and governance process, including intersectoral management and governance » Specific mechanisms for private sector participation and interactive governance recognising a ‘blue economy’ strategy » National adoption of an EBM and EAF approach with effective monitoring and enforcement » Policy realignment and reform with transboundary ecosystem-based management requirements » Long-term sustainability of SAP implementation and the EBM approach

The rest of this Table focuses on specific SDG Targets and Indicators and how these relate to specific root causes of LME threats as identified in the TDAs and to the specific responsive actions thereby agreed and endorsed within the SAPs

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
1: <i>By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution</i>	Index of coastal eutrophication and floating plastic debris density	<ul style="list-style-type: none"> » Inadequate management of maritime activities (e.g. port reception facilities; ballast water management; management of oil/gas exploration, etc.) » Absent or inadequate monitoring and evaluation of changes in the ecosystem » Lack of investment and available resources/capacity to support effective reduction of impacts on the ecosystem (e.g. water and waste water management and reception facilities) » Lack of applicable (best available and affordable) technology to reduce impacts on ecosystems » Perverse subsidies for Agriculture (fertilizer subsidies) 	<ul style="list-style-type: none"> » Enhanced and regionally-coordinated scientific monitoring, investigation and data collection/management for identification of change as well as outreach and awareness of results » Major emphasis on reducing and controlling land-based pollution and contaminants and implementing MARPOL for marine pollution mitigation » Adoption of new 'best practice' cost-effective technologies to address threats and impacts to the ecosystem » Specific mechanisms for private sector participation and interactive governance recognising a 'blue economy' strategy » Increased government investment in pollution reduction, better coastal planning, and other EBM improvements » National and Region-wide standard application of successful procedures and tools such as EIA, SEA, ICM, MSP, GIS

ANNEX 5: THE RELATIONSHIP BETWEEN THE TARGETS SET FOR SDG 14 AND THE EXPECTED OUTCOMES FROM THE GEF LME TODA-SAP PROCESS, cont.

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
2: <i>By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans</i>	Proportion of national exclusive economic zones managed using ecosystem-based approaches	<ul style="list-style-type: none"> » Generally inadequate or inappropriate governance measures driving poor management » Lack of empathy and balance between economic and environmental needs and sustainability » Ineffective and unenforced environmental legislation » Lack of robust legal framework 'fit-for-purpose' for effective management of sustainable ecosystem goods and services » Absence of available guidance and advice upon which decision-makers can base management and policy decisions » Weak national strategic planning and regulatory frameworks for sustainable development » Need to adapt to climate change (loss of agricultural livelihoods leading to more pressure on fishery; changes in fisheries patterns; influx of exotic alien species) 	<ul style="list-style-type: none"> » National and Region-wide standard application of successful procedures and tools such as EIA, SEA, ICM, MSP, GIS in the transboundary context » Restoration of natural ecosystem processes (e.g. within watersheds, mangrove restoration, artificial coral propagation, etc.)

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
3: <i>Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels</i>	Average marine acidity (pH) measured at agreed suite of representative sampling stations	<ul style="list-style-type: none"> » Lack of knowledge and awareness (All sectors) » Absence of available guidance and advice upon which decision-makers can base management and policy decisions » Absent or inadequate monitoring and evaluation of changes in the ecosystem and/or lack of collaboration on same at regional/ecosystem level » Lack of applicable (best available and affordable) technology to reduce impacts on ecosystems » Lack of empathy and balance between economic and environmental needs and sustainability 	<ul style="list-style-type: none"> » Enhanced and regionally-coordinated scientific monitoring, investigation and data collection/management for identification of change as well as outreach and awareness of results » Mainstreaming Climate Change and Adaptation to natural events and disasters into national and transboundary management strategies and policies

ANNEX 5: THE RELATIONSHIP BETWEEN THE TARGETS SET FOR SDG 14 AND THE EXPECTED OUTCOMES FROM THE GEF LME TDA-SAP PROCESS, cont.

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
4: <i>By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics</i>	Proportion of fish stocks within biologically sustainable levels	<ul style="list-style-type: none"> » Inadequate or ineffective fisheries management » Higher consumer demand leading to Increasing fishing effort, especially from trawlers and purse seiners » Increased food security demands, especially for coastal poor » Open access to fishing grounds » 'Limited Options' nature of economic dependence » National emphasis on increasing fishing catches » Perverse subsidies for fishing effort 	<ul style="list-style-type: none"> » Enhanced and regionally-coordinated scientific monitoring, investigation and data collection/management for identification of change as well as outreach and awareness of results » Specific improvements in management of LMRs/Fisheries toward more sustainable EAF approach focusing on food security

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
5: <i>By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information</i>	Coverage of protected areas in relation to marine areas	<ul style="list-style-type: none"> » Lack of knowledge and awareness (All sectors) » Ineffective and unenforced environmental legislation » Inadequate or ineffective fisheries management » Weak national strategic planning and regulatory frameworks for sustainable development » Concentration of communities and poor coastal planning » Cultural traditions and day-to-day needs override environmental concerns » Increased internal/external market demands for natural resources and materials » Increasing population pressure, especially on the coast 	<ul style="list-style-type: none"> » Identification and adoption of management areas for maintenance of biodiversity and related goods and services, including marine and coastal connectivity (MPAs, LMMAs, EBSAs, Fisheries Replenishment Areas) » Development of a regional network of connected MPAs and EBSAs

ANNEX 5: THE RELATIONSHIP BETWEEN THE TARGETS SET FOR SDG 14 AND THE EXPECTED OUTCOMES FROM THE GEF LME TDA-SAP PROCESS, cont.

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
B: <i>By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation</i>	Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing	<ul style="list-style-type: none"> » Inadequate or ineffective fisheries management » Increased food security demands » National emphasis on increasing fishing catches » Perverse subsidies for fishing effort 	<ul style="list-style-type: none"> » Enhanced and regionally-coordinated scientific monitoring, investigation and data collection/management for identification of change as well as outreach and awareness of results (providing data on overcapacity and overfishing and their root causes which often lie in subsidies and IUU) » Specific improvements in management of LMRs/Fisheries toward more sustainable EAF approach focusing on food security (which requires the removal of subsidies to avoid overfishing and competition with small-scale/subsistence fishers)

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
7: By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	Sustainable fisheries as a percentage of GDP in small island developing States, least developed countries and all countries	<ul style="list-style-type: none"> » Generally inadequate or inappropriate governance measures driving poor management » Inadequate management of maritime activities » Lack of investment and available resources/capacity to support effective reduction of impacts on the ecosystem » Lack of applicable (best available and affordable) technology to reduce impacts on ecosystems » Inadequate or ineffective fisheries management » Increased food security demands » limited Capacity and absence of appropriate training » Lack of empathy and balance between economic and environmental needs and sustainability » 'Limited Options' nature of economic dependence 	<ul style="list-style-type: none"> » Innovative investment and economic instruments to address threats and impacts to the ecosystem » Increased government investment in pollution reduction, better coastal planning, better fisheries management and other EBM improvements » Specific mechanisms for private sector participation and interactive governance recognising a 'blue economy' strategy » Cost-Benefit Analysis of EBM approach and/or Value Chain Analysis for specific sectors (e.g. specific fisheries) to justify political support to EBM approach

ANNEX 5: THE RELATIONSHIP BETWEEN THE TARGETS SET FOR SDG 14 AND THE EXPECTED OUTCOMES FROM THE GEF LME TDA-SAP PROCESS, cont.

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
<i>A: Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular SIDS and least developed countries</i>	Proportion of total research budget allocated to research in the field of marine technology	<ul style="list-style-type: none"> » Lack of knowledge and awareness (All sectors) » Absent or inadequate monitoring and evaluation of changes in the ecosystem and/or lack of collaboration on same at regional/ecosystem level » Inadequate broad stakeholder and/or intersectoral participation in management and governance » Lack of investment and available resources/capacity to support effective reduction of impacts on the ecosystem » Lack of applicable (best available and affordable) technology to reduce impacts on ecosystems » limited Capacity and absence of appropriate training 	<ul style="list-style-type: none"> » Enhanced and regionally-coordinated scientific monitoring, investigation and data collection/management for identification of change as well as outreach and awareness of results » Improvements in information handling and awareness/outreach » Strategic and planned Capacity Building and EBM-related training

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
B: <i>Provide access for small-scale artisanal fishers to marine resources and markets</i>	Progress by countries in the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries	<ul style="list-style-type: none"> » Lack of robust legal framework ‘fit-for-purpose’ for effective management of sustainable ecosystem goods and services » Weak national strategic planning and regulatory frameworks for sustainable development » Inadequate broad stakeholder and/or intersectoral participation in management and governance » Inadequate or ineffective fisheries management » Higher consumer demand leading to Increasing fishing effort, especially from trawlers and purse seiners » Open access to fishing grounds » National emphasis on increasing fishing catches » Increased food security demands, especially for coastal poor 	<ul style="list-style-type: none"> » Specific improvements in management of LMRs/Fisheries toward more sustainable EAF approach focusing on food security » Involvement of communities and promotion of community resilience and sustainable livelihoods with a focus on health and food security and alternative livelihoods

ANNEX 5: THE RELATIONSHIP BETWEEN THE TARGETS SET FOR SDG 14 AND THE EXPECTED OUTCOMES FROM THE GEF LME TDA-SAP PROCESS, cont.

SDG 14 Target	Related SDG 14 Indicator	Directly-related Root Causes identified as Main Threats to LMEs and their Goods and Services	Common Responsive Actions captured in the LME Strategic Action Programmes
C: <i>Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want</i>	Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources	<ul style="list-style-type: none"> » Ineffective and unenforced environmental legislation » Lack of robust legal framework 'fit-for-purpose' for effective management of sustainable ecosystem goods and services » Weak national strategic planning and regulatory frameworks for sustainable development 	<ul style="list-style-type: none"> » Regional level improvement in strengthening the weak role, poor coordination and overall involvement of international institutions responsible for transboundary issues threatening the ecosystem (e.g. RSPs, Fisheries bodies, etc.) » Development and adoption of a regional programme for environmental awareness, educational strategies, media information and general training in EBM » Promoting and facilitating national adoption and ratification of relevant international ocean legislation (IMO, FAO, ILO, UNCLOS etc.)

ANNEX 6: GEF AND LEVERAGED CO-FINANCING COMMITMENTS TO THE LMEs OVER THE LAST 20 YEARS THROUGH ITS INTERNATIONAL WATERS AND MULTI-FOCAL AREA PORTFOLIO

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Black Sea	Black Sea Environmental Management	1996	397	UNDP	\$9,300,000	\$23,300,000
	Developing the Implementation of the Black Sea Strategic Action Plan	2000	341	UNDP	\$1,839,000	\$130,000
	Developing the Danube River Basin Pollution Reduction Programme	1998	342	UNDP	\$4,190,000	\$9,800,000
	Control of Eutrophication, Hazardous Substances and Related Measures for Rehabilitating the BLACK SEA Eco-system: Phase 1	2003	1580	UNDP	\$4,000,000	\$3,945,000
	Control of Eutrophication, Hazardous Substances and Related Measures for Rehabilitating the Black Sea Ecosystem: Tranche 2	2008	2263	UNDP	\$6,000,000	\$5,332,106
	DBSB: Agricultural Pollution Control Project – under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea (Romania)	2007	1159	WB	\$5,450,000	\$5,650,000
	DBSB: Anatolia Watershed Rehabilitation Project – under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea (Turkey)	2012	1074	WB	\$7,300,000	\$38,110,000
	DBSB Reduction of Nutrient Discharges – under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea (Hungary)	2011	1351	WB	\$12,850,000	\$19,470,000
	DBSB Agricultural Pollution Control Project – under the Strategic Partnership Investment Fund for Nutrient Reduction in the Danube River and Black Sea (Croatia)	2012	3148	WB	\$5,000,000	\$15,000,000

ANNEX 6: GEF AND LEVERAGED CO-FINANCING COMMITMENTS TO THE LMEs OVER THE LAST 20 YEARS THROUGH ITS INTERNATIONAL WATERS AND MULTI-FOCAL AREA PORTFOLIO, cont.

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Black Sea	DBSB Agricultural Pollution Control Project – under the Strategic Partnership Investment Fund for Nutrient Reduction in the Danube River and Black Sea (Moldova)	2009	1355	WB	\$5,250,000	\$5,790,000
	DBSB Water Quality Protection Project – under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea (Bosnia – Herzegovina)	2011	2143	WB	\$8,900,000	\$11,370,000
	DBSB: Wetland Restoration and Pollution Reduction Project – under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea (Bulgaria)	2008	1123	WB	\$7,850,000	\$5,780,000
	DBSB Reduction of Enterprise Nutrient Discharges Project – RENDR – under WB-GEF Strategic Partnership for Nutrient Reduction in the Danube River and Black Sea (Serbia)	2010	2141	WB	\$9,370,000	\$13,120,000
Baltic Sea	Baltic Sea Regional Project, Tranche 1	2007	922	WB	\$5,850,000	\$6,620,000
	Rural Environmental Project	2004	531	WB	\$3,000,000	\$13,400,000

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Mediterranean Sea	Strategic Partnership for the Mediterranean Large Marine Ecosystem-Regional Component: Implementation of Agreed Actions for the Protection of the Environmental Resources of the Mediterranean Sea and Its Coastal Areas	2013	2600	UNEP	\$13,591,000	\$36,548,200
	Implementation of Ecosystem Approach in the Adriatic Sea through Marine Spatial Planning	Project Endorsed – Not Started	9545	UNEP	\$1,817,900	\$12,017,790
	Determination of Priority Actions for the Further Elaboration and Implementation of the Strategic Action Programme for the Mediterranean Sea	2006	461	UNEP	\$6,290,000	\$5,925,000
	MED: Integration of Climatic Variability and Change into National Strategies to Implement the ICZM Protocol in the Mediterranean	2014	3990	UNEP	\$2,454,545	\$6,176,400
	Mediterranean Sea Programme (MedProgramme): Enhancing Environmental Security	Concept Approved	9607	UNEP	\$42,376,147	\$708,000,000
	MED: Integrated Coastal Zone Management-Mediterranean Coast	2017	4198	WB	\$5,380,000	\$20,000,000
	Oil Pollution Management Project for the Southwest Mediterranean Sea	2000	68	WB	\$18,260,000	\$1,740,000
	WB-GEF MED Neretva and Trebisnjica Management Project – under Investment Fund for the Mediterranean Sea LME Partnership	2014	2132	WB	\$8,430,000	\$13,150,000
	Adriatic Sea Environmental Pollution Control Project (I)	Under Implementation	5269	WB	\$6,770,000	\$23,198,000

ANNEX 6: GEF AND LEVERAGED CO-FINANCING COMMITMENTS TO THE LMEs OVER THE LAST 20 YEARS THROUGH ITS INTERNATIONAL WATERS AND MULTI-FOCAL AREA PORTFOLIO, cont.

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Mediterranean Sea	WB/GEF MED: Alexandria Coastal Zone Management Project (ACZM)	Under Imple-mentation	2602	WB	\$7,500,000	\$647,003,293
	MED: Enhanced Water Resources Management (Egypt)	2015	3991	WB	\$6,682,000	\$28,121,000
	MED: Sustainable Governance and Knowledge Generation		4001	WB	\$3,100,000	\$4,400,000
	Lake Manzala Engineered Wetlands	2007	395	UNDP	\$4,500,000	\$6,630,000
	MED: Tunisia Northern Tunis Waste-water Project	2015	3974	WB	\$8,030,000	\$60,600,000
Red Sea	Red Sea and Gulf of Aden Strategic Ecosystem Management	2015	3809	WB	\$3,100,000	\$15,890,000
	Protection of Marine Ecosystems of the Red Sea Coast	1999	394	UNDP	\$2,800,000	
	Implementation of the Strategic Action Programme(SAP) for the Red Sea and Gulf of Aden	2005	340	UNDP UNEP WB	\$19,340,000	\$17,650,000
Benguela Current LME	Improving Ocean Governance and Integrated Management in the Benguela Current LME	Under Imple-mentation	5753	UNDP	\$11,200,000	\$163,915,000
	Distance Learning and Information Sharing Tool for the Benguela Coastal Areas (DLIST-Benguela)	2008	2571	UNDP	\$773,000	\$797,800
	Implementation of the Strategic Action Programme (SAP) Toward Achievement of the Integrated Management of the Benguela Current Large Marine Ecosystem (LME)	2013	789	UNDP	\$15,458,000	\$23,559,750

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Benguela Current LME	Implementation of the Benguela Current LME Action Program for Restoring Depleted Fisheries and Reducing Coastal Resources Degradation	2013	3305	UNDP	\$5,448,910	\$68,946,335
	Enhancing Climate Change Resilience in the Benguela Current Fisheries System	Under Implementation	5113	FAO	\$4,840,000	\$19,166,000
Guinea Current Large Marine Ecosystem	Combating Living Resource Depletion and Coastal Area Degradation in the Guinea Current LME through Ecosystem-based Regional Actions	2011	1188	UNDP UNEP	\$21,162,199	\$33,971,442
	Delivering Sustainable Environmental, Social and Economic Benefits in West Africa through Good Governance, Correct Incentives and Innovation	Concept Approved	9126	FAO	\$6,633,027	\$45,551,500
	Water Pollution Control and Biodiversity Conservation in the Gulf of Guinea Large Marine Ecosystem (LME)	1998	393	UNDP	\$6,000,000	\$512,700
South China Sea	Implementing the Strategic Action Programme for the South China Sea	Project Endorsed – Not Started	5538	UNEP	\$15,300,000	\$83,451,948
	Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand	2009	885	UNEP	\$16,749,000	\$17,640,830
	Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand	Project Endorsed – Not Started	5401	UNEP	\$3,100,000	\$12,717,850

ANNEX 6: GEF AND LEVERAGED CO-FINANCING COMMITMENTS TO THE LMEs OVER THE LAST 20 YEARS THROUGH ITS INTERNATIONAL WATERS AND MULTI-FOCAL AREA PORTFOLIO, cont.

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
South China Sea	Livestock Waste Management in East Asia	2011	2138	WB	\$7,700,000	\$17,006,300
	Demonstration of Sustainable Management of Coral Reef Resources in the Coastal Waters of Ninh Hai District, Ninh Thuan Province, Viet Nam	2014	3187	UNEP	\$406,900	\$528,286
	Guangdong Agricultural Pollution Control	Under Implementation	5452	WB	\$5,100,000	\$208,200,000
	Hai River Basin Integrated Water Resources Management	2010	1323	WB	\$17,350,000	\$112,991,800
	Demonstration of Community-based Management of Seagrass Habitats in Trikora Beach East Bintan, Riau Archipelago Province, Indonesia	2010	3188	UNEP	\$397,800	\$391,950
	WB-GEF POL Ningbo Water and Environment Project – under WB/GEF Partnership Investment Fund for Pollution Reduction in the LME of East Asia	2011	2750	WB	\$5,350,000	\$140,100,000
	WB/GEF POL: Shanghai Agricultural and Non-Point Pollution Reduction project (SANPR) – under WB/GEF Strategic Partnership Investment Fund for Pollution Reduction in the LME of East Asia	2015	3223	WB	\$5,000,000	\$29,891,000
Russian Arctic	Support to the National Programme of Action for the Protection of the Arctic Marine Environment, Tranche 1	2011	1164	UNEP	\$6,191,000	\$16,976,000

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Yellow Sea	Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem	2011	790	UNDP	\$14,743,833	\$10,214,065
	EAS: Implementation of the Yellow Sea LME Strategic Action Programme for Adaptive Ecosystem-Based Management	Under Implementation	4343	UNDP	\$7,562,430	\$225,481,766
Gulf of Mexico	Implementation of the Strategic Action Program of the Gulf of Mexico Large Marine Ecosystem	Project Preparation Phase	6952	UNIDO	\$13,200,000	\$124,210,000
	Integrated Assessment and Management of the Gulf of Mexico Large Marine Ecosystem	2013	1346	UNIDO	\$4,975,500	\$95,574,780
Arafura and Timor Seas	CTI Arafura and Timor Seas Ecosystem Action Programme (ATSEA) – under the Coral Triangle Initiative	2014	3522	UNDP	\$2,650,000	\$6,248,047
	Implementation of the Arafura and Timor Seas Regional and National Strategic Action Programs	Project Endorsed – Not Started	6920	UNDP	\$10,045,662	\$60,201,173
	Enabling Transboundary Cooperation for Sustainable Management of the Indonesian Seas	Project Preparation Phase	5768	FAO	\$4,150,000	\$25,114,000
	Eco-system Approach to Fisheries Management (EAFM) in Eastern Indonesia	Project Endorsed – Not Started	9129	WWF	\$10,458,716	\$52,071,783
	PAS: Strengthening Coastal and Marine Resources Management in the Coral Triangle of the Pacific – under the Pacific Alliance for Sustainability Program	2015	3591	ADB	\$13,418,183	\$23,849,000

ANNEX 6: GEF AND LEVERAGED CO-FINANCING COMMITMENTS TO THE LMEs OVER THE LAST 20 YEARS THROUGH ITS INTERNATIONAL WATERS AND MULTI-FOCAL AREA PORTFOLIO, cont.

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Caribbean Sea and North Brazil Shelf LME	Sustainable Management of the Shared Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions	2013	1032	UNDP	\$7,726,952	\$47,591,111
	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+)	Under Imple-mentation	5542	UNDP	\$12,950,000	\$134,153,695
	Integrating Watershed and Coastal Area Management (IWCAM) in the Small Island Developing States of the Caribbean	2011	1254	UNDP UNEP	\$14,098,691	\$98,269,493
	Caribbean Regional Oceanscape Project	Concept Approved	9451	WB	\$6,482,648	\$102,000,000
	Reducing Pesticide Run-off to the Caribbean Sea	2011	1248	UNEP	\$4,585,000	\$5,524,000
	Wider Caribbean Initiative for Ship-Generated Waste	1998	585	WB	\$5,500,000	\$0
	Testing a Prototype Caribbean Regional Fund for Wastewater Management (CRoW)	2017	3766	IADB	\$20,380,000	\$251,702,403
	Demonstrations of Innovative Approaches to the Rehabilitation of Heavily Contaminated Bays in the Wider Caribbean	2011	614	UNDP	\$691,000	\$25,853,000
	Ship-Generated Waste Management	2003	59	WB	\$12,500,000	\$38,000,000
	Sustainable Management of Bycatch in Latin America and Caribbean Trawl Fisheries (REBYC-II LAC)	Project En-dorsed – not started	5304	FAO	\$6,000,000	\$17,198,491

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Caribbean Sea and North Brazil Shelf LME	Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States (IWE-co)	Under Implementation	4932	UNEP	\$21,022,071	\$68,017,191
Sulu-Celebes Sea Large Marine Ecosystem	CTI West Pacific-East Asia Oceanic Fisheries Management Project – under the Coral Triangle Initiative	2013	3523	UNDP	\$1,000,000	\$3,667,431
	Sustainable Management of Highly Migratory Fish Stocks in the West Pacific and East Asian Seas	2014	5393	UNDP	\$2,293,578	\$19,859,525
	CTI Sulu-Celebes Sea Sustainable Fisheries Management Project (SCS)	2013	3524	UNDP	\$2,975,000	\$3,230,000
	CTI Coastal and Marine Resources Management in the Coral Triangle: Southeast Asia under Coral Triangle Initiative	2016	3589	ADB	\$11,718,182	\$28,950,000
Agulhas and Somali Currents Large Marine Ecosystems	Programme for the Agulhas and Somali Current Large Marine Ecosystems: Agulhas and Somali Current Large Marine Ecosystems Project (ASCLMEs)	2014	1462	UNDP	\$12,923,000	\$18,470,000
	Western Indian Ocean Large Marine Ecosystems Strategic Action Programme Policy Harmonization and Institutional Reforms (SAPPHIRE)	Project Endorsed – Not Started	5513	UNDP	\$11,276,891	\$333,428,294
	Addressing Land-based Activities in the Western Indian Ocean (WIO-LaB)	2010	1247	UNEP	\$4,511,140	\$6,902,325
	Implementation of the Strategic Action Programme for the Protection of the Western Indian Ocean from Land-based Sources and Activities (WIO-SAP)	Project Endorsed – Not Started	4940	UNEP	\$11,052,000	\$77,686,341

ANNEX 6: GEF AND LEVERAGED CO-FINANCING COMMITMENTS TO THE LMEs OVER THE LAST 20 YEARS THROUGH ITS INTERNATIONAL WATERS AND MULTI-FOCAL AREA PORTFOLIO, cont.

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Agulhas and Somali Currents Large Marine Ecosystems	Western Indian Ocean Islands Oil Spill Contingency Planning	2004	533	WB	\$3,502,000	\$1,485,000
	Western Indian Ocean Marine Highway Development and Coastal and Marine Contamination Prevention Project	2011	2098	WB	\$11,700,000	\$15,000,000
	Applying an Ecosystem-based Approach to Fisheries Management: Focus on Seamounts in the Southern Indian Ocean	2012	3138	UNDP	\$1,000,000	\$4,760,000
	Southwest Indian Ocean Fisheries Project – SWIOFP	2011	1082	WB	\$12,375,000	\$17,510,000
Agulhas and Somali Currents Large Marine Ecosystems	First South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish 1)	Under Implementation	5905	WB	\$15,500,000	\$57,399,471
	Second South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish2)	Project Endorsed – not started	9692	WB	\$6,422,018	\$83,729,400
	Third South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish3)	Concept Approved	9250	WB	\$5,429,096	\$22,000,000
Bay of Bengal LME	Bay of Bengal Large Marine Ecosystem	2015	1252	FAO	\$12,431,000	\$18,911,400
Canary Current LME	Protection of the Canary Current Large Marine Ecosystem (LME)	2015	1909	FAO	\$8,430,000	\$17,805,000
Humboldt Current LME	Towards Ecosystem Management of the Humboldt Current Large Marine Ecosystem	2015	3749	UNDP	\$7,000,000	\$24,624,084

LME AND ASSO-CIATED FISHERIES AREAS	PROJECT NAME	END DATE	GEF ID	IA	GEF FUNDING	COMMITTED COFINANCING
Humboldt Current LME	Catalysing Implementation of a Strategic Action Programme for the Sustainable Management of Shared Living Marine Resources in the Humboldt Current System (HCS)	Project Preparation Phase	9592	UNDP	\$8,200,000	\$79,500,000
	Coastal Fisheries Initiative- Latin America	Project Endorsed – Not Started	9124	UNDP	\$6,788,991	\$65,562,889
Western Pacific Warm Pool and Pacific SIDS	Pacific Islands Oceanic Fisheries Management Project	2011	2131	UNDP	\$11,644,285	\$79,091,933
	Implementation of Global and Regional Oceanic Fisheries Conventions and Related Instruments in the Pacific Small Island Developing States (SIDS)	Project Endorsed – Not Started	4746	FAO UNDP	\$10,200,000	\$84,934,375
	Implementation of the Strategic Action Programme (SAP) of the Pacific Small Island Developing States	2005	530	UNDP	\$3,790,000	\$8,118,383
	Pacific Islands Regional Oceanscape Program (PROP)	Project Endorsed – Not Started	6970	WB	\$6,301,370	\$25,157,290
West Bering Sea	Integrated Adaptive Management of the West Bering Sea Large Marine Ecosystem in a Changing Climate	Concept Approved	4658	UNDP	\$3,361,000	\$9,800,000
Antarctic	Strengthening Capacity for International Cooperation in the Ecosystem-based Management of the Antarctic Large Marine Ecosystem	Project Preparation Phase	9443	UNDP	\$6,392,694	\$45,000,000
					TOTAL GEF	TOTAL COFINANCING
					\$801,773,452	\$5,266,391,536







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