

**Sustainable Management of the Shared Living Marine Resources of the
Caribbean Large Marine Ecosystem & Adjacent Regions**

CLME

Fisheries Ecosystems Governance - TRANSBOUNDARY DIAGNOSTIC ANALYSIS

Robin Mahon, Lucia Fanning & Patrick McConney
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**Sustainable Management of the Shared Living Marine Resources of the Caribbean Sea
Large Marine Ecosystem (CLME) and Adjacent Regions**

CLME TDA UPDATE FOR FISHERIES ECOSYSTEMS: GOVERNANCE ISSUES

Prepared for

The Caribbean Large Marine Ecosystem and Adjacent Areas (CLME) Project
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By

Robin Mahon¹, Lucia Fanning² and Patrick McConney¹

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¹ Centre for Resource Management and Environmental Studies (CERMES), University of the West Indies, Cave Hill Campus, Cave Hill, Barbados

² Marine Affairs Program, Dalhousie University, Halifax, Nova Scotia, Canada

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ACRONYMS AND ABBREVIATIONS

AA	Administrative Assistant
ACS	Association of Caribbean States
BPoA	Barbados Programme of Action for the Sustainable Development of SIDS
BW	Ballast Water
CANARI	Caribbean Natural Resources Institute
CARICOM	Caribbean Community and Common Market
CARICOMP	Caribbean Coastal Marine Productivity Programme
CAST	Caribbean Alliance for Sustainable Tourism
CBD	Convention on Biological Diversity
CBI	Caribbean Basin Initiative
CCA	Causal Chain Analysis
CCAD	Central American Environment and Development Commission
CEHI	Caribbean Environmental Health Institute
CEP RCU	Caribbean Environment Programme. Regional Coordinating Unit
CEPAL	Latin American Economic Commission
CEPNOR	Centro de Pesquisa e Extensao Pesqueira do Norte do Brasil
CERMES	Centre for Resource Management and Environmental Studies
CFMC	USA Caribbean Fisheries Management Council (Puerto Rico)
CFRAMP	CARICOM Fisheries Resource Assessment and Management Programme
CHTA	Caribbean Hotel and Tourism Association
CI	Conservation International
CITES	Convention on International Trade of Endangered Species
CLME	Caribbean Large Marine Ecosystem
CoML	Census of Marine Life
CPUE	Catch per unit effort
CRFM	CARICOM Regional Fisheries Mechanism
CRNM	CARICOM Regional Negotiation Machinery
CSC	Caribbean Sea Commission
CSI	Caribbean Sea Initiative
CSME	CARICOM Single Market and Economy
DOF	Department of Fisheries
EA	Ecosystem Approach
EBM	Ecosystem-based Management
EEC	European Economic Community
EEZ	Exclusive Economic Zone
EU	European Union
FAO	Food and Agricultural Organization
FFI	Flora and Fauna International
FONAIAP	Fondo Nacional de Investifaciones Agropecuarias
FSP	GEF Full-Sized Project
GDP	Gross Domestic Product
GEF	Global Environmental Fund
GESAMP	Group of Experts on Scientific Aspects for the Protection of the Marine Environment
GIWA	Global International Waters Assessment

GPA	Global Programme of Action for Protection of the Marine Environment from Land-based Activities
HDI	Human Development Index
HMS & SS	Highly Migratory Species and Straddling Stocks
IAS	Invasive Alien Species
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis
ICCAT	International Commission for Conservation of Atlantic Tunas
IFREMER	Institute Français pour l'exploitation de la mer
IMO	International Maritime Organization
IMS	Information Management System
IOC	Intergovernmental Oceanographic Commission of UNESCO
IOCARIBE	Inter-governmental Oceanographic Commission – Caribbean Subcommission
IUCN	International Union for the Conservation of Nature
IUU	Illegal, Unregulated and Unreported (fishing)
LAPE	Lesser Antilles Pelagic Ecosystem Project
LME	Large Marine Ecosystem
LMR	Living Marine Resources
LOSC	Law of the Sea Convention
M&E	Monitoring and Evaluation
MARPOL	Convention on the Prevention of Marine Pollution from Ships
MCB	Marine Catchment Basin
MCS	Monitoring, Control and Surveillance
MEA	Multilateral Environmental Agreement
MERF	Monitoring and Evaluation and Reporting Framework
MIS	Marine Invasive Species
MPA	Marine Protected Area
MSY	Maximum Sustainable Yield
MTL	Mean Trophic Level
NAPs	National Action Plans
NBC	North Brazil Current
NBSAP	National Biodiversity Strategy and Action Plan
NC	National Consultant
NFE	National Fishery Expert
NFP	National Focal Point
NGO	Non-Governmental Organization
NIC	National Inter-ministerial/Inter-sectoral Committee
OECS	Organization of Eastern Caribbean States
OLDEPESCA	Fishing Development Latin American Organization
OSPESCA	Organization of the Fishing and Aquaculture Sector of the Central American Isthmus
PAG	Project Advisory Group
PCU	Project Coordination Unit
PoP	Partners of the Project
POPs	Persistent Organic Pesticides
REMP	Regional Environmental Monitoring Programme
RMGF	Regional Management and Governance Framework

RPC	Regional Project Coordinator
SAP	Strategic Action Programme
SC	Steering Committee
SCM	Steering Committee Meeting
SCUBA	Self Contained Underwater Breathing Apparatus
SEMARNAT	Environment and Natural Resources Secretariat
SFT	SAP Formulation Team
SHA	Stakeholder Analysis
SICA	Central American Integration System General Secretariat
SIDS	Small Island Developing States
SOPAC	South Pacific Applied Geoscience Commission
SPA	Protocol Concerning Specially Protected Areas and Wildlife
SPO	Senior Project Officer
SPPE	Stakeholder and Public Participation Expert
SRFE	Sub-regional Fishery Expert
STAG	Stakeholder Advisory Group
TDA	Transboundary Diagnostic Analysis
TED	Turtle Excluder Device
TNC	The Nature Conservancy
TTT	Technical Task Team
TWAP	GEF Transboundary Waters Assessment Project
UN	United Nations
UNCED	United Nations Convention on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNOPS	United Nations Office for Programme Services
WB	World Bank
WCR	Wider Caribbean Region
WDI	World Development Institute
WECAFC	Western Central Atlantic Fishery Commission
Widcaste	Wider Caribbean Sea Turtle Network
WSSD	World Summit on Sustainable Development

Executive Summary

This report addresses the governance aspects of updating the TDA/CCA for the CLME Project. It begins by providing an overview of the governance issues identified in the preliminary TDA. It then reviews the LME Governance Framework that was developed for and adopted by the project as a basis for the project design during the PDF-B. Next the report reviews advances in ocean governance thinking globally and regionally that should assist the project to move forward. Finally, the report considers how the original governance perspective, as well as the subsequent advances in ocean governance, can be incorporated into the new orientation towards a fishery ecosystem-based approach to provide the most comprehensive and up-to-date approach to governance for the CLME Project. This fishery ecosystem-based approach was adopted early in the Full Project which is now oriented towards three fishery ecosystems: the continental shelf, the pelagic and the reef fishery ecosystems.

The importance of having an effective governance regime in place to address the sustainability of the living marine resources of the WCR was identified during the project development phase of the CLME Project as the principal driver underpinning the actions to be taken in the Full Project. Six major reports are reviewed in section two of this report to provide an overview of the governance issues identified during the PDF-B phase. These were: the three preliminary transboundary diagnostic assessment (TDA) reports for the Insular Caribbean Sub-region, the Central and South America Sub-Region and the Guianas-Brazil Sub-Region; the preliminary transboundary diagnostic assessment synthesis report; the fisheries governance report; and, the non-extractive resource use governance report. Key findings in the preliminary TDA reports identified three priority transboundary issues common to the project area: (i) fisheries over-exploitation, destructive practices and illegal, unreported and unregulated (IUU) practices; (ii) pollution and degrading marine ecosystem health; and (iii) habitat loss and community modification.

In addition to identifying the priority issues within the CLME region, the PDF-B phase highlighted the need to develop a WCR-tailored framework targeted at the interventions needed to bring about changes in regional governance. As a result, the CLME project developed the LME Governance Framework to accommodate the reality of the governance situation in the WCR, namely multiple geographic scales, multiple institutional levels and a need for a diversity of approaches to meet specific place-based-management needs, rather than a panacea or a 'one size fits all' approach.

The LME Governance Framework was adopted by the CLME Project Steering Committee and was used to design the current full-sized project (FSP). The components of the FSP include: finalization of the TDA; development of the Strategic Action Programme (SAP); demonstration and pilot projects focusing on important transboundary fisheries - flyingfish, shrimp and groundfish, lobster, regional pelagics and reef fisheries and biodiversity - as well as regional governance and regional monitoring and reporting systems. Associated with the development of these project components during the PDF-B phase was a comprehensive identification and assessment of the key stakeholders deemed critical to the success of the project.

In reviewing advances in ocean governance thinking since the PDF-B phase, section three of the report highlights a significant increase in efforts that should assist the project to move forward. Key among these were legal and policy-level advances at the international level, a

growing awareness of ecosystem-based management, climate change impacts and specific projects focused on regional governance. There have also been a number of global ocean governance initiatives contributing to an increased understanding of factors affecting governance and resilience thinking. In terms of stakeholders since the PDF-B phase, some of these have increased in prominence while some have declined. Given the increasing recognition of the need to take an ecosystem approach to managing transboundary living resources and the cross-cutting effects of climate change, new players have been identified. Among these new players, representatives of the tourism and conservation sectors are prominent.

The fourth section of the report focuses on how the original governance perspective, as well as the subsequent advances in ocean governance, can be incorporated into the new orientation towards a fishery ecosystem-based approach to provide the most comprehensive and up-to-date approach to governance for the CLME Project. Broadly speaking, the conclusions reached in the PDF-B regarding the geopolitical complexity and the nature of governance arrangements that are appropriate to this situation are still considered to be valid.

The PDF-B made the case that governance was the major issue with regard to coping with complexity, diversity and dynamics. It argued that given the large number of stakeholders at multiple geographical and institutional scale levels, a governance approach that sought to network the stakeholder organisations in transparent arrangements that included clear governance processes and linkages among them would be the best way to approach regional governance in the WCR. This approach was seen as providing for the need to have a diversity of issue specific governance arrangements at appropriate scale levels but with linkages for learning and policy integration among arrangements.

The reassessment of the living marine resource (LMR) governance situation in the WCR in the light of the orientation towards fishery ecosystems, as well as with reference to changes in the governance arrangements in the region since the PDF-B, suggest that the above approach is still appropriate. If anything, the changes and advances since completion of the PDF-B are such that the suggested approach appears to be even more appropriate at the present. Supporting evidence for this conclusion can be found in a number of activities that have taken place in the region such as the regional EBM symposium and the Caribbean Sea Commission expert consultation. These efforts have served to highlight the importance of linking the activities of the CLME Project with ongoing decision-making processes within the region.

Increasing awareness of the uncertainty that will result from climate change will demand an approach that seeks to build resilience and adaptive capacity. At the same time, the increasing number of regional stakeholders with interests in LMR and climate change and with the capacity to contribute to addressing these problems speaks to the need for interaction and networking that is flexible and demand driven. This perspective has far reaching implications for the way that data and information systems are developed. In short owing to the complexity of the region, these systems are seen as necessarily being decentralized in such a way as to spread the responsibility for maintenance among organizational partners and to ensure that the associated relevant expertise is engaged when data and information from partners is used to generate advice.

The report concludes with recommendations for future activities aimed at understanding and strengthening regional governance as a contribution to the development of the options for a

Regional Governance Framework that will be proposed in the SAP. These activities include: developing linkages with major IGOs to determine the most useful inputs for policy making; using the newly developing GEF/TWAP methodology to assess fishery ecosystem governance arrangements in all three ecosystems; assessing the relationships among the regional organizations that are engaged in LMR governance; and, proposing appropriate governance options for the SAP.

1 Introduction

1.1 The purpose of this report

The activities of the GEF Caribbean Large Marine Ecosystem and Adjacent Areas (CLME) Project are based on a Transboundary Diagnostic Analysis (TDA) of sustainable use of transboundary living marine resources in the Wider Caribbean Region (WCR) and will lead to a Strategic Action Plan (SAP) for these resources. A preliminary TDA was done during the development (PDF-B) phase of this project. One of the first activities of the full project is to update the TDA and carry out a Causal Chain Analysis (CCA) for the TDA. This process was started in January 2010 at a joint meeting of the CLME Project Technical Task Team (TTT) and Project Advisory Group (PAG). One of the key outcomes of that meeting was to reorient the TDA from being geographically based to being ecosystem based. A CCA was also developed.

The preliminary TDA of the PDF-B was carried out for three geographic regions: the Guianas-Brazil region; the insular Caribbean region and the South/Central American region. The TTT/PAG meeting in January 2010 concluded that the TDA would be more useful if it was oriented to three major marine fishery ecosystems within the WCR: The pelagic ecosystem, the reef ecosystem, and the continental shelf ecosystem. This perspective was thought to be more appropriate for the ecosystem approach that is one of the WSSD targets that the CLME Project is expected to pursue in accordance with its objectives. Following that conclusion the above mentioned CCA were carried out with reference to these three ecosystems.

The next step following the TTT/PAG meeting was to finalise the TDA/CCA for the three fishery ecosystems. This involved three activities: (1) reframing the information from the original TDAs into the three ecosystems, (2) updating the TDAs with any new information that had become available, and (3) checking the details of, and finalizing the CCA. In pursuing this work it was decided to break the governance aspects of these activities into a separate task. This decision was based on the prominence given to governance in the design of the project, and the fact that governance is seen as an overarching activity that often cuts across ecosystems, especially at sub-regional and regional levels where policy is determined.

This report addresses the governance aspects of updating the TDA/CCA for the CLME Project in four parts.

- In Section 2 it begins by providing an overview of the governance issues identified in the preliminary TDA.
- In Section 3 it reviews the LME Governance Framework that was developed for the CLME Project during the design Phase and adopted by the project as a basis for the project design.
- In Section 4 the report reviews advances in ocean governance thinking globally and regionally that should assist the project to move forward.
- In Section 5, the report considers how the original governance perspective as well as the subsequent advances in ocean governance can be incorporated into the new orientation towards a fishery ecosystem-based approach to provide the most comprehensive and up-to-date approach to governance for the CLME Project.

1.2 Reorientation of the TDA towards fishery ecosystems

The reorientation towards fishery ecosystems represents a significant and innovative advance for the CLME Project. Most coastal and marine fisheries in the WCR take place in one of these three ecosystem types. These ecosystems are also the basis for a variety of other non-fishing activities such as recreation, tourism and transportation. The perspective on the Ecosystem Approach that appears to be preferred by the countries of the WCR encompasses the full range of human uses and the tradeoffs among them (Fanning et al 2011). The three ecosystem types are characterized briefly in the following paragraphs to provide some perspective on the range of governance issues that must be addressed by the SAP that is to be developed.

The off-shelf or open sea pelagic ecosystem of the WCR is arguably the least complex of the three ecosystems. It supports a variety of fisheries for both regional and ocean-wide large pelagics as well as for flyingfish. There are lesser fisheries for cetaceans as well. In this ecosystem, species interactions are among the prominent ecosystem issues. Biodiversity issues will relate to cetaceans, sharks, sea turtles and seabirds. At the human interaction level, this ecosystem is where interactions between commercial and recreational fisheries are likely to be of greatest concern; especially regarding the relative social and economic benefits of these types of fisheries. Interactions with the marine transportation sector, engaged in the transshipment of goods and people, both destined for the region and transiting the region, also pose a concern in terms of the sustainability of ecosystem goods and services.

The continental shelf ecosystem, located primarily in the Guianas-Brazil region, supports the major shrimp and groundfish fisheries of the region. There are also lesser fisheries in these ecosystems for sharks, snappers on groupers on the shelf slope and for shelf-based schooling pelagic resources such as mackerels and jacks. There are interactions among the resources that are exploited and also among the various commercial and small-scale fisheries that exploit them. Key ecosystem interactions are with coastal wetlands that serve as nursery habitats. At the human interaction level, this ecosystem is where interactions with other marine sector users such as marine transportation, offshore energy and marine-related tourism could potentially increase and contribute to threatening the sustainability of the continental shelf ecosystem goods and services. Examples of such interactions with the habitat and living resources of the ecosystem include disposal of garbage at sea, ballast water discharges increasing the threats of alien invasive species, accidental spills of noxious substances from transiting ships and from possible hydrocarbon production and distribution infrastructure. This ecosystem is probably intermediate in complexity between the pelagic and reef ecosystems.

The coral reef ecosystem type is clearly the most complex among those of the WCR. This stems both from its biological characteristics, and the many human demands and impacts upon it. It includes coral reefs and related mangrove and seagrass habitats that are mainly coastal. It supports fisheries for reef fishes, spiny lobster and conch which are three of the major fisheries of the region. There are also lesser fisheries for sea urchins, marine algae, and small schooling coastal pelagics associated with the habitats of reef ecosystems. Coral reefs are ecologically among the most complex systems in the world owing to the variety of habitats and high biodiversity. Biodiversity conservation issues are prominent here. Coastal areas with reefs are also the most popular for tourism development in the WCR owing to the white sand beaches, protected swimming and opportunities for marine recreational activities such as snorkeling and

SCUBA diving. This leads to the competing economic demands and multiple marine and land-based impacts referred to above.

The implications of the Ecosystem Approach will be developed further in this report, however the above introduction has been provided to emphasise the point that although the term fishery ecosystems is being applied, there is the recognition that an ecosystem approach involves a balance among the many use and non-use goods and services that ecosystems provide.

1.3 The CLME governance perspective

Given the emphasis on governance in this project, it is appropriate to include a brief introduction to the term and its application. Current thinking on governance is largely about interactions among players (actors or stakeholders), the institutions, whether formal or informal, that shape these interactions, and the visions and principles that guide these institutions and interactions¹. This is also consistent with the Earth System Governance Project, perspective that “[...] governance refers here to forms of steering that are less hierarchical than traditional governmental policy-making (even though most modern governance arrangements will also include some degree of hierarchy), rather de-centralized, open to self-organization, and inclusive of non-state actors that range from industry and non-governmental organizations to scientists, indigenous communities, city governments and international organizations” (Biermann et al 2009). This is the broad perspective taken on governance in the CLME Project.

Much of this broadening of the scope of governance has been due to the recognition that hierarchical command and control approaches have not work well for Social-Ecological-Systems (SESs). This is considered to be due largely to the complexity, diversity, and dynamics of SESs arising from many sources, not the least the multi-scale nature of both ecosystems and governance systems in a globalizing world. Thus SESs tend to be characterised by high uncertainty and low controllability. Much of the current discussion on governance is about how to deal with these characteristics. In addition to the implications of SES complexity, there is an increasing concern with a suite of principles that broads the range of issues that is being taken into consideration for governance of SESs. These are primarily human rights issues, such as rights of access, the right to the opportunity to rise above poverty and the right to self-determination by participation in decisions that affect one (Kooiman et al 2005). Thus the business of governance itself has become more complex.

Key concepts emerging relating in response to the above circumstances in natural resource governance at national and local levels are the capacity to adapt to changing conditions either by buffering against them (Berkes et al 2001) – resilience - or by changing with them in the most advantageous way possible – transformation (Olsson et al 2004, Mahon et al 2008). The capacity to detect changing situations, learn from past experience and innovate is increasingly recognised as valuable set of assets for complex, diverse and dynamic SESs (Folke et al.

¹ Hence the recent definition of governance from Kooiman et al (2005) “Governance is the whole of public as well as private interactions taken to solve societal problems and create societal opportunities. It includes the formulation and application of principles guiding those interactions and care for institutions that enable them.” Similar perspectives are espoused by most groups working on governance of natural resources (Biermann et al 2009, Armitage et al 2008).

2002). Enabling this type of capacity is seen as the way to deal with situations of high uncertainty and low controllability. At the regional and international levels, which are the focus of the CLME Project, attention is focussed on enabling governance systems that also have capacity for adaptation and transformation (Bierman et al 2009, Young 2010). It is the thinking outlined above that has guided the approach to regional governance that has been developed in the CLME Project (Fanning et al 2009).

2 Overview of governance issues identified in PDF-B

The importance of having an effective governance regime in place to address the sustainability of the living marine resources of the WCR is the principal driver underpinning the actions taken during the project development phase of the CLME Project. The rationale for a focus on governance by the project's developers and supporters resulted in part from the fact that throughout the WCR, there is a high dependence on marine resources for livelihoods, particularly from fishing and tourism. Therefore, the sustainability of the goods and services provided by its living resources is of considerable importance to an appreciable portion of the countries and people in the region and the need to put in place mechanisms to ensure the on-going provision of these goods and services became an increasing priority.

The PDF-B made the case that governance was the major issue with regard to coping with complexity, diversity and dynamics. It argued that given the large number of stakeholders at multiple geographical and institutional scale levels, a governance approach that sought to network the stakeholders in transparent arrangements that included clear governance process and linkages among them would be the best way to approach regional governance in the WCR. This approach was seen as providing for the need to have issue specific governance arrangements at appropriate scale levels but with opportunities for harmonisation and learning among arrangements. This approach can be best described as the enabling of a network or complex of ocean governance entities within the WCR in similar way to that proposed for the Arctic Ocean (Young 2010).

2.1 Considerations for ocean governance in the Wider Caribbean Region

The Wider Caribbean Region (WCR) (which coincides with the CLME Project area) is the most geopolitically complex region in the world. The countries range from among the largest (e.g., Brazil, the United States) to among the smallest (e.g., Barbados, St. Kitts, and Nevis), and from the most developed (e.g., the United States, France) to the least developed (e.g., Haiti, Guyana). Consequently, there is an extremely wide range in their capacities for governance. This challenge is exacerbated by the high socio-economic dependence across the region on the ecological goods and services provided by the region's natural environment. Consequently, there is an urgent need to incorporate an ecosystem approach to decision-making affecting living marine resources in the WCR.

WCR coastal states, especially SIDS, are highly dependent on the marine environment—for their livelihoods, recreational, cultural, and spiritual needs. Fisheries play a major role in the economic, nutritional, and cultural well-being of WCR countries. Small-scale fisheries are particularly important, but are often undervalued. As near-shore resources have become depleted, and also in response to increasing demand for fish products, attention has turned to

offshore resources, which are inevitably shared and already fully exploited by the major fishing nations (Mahon & McConney, 2004). The number of people actively involved in fisheries was estimated to be approximately 505,000 in the 1990s, a doubling of the numbers involved during the 1980s (Agard et al., 2007).

Almost all the countries in the region are among the world's premier tourism destinations, providing an important source of national income. Marine-based tourism is a major contributor to the economy of many WCR countries, especially SIDS. This sector is highly dependent on healthy marine ecosystems for beaches; clean water for recreational activities; healthy reef systems for snorkeling, diving, and other marine life-viewing activities; recreational fishing; and a supply of seafood to tourism establishments. The population in the WCR swells during the tourist season by the influx of millions of tourists, mostly in destinations offering sun, sea, and sand coastal recreation, dive tourism, and nautical tourism. For example, in 2004, the Mexican state of Quintana Roo received some 10.4 million tourists, 35% of which arrived by cruise ship (CLME, 2007b).

Marine transportation of goods and passengers (e.g., cruise tourists), and the resulting high traffic of vessels using the region's shipping lanes is another key activity in the WCR. The Panama Canal remains the principal global focus of maritime trade in the region, handling about 5% of total world trade. Expanding ports and maritime trade lead to intensified transportation corridors in coastal ocean areas. The transshipment of hazardous goods through the WCR Sea to global destinations is also of concern due to the environmental risks of accidents that could have significant ecological and socioeconomic consequences in the region.

2.1.1 Governance as a Component of the Preliminary Transboundary Diagnostic Analysis

Key deliverables produced by the Project Implementation Unit, located at CERMES, UWI (Cave Hill Campus, Barbados) included the completion of a preliminary Transboundary Diagnostic Analysis (TDA) for the area defined as the Caribbean Large Marine Ecosystem (LME) and the adjacent North Brazil Shelf LME². The analysis identified three priority transboundary issues common to the project area: (i) fisheries over-exploitation, destructive practices and illegal, unreported and unregulated (IUU) practices; (ii) pollution and degrading marine ecosystem health; and (iii) habitat loss and community modification. For the preliminary TDA these three priority issues were addressed by subdividing the geographic area of the project into three sub-regions,³ the findings from each sub-region were then combined into an integrated preliminary TDA report for the entire project area.⁴ This approach was driven in large measure by two factors: (1) It allowed for important sub-regional differences across these issue areas to be captured; and (2) given the magnitude of the geographic area

² Collectively, these two LMEs formed the geographic scope of the CLME Project and correspond to the WCR.

³ The three sub-regions were identified as the Guianas-Brazil sub-region, the Central-South American sub-region and the Insular Caribbean sub-region.

⁴ The three sub-regional and the integrated Caribbean-wide preliminary TDA reports are available on line at <http://www.cavehill.uwi.edu/cermes/clme.html>

comprising the two LMEs, scientific expertise needed to assess these issues tended to be available at the sub-regional level.

Since the completion of the sub-regional and integrated CLME TDA reports in 2007, the CLME Steering Committee has, as described in the Introduction, reoriented the TDA from a geographically-based focus to a fisheries ecosystem-based focus for the Full Project. This section of the report revisits the governance findings in the preliminary TDAs and repositions them in the context of the three fisheries ecosystems: the reef ecosystem; the continental shelf ecosystem; and the open sea or pelagic ecosystem.

2.1.1.1 Review of Governance in the Reef Fisheries Ecosystem⁵

The review of governance related to the reef fisheries ecosystem during the PDF-B phase highlighted the increasing effort by countries in the CLME Project area to implement important institutional, legislative, and policy reforms. A number of institutional and policy frameworks relevant to management and conservation of living marine resources in this ecosystem have been established at the national, sub-regional, and regional levels.

At the national level, almost all the countries have established authorities and government ministries whose mandate extends to living marine resources (e.g. Ministry of Environment, Fisheries, or Agriculture, Fisheries Departments) and under whose authority resource assessment, research, management, and regulation fall. At the subregional level, in the English-speaking Caribbean, the CARICOM Regional Fisheries Mechanism (CRFM) undertakes resource assessment.

For the Spanish-speaking countries harvesting the fishery resources of the reef ecosystem, with the exception of Colombia, all the countries are members of the Latin American Organization for Fishery Development (OLDEPESCA), created in 1982 and based in Lima, Peru. The purpose of OLDEPESCA is to assist in adequately meeting the food requirements of the people of Latin America, using their potential fisheries resources, through agreed joint actions for the sustainable development of the countries and to permanently strengthen regional cooperation in the sector. The Central American countries are also members of the Fishing and Aquaculture Organization of the Central American Isthmus (OSPESCA⁹), an inter-governmental organization created in 1995 and based in San Salvador, El Salvador. The purpose of OSPESCA is to promote sustainable and coordinated development in fisheries and aquaculture within the Central American integration process, defining, approving, and implementing regional fishing and aquaculture strategies, programmes, and projects.

Research and monitoring capacity also exists in national (e.g. University of Havana) and regional universities (University of the West Indies) and national (e.g. Institute of Marine Affairs, Trinidad and Tobago and INVEMAR, Colombia), and intergovernmental organizations (e.g. Caribbean Environmental Health Institute - CEHI). Most research conducted is, however, limited to resources and/or ecosystems within national borders.

⁵ The information for this section is drawn from the "Thematic Report for the Insular Caribbean Sub-Region", prepared for the CLME Project Implementation Unit by S. Heileman (2007) and the "Thematic Report for Central and South American Sub-Region", prepared for the CLME Project Implementation Unit by S. Martinez (2007).

Within most countries integrated living marine resource management is still in its infancy. In addition, in general there is no mechanism for communication and collaboration among relevant sectors on a national, as well as on the sub-regional and regional scales regarding transboundary issues and related governance frameworks.

While most of the countries have legislation related to the exploitation and management of living marine resources, fisheries management initiatives are partly governed by international frameworks such as the Law of the Sea Convention (LOSC), the UN Fish Stocks Agreement, and the FAO Code of Conduct for Responsible Fisheries.

Almost all the countries have established MPAs and/or national parks with marine components. However management of MPAs in the reef fisheries ecosystem across the region has been varied. The countries in the Central and South American sub-region have met with considerable success at both the national and sub-regional level (e.g. MPAs in Belize and Colombia and the joint efforts⁶ targeted at managing the Meso-American Barrier Reef System (MBRS)). However, in the case of the Insular Caribbean, MPAs are generally not effectively managed because of limited human and financial resources.

A number of inter-governmental agencies engage in projects and programmes related to the conservation of marine areas and living resources, some specific only to Spanish-speaking or English-speaking countries. In the Central American Integration System (SICA), the Central American Environment and Development Commission (CCAD), stands out, and has developed the environmental agenda of the region for 15 years, playing an environmental conservation and protection, and pollution prevention role, all important for the sustainability of the reef fisheries ecosystem. The Constituting Agreement of CCAD was signed in February 1989 in Costa Rica by the Presidents of Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua, with the mission to develop the regional environmental cooperation and integration regime, which may contribute to improving the quality of life of the Central American people.

Other agencies include UNEP Caribbean Regional Coordinating Unit, CARICOM, CARIFORUM, Caribbean Conservation Association, CEHI, and the OECS Environment and Sustainable Development Unit. Participation of the English-speaking countries in collaborative management of transboundary resources is generally low, with most collaboration being in the area of stock assessment, particularly for lobster and conch. However, there are initiatives underway that will address this deficiency. In the CARICOM countries, these include current efforts to establish a Common Fisheries Policy and Regime. It has been proposed that the main elements of a common fisheries regime should include the following: i) the acceptance of a common fisheries policy and strategy; ii) demarcation of its fisheries zone; and iii) an appropriate regional organization for administering, implementing, and enforcing the policy (CARICOM 2004).

In 1989 the Heads of Government of CARICOM agreed to deepen the economic component of the integration process into a CARICOM Single Market and Economy (CSME). One of the key objectives of the CSME is the development of common policies in several areas including management of fisheries. However, management of the reef ecosystem fisheries resources is

⁶ Mexico, Belize, Guatemala, and Honduras are participating member countries of the MBRS.

complicated by factors such as the absence of delimited EEZ boundaries, multiple user conflicts arising from marine-based tourism, land and sea-based pollution, and unregulated fishing (Cadogan 2006). Competition for these resources is likely to increase with the entry into force of the CSME. Under the CSME, CARICOM States are expected to have preferential rights of access to each other's EEZs. The countries also benefit from the Caribbean Basin Initiative (CBI), which is a USA government programme to promote the economic development of the region, through the exemption of taxes in American territory for the majority of the products coming from the region. The CBI began in January 1984, with 12 years duration. This was made permanent by the CBI II in August 1990.

Common fishing zone provisions are also being pursued at the sub-regional level through the Environment and Sustainable Development Unit of the OECS. The harmonization of legislation by the OECS in the 1980s was followed by various initiatives towards the establishment of a common fisheries zone or zones and efforts at joint surveillance. Otherwise, there has been little activity regarding cooperation in management at the regional level, either within CARICOM or among the countries of the sub-region or WCR. This is thought largely due to the absence of a regional mechanism to manage shared fisheries resources, despite a recognized need.

The countries have increasingly been ratifying or approving MEAs and non-binding agreements related to the reef fisheries ecosystem. Key among these for this ecosystem is the Convention on Biological Diversity (CBD), the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES), the UN Framework Convention on Climate Change (UNFCCC), International Convention for the Prevention of Pollution from Ships (MARPOL) and the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter.

Regional programmes related to marine environmental and biodiversity issues include UNEP's Regional Seas Programme, the Caribbean Coastal Marine Productivity Programme, and the Caribbean Environment Programme (CEP), a sub-programme of UNEP's Regional Seas Programme. The aim of CEP is to promote regional cooperation for the protection and development of the marine environment of the WCR. The CEP is facilitated by a Regional Coordinating Unit located in Jamaica. A key instrument for marine environmental policy at the regional level is the Cartagena Convention (Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region) and its three protocols (Protocol Concerning Cooperation in Combating Oil Spills in the Wider Caribbean Region; Protocol Concerning Specially Protected Areas and Wildlife in the Wider Caribbean Region; and Protocol Concerning Marine Pollution from Land-Based Sources and Activities).

A number of regional and sub-regional projects supported by international funding organizations such as the Global Environment Facility (GEF) and foreign donors are currently being conducted. In addition to the CLME project, a project with the potential to benefit the reef fisheries ecosystem in the 'Integrating Watershed and Coastal Areas Management' project for 13 WCR SIDS. This project, which is funded by GEF and other collaborating agencies, will focus on demonstration activities on waste management, groundwater protection, and watershed management, with the potential for replication across the region and in other SIDS regions.

2.1.1.2 Review of Governance in the Continental Shelf Fisheries Ecosystem⁷

Five countries (Brazil, Suriname, Guyana, Venezuela, Trinidad and Tobago) and one dependency (French Guiana) border the Guianas–Brazil sub-region and from the perspective of the CLME project, are the main countries involved in the governance of the continental shelf fisheries ecosystem through their participation in the shrimp and groundfish fishery.

The fragmented nature of coastal and marine resource management by these countries is a legacy of their colonial past. The languages and cultures of the colonizers (Portugal, France, the Netherlands, Great Britain and Spain) were each different, as were the management systems and laws they passed on to these territories, five of which are now independent democracies. These countries are party to several international environmental agreements, for example CBD, UNFCCC, UNCLOS, MARPOL and Ramsar Convention on Wetlands. However, there is presently a lack of coordinated support among them for marine ecosystem monitoring and management.

The coming into force of the UNCLOS and recent international initiatives in fisheries, such as Agreement to Promote Compliance of International Conservation and Management Measures by Fishery Vessels on the High Seas (Compliance Agreement), The Code of Conduct for Responsible Fisheries and the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement) have made it necessary for the countries of the Guianas-Brazil Subregion to revise their legislation.

In Brazil, Article 187 of the Federal Constitution of Brazil provides for the definition of an agriculture policy and explicitly includes agro-industrial activities, agriculture and livestock, fisheries and forestry, while Article 225 identifies a number of principles that concerns the environment. Included among these principles, are the protection of fauna and the ecological management of species and ecosystems, with both these principles implicitly including fisheries. The responsibility for the application of these principles lies with the “Poder Publico” (the Government).

French Guiana as an overseas department of France is covered by the Common Fisheries Policy of the European Union, which came into effect in January 1983. Among other things, the policy calls for common rules for fishing in the maritime waters and coordination of structural policies of Member States to promote harmonious and balanced development of the fishing industry (Council Regulation (EEC) No. 101/76) (Chakalall et al. 2002).

In Guyana, the fisheries are being regulated by the Fisheries Act 2002 (which replaced the 1959 Fisheries Act and portions of the 1977 Marine Boundaries Act), which includes a number of new provisions, such as authorizing the Minister to promote the development and management of fisheries to ensure the optimum utilization of fisheries resources; mandating the Chief Fisheries Officer to prepare and keep under review a plan for the management and development of fisheries, including consultations with fishermen and others stakeholders and the creation of a Fisheries Advisory Committee (DOF, 2006).

⁷ The information for this section is drawn from the “Thematic Report for the Guianas-Brazil Sub-Region”, prepared for the CLME Project Implementation Unit by T. Phillips (2007).

In Suriname, fisheries are regulated by the Decree on Marine Fishery, Decree C-14, in force since 1st January 1981. This legislation has been revised and a new fisheries law was drafted in 1992, which, when it comes into force would stipulate the elaboration of annual management plans for the fishery types, in which all regulatory measures will be established. This approach should allow fisheries managers to adapt to the changing conditions of exploitation.

In Trinidad and Tobago, the existing legislation, the Fisheries Act of 1916, was found to be inadequate as a legal basis upon which a modern fisheries management system can be structured, so in June 1995, a draft Fisheries Management Act and Policy Directions for Marine Fisheries in Trinidad and Tobago in the 1990s were prepared. The Act provides the framework for the management of both local and foreign fishing activity in the waters under the jurisdiction of Trinidad and Tobago, with one of the major objectives as outlined in the draft National Marine Fisheries Policy being to provide for a move from a system of uncontrolled, free access to the fisheries resources towards a system of controlled access. The Policy would be dependent upon the preparation of Fishery Management Plans based on the best available scientific and socioeconomic information, and the revised legislation would take into consideration the Government's participation in international agreements and national responsibilities for management of the resources of the Exclusive Economic Zone.

In Venezuela, trawl fisheries have been regulated by the joint resolutions of the Ministry of Agriculture (MAC/DGSPA/No. 46) and Ministry of the Environment (MARNR/DAA/No. 103) from 30th January 1980. The fishing areas for the trawling fleet and the ones reserved to the artisanal fishers are specified, both in the coastal zone and in the island territories. A second resolution (MAC/DGSPA/No. 391) from 13th December 1990 (Annex III) regulates the activity of the trawling fleet in the Gulf of Venezuela. All these resolutions are under study, in order to establish up-to-date norms for this fishery (Chakalall, *et al* 2002).

For the countries of the Guianas–Brazil sub-region, fisheries administration is under the Ministry of Agriculture in all the countries except Brazil, where the responsibility is shared between the Ministry of Agriculture, responsible for development, issuing of licenses and for the economic aspects, and IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis), responsible for conservation and management and for enforcement.

In most countries fisheries research is also conducted by the national fisheries administration, which is under the Ministry of Agriculture. Brazil and Venezuela have delegated fisheries research to specialised agencies. In Brazil CEPNOR (Centro de Pesquisa e Extensão Pesqueira do Norte do Brasil) is responsible for research in the North of Brazil (Atlantic Ocean and Amazon Basin), while in Venezuela FONAIAP (Fondo Nacional de Investigaciones Agropecuarias), a specialized research agency under the Ministry of Agriculture has the responsibility for fisheries research. In French Guiana, IFREMER (Institut Français pour l'Exploitation de la Mer) is responsible for research and it provides scientific advice on all aspects of fisheries to the French Ministry of Agriculture, which is responsible for conservation and management, including monitoring, control and surveillance.

In most countries, the navy, air force, army, coast guard or police have been delegated the responsibility for monitoring, control and surveillance. This is done in collaboration with the national fisheries administrations, through agreements with the appropriate line agencies, which is the Ministry of Agriculture in most countries and IBAMA in Brazil (Chakalall, *et al*

2002). Following on the decisions taken at the 1996 Fourth Meeting of WECAFC Ad Hoc Shrimp and Groundfish Working Group of the Guianas–Brazil Shelf and CFRAMP Shrimp and Groundfish Subproject Specification Workshop, WECAFC in partnership with CFRAMP (now CRFM) conducted a series of workshops on the assessment and management of shrimp and groundfish fisheries on the Guianas–Brazil Shelf from 1997 to 2000 for the countries bordering the subregion. This series of workshops culminated in a meeting of fisheries managers and ministers of the sub-region in 2001, and the First Regional Conference on the Sustainability of Fisheries Resources in the Brazil–Guianas Shelf in 2002, which sought to involve both resource managers and users. This approach to promoting fisheries resource assessment and management in the sub-region was viewed as an effective one and despite some shortcomings, its continuation recommended (FAO/WECAFC 2001).

UNCLOS and recent international initiatives in fisheries have made it necessary for the countries in the Guianas–Brazil sub-region to revise their policies and legal frameworks for fisheries management and development, particularly with respect to the continental shelf fisheries ecosystem. To this effect, Brazil, French Guiana and Guyana have put the necessary legislation in place, while Suriname, Trinidad and Tobago and Venezuela were in the process of doing so. In general, the legislation in place or being put in place promotes the ecosystems based approach to management and calls for the development, implementation and regular evaluation of fisheries management and development plans, based on the best available scientific and socio-economic information, in consultation with the stakeholders involved in the various fisheries.

In most instances, fisheries administration and research fall under the umbrella of the Ministry of Agriculture of the countries of the sub-region, except in Brazil, where fisheries administration is shared between the Ministry of Agriculture and IBAMA, with research being delegated to CEPNOR and in Venezuela, where research has been delegated to FONAIAP.

In general, MCS is delegated to the navy, air force, army, coast guard or police. In many of these countries some level of institutional reform is taking place to better enable the fisheries administrations to carry out their mandates, as many of them are faced with such problems as insufficient staff to fulfill essential functions; poor communication between different levels and interest groups; and no clear decision-making procedures and responsibilities, with insufficient funding being an important factor in these problems (FAO/WECAFC, 2001).

Regional and sub-regional organizations such as the FAO/WECAFC and CRFM have been actively promoting fisheries management and development related to the continental shelf fisheries ecosystem. The Member States of FAO/WECAFC include Brazil, French Guiana (EU/France), Suriname, Guyana, Venezuela and Trinidad and Tobago, while those of the CRFM include Suriname, Guyana and Trinidad and Tobago. As they seek to address the key transboundary living marine resource issues for this ecosystem, the countries may need to strengthen and/or develop mechanisms for subregional collaboration and cooperation in areas such as assessment and management; harmonization of legislation; development of a sub-regional database for fisheries and related data; establishment of mechanisms for strengthening MCS at the national and sub-regional levels; stakeholders' involvement in the management process; and building public awareness.

2.1.1.3 Review of Governance in the Open Sea/Pelagic Fisheries Ecosystem

In contrast to the diversity of activities surrounding the transboundary living marine resources and the potential for interactions (negative and positive) with other resource users found in the reef and continental shelf ecosystems, the governance analysis open sea/pelagic fisheries ecosystem during the PDF-B phase was limited. While most of the countries have legislation related to the exploitation and management of living marine resources, few have provisions specifically related to large pelagic fish species (Mahon and McConney 2004). For this ecosystem, fisheries management initiatives are partly governed by international frameworks such as the Law of the Sea Convention (LOSC), the UN Fish Stocks Agreement, and the FAO Code of Conduct for Responsible Fisheries.

The best established fisheries management organization with relevance to the pelagic resources of the WCR is ICCAT, which has the mandate to manage all tuna and tuna-like species in the Atlantic. Currently, however, only three Insular Caribbean countries (Barbados, Trinidad and Tobago, St. Vincent and the Grenadines) and five continental countries (Panama, Honduras, Mexico, Guatemala and Belize) are contracting parties to ICCAT. Guyana has the status of a cooperating, non-contracting member.

In addition to ICCAT, the International Whaling Commission (IWC) is an important body affecting the governance of the open sea fisheries ecosystem in the region. According to the Commission's website,⁸ the main duty of the IWC is to keep under review and revise as necessary the measures laid down in the Schedule to the Convention which governs the conduct of whaling throughout the world. These measures, among other things, provide for the complete protection of certain species; designate specified areas as whale sanctuaries; set limits on the numbers and size of whales which may be taken; prescribe open and closed seasons and areas for whaling; and prohibit the capture of suckling calves and female whales accompanied by calves. In contrast to the low membership in ICCAT, fifteen countries in the CLME project area are members of the IWC. These include the islands of Antigua and Barbuda, Dominica, Dominican Republic, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines. Continental countries include Belize, Brazil, Costa Rica, Guatemala, Mexico, Nicaragua, Panama and Suriname.

In addition to the work undertaken by FAO and its WECAFC, a relevant project for this ecosystem in the CLME project area was identified as the 'Scientific Basis for Ecosystem-Based Management in the Lesser Antilles including Interactions with Marine Mammals and other Top Predators' (LAPE). This project is supported by FAO and the Government of Japan, with participation by the countries of the Lesser Antilles. Like the CLME, the LAPE project is of particular relevance to transboundary living resources in that it focuses on an ecosystem approach to management of pelagic fisheries, particularly the large migratory pelagics.

A strategy for establishing a management regime for large pelagic fishes in the WCR was developed for CARICOM by Mahon and McConney (2004). The approach involved two thrusts, addressing each group of large pelagics: oceanic and coastal. For oceanic species, the need for and modes of direct involvement in ICCAT were identified and explored. For coastal large

⁸ <http://iwcoffice.org/commission/iwcmain.htm>

pelagic species, largely within the western central Atlantic, the need for a regional arrangement emerged. This was seen as possibly being a subsidiary of ICCAT or a separate entity with close collaboration if ICCAT is willing to delegate its responsibility for coastal species. The Caribbean Regional Fisheries Mechanism (CRFM), recently established by CARICOM, was seen as having the potential to play a key role in both thrusts. For oceanic species, it was seen as coordinating and providing technical support for member-country participation in ICCAT. It could also explore possible approaches to collective representation. For coastal species, the CRFM could take the lead in establishing the regional arrangement and in pursuing the linkages – among CARICOM members, other regional fishing countries and distant water fishing countries – that will be essential for such an arrangement to succeed.

2.2 Governance analyses from the PDF-B phase - the Large Marine Ecosystem Governance Framework

The need for attention to the management of shared marine resources in the WCR is well documented. From the early 1980s it has been a major subject for discussion by WECAFC (e.g. Mahon 1987) and was stressed at its Commission Meeting in 1999 (FAO 1999). These issues have been discussed and agreement reached on the need for a coordinated regional effort on shared resources at many other fora. Several regional and global binding and nonbinding agreements which seek to address the social, economic and governance issues related to shared marine living resource management have already been identified in this report. The national level implications of several of these are being explored by WCR countries. These implications include: (a) the need for capacity building at the national level to take part in international and regional level management of shared resources, and (b) the need for strengthening and expanding the scope of regional institutions to undertake this function.

Institutional arrangements for the management of transboundary living marine resources in the WCR have been emerging, de facto, from the ongoing efforts of various institutions in both the Spanish and English-speaking Caribbean. These reflect the fact that the WCR does not have any major fish stocks attracting large commercial fleets, revenues from which can be expected to support a regional fisheries management institution. In other parts of the world, large valuable tuna or clupeid stocks have provided the incentive to establish management regimes to protect indigenous rights and to extract rents from non-indigenous fleets. The emerging approach in the WCR is more suited to the large diversity of resources that are already mostly exploited by indigenous fleets, so the issues relate primarily to conservation, optimization and intra-regional equity. The emerging arrangements are flexible and involve networking and adaptation of existing institutions.

This approach has been endorsed by the countries of the region at two meetings of FAO/WECAFC (1999, 2001). The arrangements involve a number of fledgling initiatives for various types of resources. For example, in the case of conch, the Caribbean Fishery Management Council has taken the lead in approaching regional management. However, some countries have difficulty taking part to the extent required for successful management. For shrimp/groundfish and flyingfish, WECAFC ad hoc Working Groups are the lead agencies. The newly established CRFM has identified large pelagics as a priority (Haughton *et al.* 2004).

The regional environmental legislative regime comprises a diversity of different international conventions and organizations that are related to marine and coastal resource management⁹. Thus the reality of WCR ocean governance is a diversity of networks of actors serving various purposes that seldom intersect effectively. Notably absent in most cases are interactions at the critical stage of communicating analysis and advice to shape coordinated decision-making. Most countries also lack capacity, and there is seldom a clear mandate by any national, sub-regional or regional level institution for management policies that address integration among sectors. Significant constraints to the effective management of the shared living marine resources across each of the identified fisheries ecosystems were identified as follows:

- Institutional and legal deficiencies;
- Limited co-ordination and collaboration among the numerous players and programmes, at all levels;
- Low level of data and information exchange among the countries;
- Inadequate financial resources;
- Limited human capacity and financial resources for research, assessment, management, surveillance, enforcement, and monitoring;
- Gaps and overlaps in the legislative framework for coastal and marine management;
- Low level of implementation of regional and sub-regional MEAs;
- Limited participation by stakeholders in the management of living marine resources;
- Language and cultural barriers, which can often constrain dialogue and interaction, as well as of the sharing of data and information at the sub-regional and regional levels;
- Overlap of living marine resource management goals throughout the WCR, which could result in conflicts if these goals are incompatible with each other.

The major thrust of the CLME Project is to improve governance of the living marine resources in the region. Consequently, the project differs from most other LME projects and as a result, has had some difficulty adapting the previously developed LME diagnostic approach by Sherman and Duda (1999) to the situation in the WCR. This approach, which has been the model promoted for use by the Global Environment Facility, is based on five modules that may be useful in designing assessment and monitoring, but did not offer much insight into how to design interventions that would bring about changes in governance. As a result, the CLME project set about to develop a framework that accommodated the reality of the situation in the WCR, namely multiple geographic scales, multiple institutional levels and a need for a diversity of approaches that meet specific place-based-management needs, rather than a panacea or a 'one size fits all' approach.

2.2.1 The LME Governance Framework

The framework that was developed during the PDF-B phase is based on linked policy cycles at multiple levels, from local to international (Fanning et al 2007). The cycles have a common structure but may vary in nature at various levels and from location to location at any given

⁹ Additional information on these multilateral instruments of relevance to the CLME Project area are available in the CLME background document entitled *Transboundary Non-Extractable LMRs/Biodiversity Governance and Monitoring & Reporting for the Caribbean LME and Adjacent Regions* (2007).

level (Figures 1 and 2). However, they must be complete in order for there to be effective governance at the level or location in question. Cycles must also be linked vertically with two-way flows if they are to be effectively connected with the remainder of the framework (Figure 3). Incompleteness and disconnectedness are two common problems in WCR living marine resource governance. As such, it is also important for vertical linkages to be established among the decision-making stages of the various cycles. Linkages across policy cycles at other stages, such as the technical ones more common among scientific communities, are necessary but not sufficient for effective governance. Finally, lateral linkages are also important as they serve to promote shared learning across policy cycles occurring at the same jurisdictional or geographic level, as for example, national level cycles taking place in different countries across the region.

With reference to this framework, the long-term ocean governance goal for the CLME Project area is **‘fully-functional policy cycles at all appropriate levels with the appropriate vertical and lateral linkages’**. This long-term goal can be approached incrementally with targeted interventions specifically aimed at:

- Establishing or completing policy cycles,
- Building or enhancing linkages.

The LME governance framework as designed for the WCR is sufficiently flexible to accommodate:

- A diversity of policy cycle arrangements and linkages that can include the full range of stakeholders (e.g. Figure 2);
- The diversity of EBM approaches that currently exist; and,
- Existing organizations within the region, but its adoption by these entities will require that they review and adjust their modes of operation.

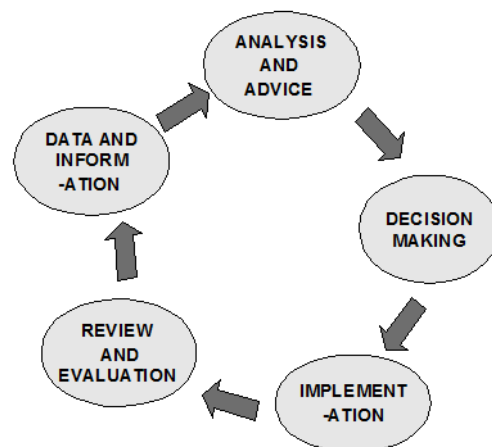


Figure 1. The generic policy cycle used for the CLME-approved LME governance framework (Fanning et al. 2007)

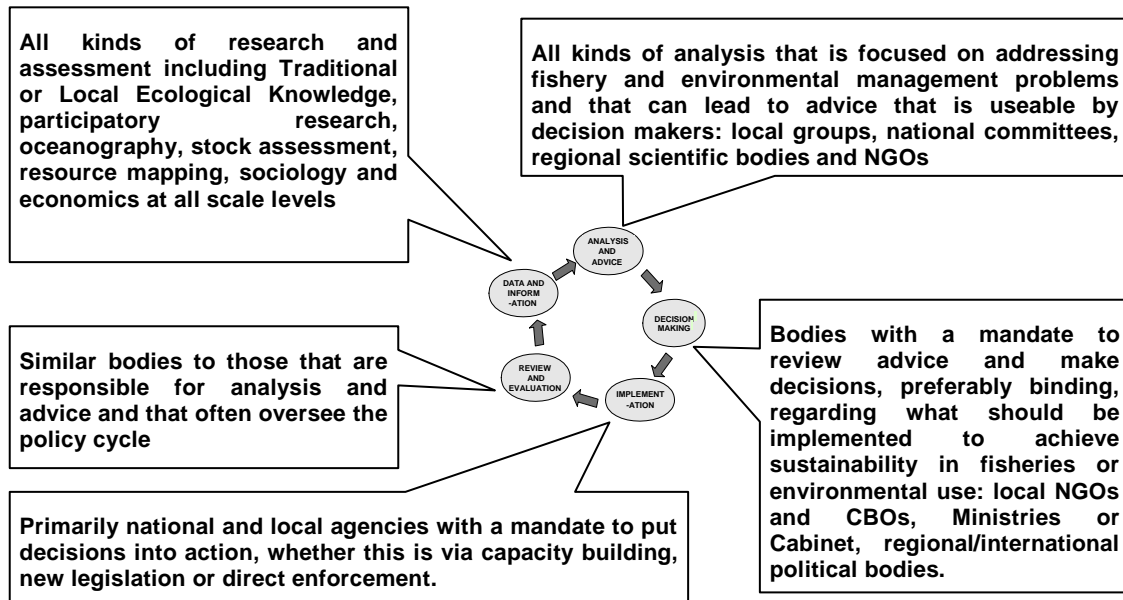


Figure 2. The diversity of stakeholders in the policy cycle depending on stage and scale level (Source: Fanning et al. (2007)). This illustrates the potential for engaging stakeholders in the process of governance as is considered to be essential for an ecosystem approach

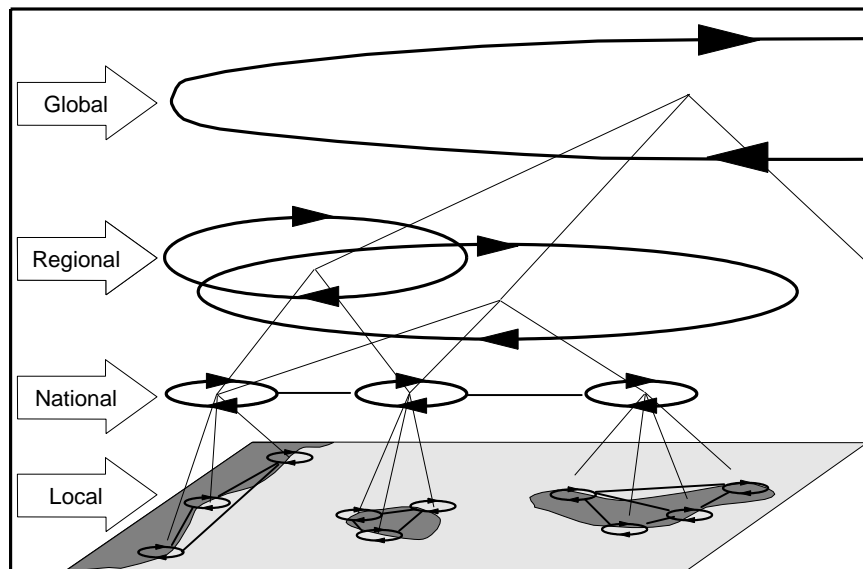


Figure 3. The multi-scale component of the proposed LME Governance Framework with vertical and horizontal linkages among the different policy cycles. The multi-level linkages do not necessarily imply a controlling function (Fanning et al. 2007)

To further clarify how the LME Framework may apply in the WCR, possible fisheries arrangements were identified (Chakalall et al 2007, Parsons 2007). These included the following:

- An all-inclusive Regional Fisheries Management Organization (RFMO);
- A single RFMO with departments; and,
- A coordinated network of relevant partners involved in fisheries governance in the region.

The appropriateness and feasibility of these options need to be researched and assessed as there are many unresolved questions. For example, what would be the roles of existing organizations, and in the case of the network, who is in control? During the PDF-B phase, it was agreed at the Technical Workshop held in Kingston, Jamaica, (at which these options were presented), that an all-inclusive RFMO option was unlikely to be successful at this stage and may not even be the right one in the long-term for the WCR. It was suggested that the other two options, which are shown in Figure 4, may provide more feasible starting points. It was concluded that beginning to build a coordinated network and seeing where it might go seemed a logical starting off point (Parsons 2007) and was consistent with the “learning by doing” approach adopted by the CLME Project Steering Committee during the PDF-B phase.

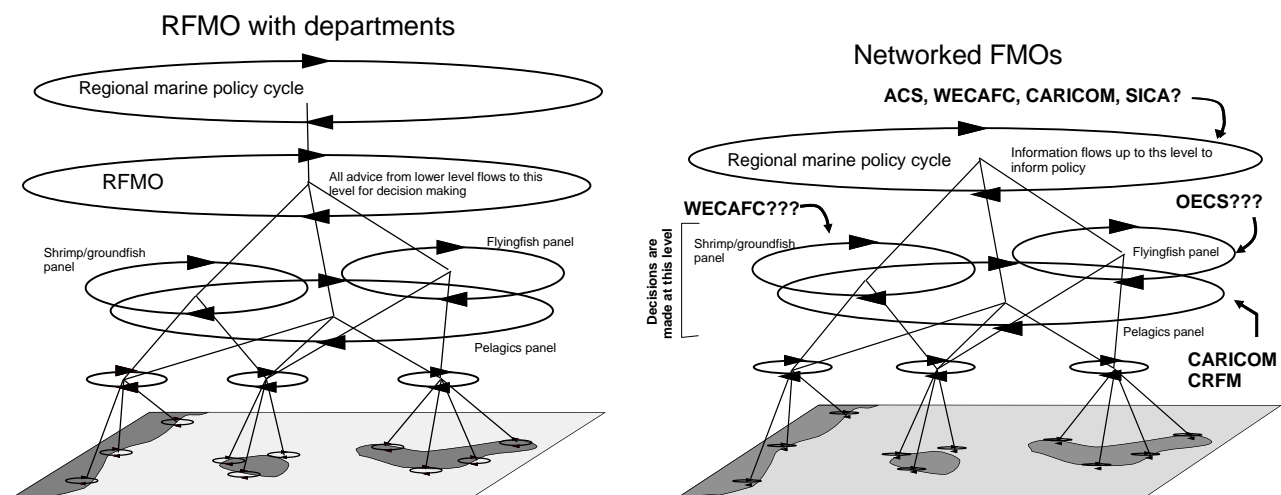


Figure 4. Two options for application of the LME Governance Framework in the Caribbean using selected policy cycles and indicating possible regional organizations that could take responsibility for them (hence the ??). Note that there would need to be cycles for other resources such as reef fishes, lobster and conch for which other organizations such as UNEP CEP RCU, OSPESCA and the CFMC might take responsibility (Fanning et al 2009).

2.2.2 Applying the LME Governance Framework to the CLME Project Activities

The above line of thinking underlies the development of the CLME Project which is designed as a set of LME Governance Framework-building interventions, targeting different parts of the Framework. It aims to strengthen the targeted parts of the Framework and to produce tangible results with respect to LMR Governance. It also aims to explore the LME Governance

Framework approach and to provide guidance on how it may be improved, redesigned and made more effective – a learning component. The activities that were agreed to be carried out in the CLME Project spanned all of the multiple levels of the LME governance framework and are described in greater detail in Section 2.3. To assist with the testing of the utility of the Framework, several activities aimed at implementing of the LME governance framework at multiple levels were identified and approved by the CLME Steering Committee. There are resource specific pilot projects and activities aimed at building specific subareas of the Framework. (such as the lobster, shrimp and groundfish, flyingfish and reef fisheries and biodiversity sub-projects). At the regional level, activities include the promotion of regional ocean governance, advancing the Caribbean Sea Initiative, pursuing regional management of large pelagic and LME level monitoring and reporting.

2.2.3 Key Challenges

While the activities approved for the CLME Project are expected to provide valuable insights and advances in the governance of shared living marine resources in the region, the full implementation of the LME governance framework in the WCR can be expected to take several decades. Furthermore, it is expected to be a highly dynamic process requiring regular review and adaptation. It will require that existing organizations be willing to rationalize their current mandates and roles in the context of the framework, often expanding to take on the new responsibilities that will be essential for transboundary governance in the WCR. For example, the Association of Caribbean States Caribbean Sea Commission and a complex of intergovernmental organizations will need to incorporate processes for review of, and decision-making on, WCR marine issues. This will at least require additional time in current processes and will incur additional costs to ensure fully functional policy cycles are developed and appropriately linked horizontally and vertically.

2.3 Project design

At the Second (and final) Steering Committee meeting of the PDF-B phase of the CLME Project, held in Cartagena, Colombia on June 6-8, 2007, CLME Steering Committee members approved the overall project concept for implementation during Phase 1 of the full-sized project. As described in the section of the approved document¹⁰ on setting the overall context, in agreeing on a project vision, a number of features of the Caribbean Large Marine Ecosystem and the management of its living resources needed to be recognised, including:

- The large number of culturally, politically and socio-economically diverse countries (26) and dependent territories involved and their wide range of living resource management capacities.
- The mosaic of Economic Exclusion Zones, many still to be formally delimited, which covers the entire region with the exception of two small areas of high seas, and consequently a high incident of transboundary resource issues.

¹⁰ See CLME Project Concept Final report (approved). CLME TT/2 Final report (CLME Project Implementation Unit, 2007)

- The wide range of types of fishery in the CLME with different management demands and models
- The absence of any major fishery stocks from which revenues can be derived to support an all-inclusive RFMO.
- A high dependence, particularly for SIDS, on marine resources and the resulting overexploitation of coastal and off-shore living resources.
- A fragmentation and wide diversity of national, sub-regional and regional marine resource governance institutions

In designing the full-sized project, Steering Committee members agreed that these specific CLME features must be taken into account, and “...it is for this reason that this project stresses the importance of the LME Governance Framework.” (CLME TT/2, p 4).

Four components for the FSP were identified and agreed upon: project management (component 1); finalizing the preliminary TDA (component 2); SAP development (component 3) and 4) targeted projects aimed at strengthening the policy cycle and early SAP implementation (Figure 5). Of these, the SAP development (component 3) and the targeted demonstration projects (component 4) were explicitly linked implementation of the LME Governance Framework.

2.3.1 SAP Development

Key objectives for the SAP were to:

- Implement a management and governance structure for the CLME;
- Map out present institutional framework within the different fisheries and within the context of other ecosystem considerations; and,
- Link demonstration projects to regional, sub-regional and eco-system-wide management and governance framework.

Activities to achieve these objectives were identified as:

- Strengthening of existing decision-making institutions;
- Strengthening the linkages between advisory and decision-making bodies;
- Encouraging WCR states to ratify and implement relevant international agreements; and,
- Developing and promoting regional agreements and capacity.

As illustrated in Figure 5, the regional level activities associated with the development of the SAP focused on the regional level policy cycle and building vertical linkages to the international level by strengthening regional ocean governance; supporting the ACS-led Caribbean Sea initiative; developing and implementing a regional level monitoring and reporting system; and strengthening governance of regional large pelagic.

The CLME Project Approach: Building a multi-level policy-cycle based governance framework

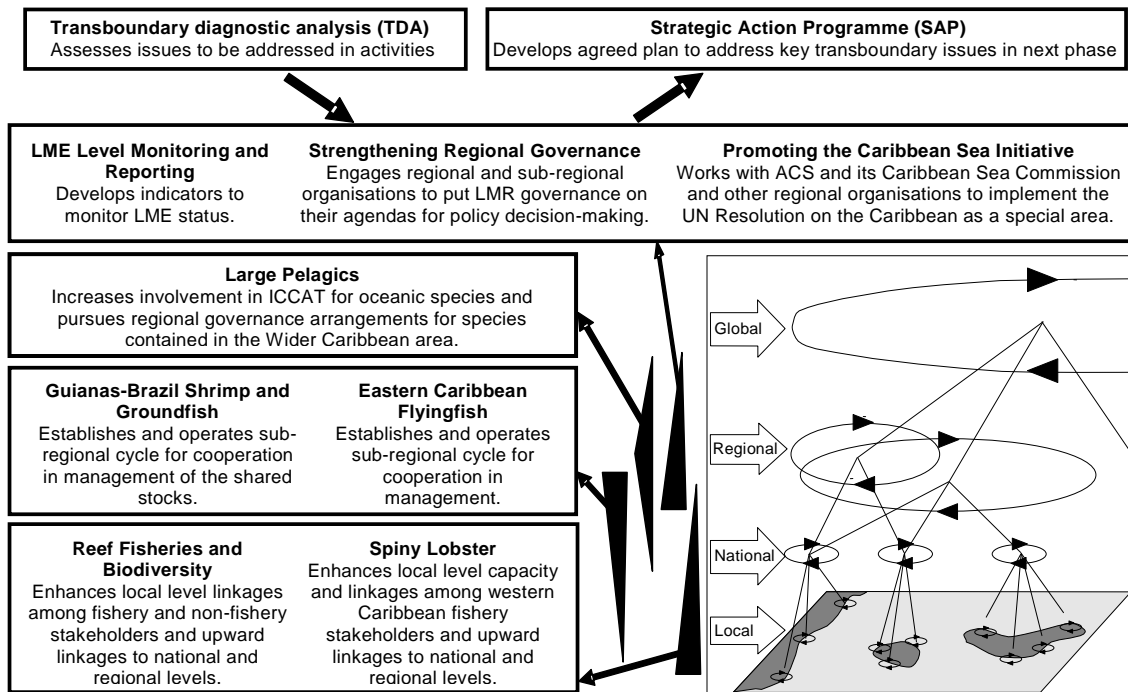


Figure 5. The linkage of the LME Framework to the CLME Project Phase 1 activities (Mahon et al. 2007)

2.3.1.1 Strengthening regional ocean governance

The major objectives identified and approved during the PDF-B phase for strengthening regional ocean governance were to:

- Get the CARSEA and CLME concepts and framework onto the agendas of regional and subregional organizations;
- Make policy inputs for organisations to adapt to and facilitate framework; and,
- Increase public awareness of the importance of ocean governance.

It was agreed that this will be achieved through the following activities:

- Promoting CARSEA/CLME concepts and framework with regional/subregional organizations; and,
- Increasing public awareness of the importance of ocean governance.

2.3.1.2 Advancing the Caribbean Sea initiative

The major objectives identified and approved during the PDF-B phase for advancing the Caribbean Sea Initiative were to:

- Support to the ACS Caribbean Sea Commission and other regional institutional arrangements in establishing full policy cycles for living marine resources.

It was agreed that this will be achieved through the following activities:

- Support with specification and adoption of processes by which the ACS and other arrangements will address transboundary living marine resource issues in the WCR; and,
- Support for the implementation of these processes with regard to selected key issues to be determined during the TDA/SAP process.

2.3.1.3 Sustainable Regional Management of Large Pelagics

The major objective identified and approved during the PDF-B phase for advancing the sustainable regional management of large pelagics were to:

Obtain an equitable share of the benefits to be obtained from well-managed large pelagic fisheries.

Building on the above, the two main activities for this subcomponent would be:

- Getting WCR countries involved in ICCAT,
- Establishing a policy cycle for management of regional large pelagics.

2.3.1.4 LME Level Monitoring and Reporting

The major objective identified and approved during the PDF-B phase for advancing LME-level monitoring and reporting were to:

- To develop a system to compile, analyse, synthesise and deliver information necessary to maintaining policy cycles at LME scale levels
- To ensure that LME scale level information is widely shared among stakeholders at all levels

It was agreed that this will be achieved through the following activities:

- Identification of categories and suites of indicators needed for adequate monitoring and reporting,
- Identification of sources of information for indicators,
- Specification and establishment of process to prepare and report on indicators,
- Application of process.

2.3.2 Demonstration Projects

In designing the SAP implementation demonstration projects, the Steering Committee stated that the guiding principle of ‘strengthening by doing’ is to be followed. Four separate fisheries specific projects were agreed upon to be developed, focusing on SAP development at different levels. The demonstration fisheries included:

- Flyingfish;
- Shrimp and groundfish;

- Lobster; and
- Reef fisheries and biodiversity

The demonstration projects were agreed to target the application of best available information, including latest credible science-based assessments, to the management and policy processes at the appropriate level or levels. Data and information, analysis and advice, decision making, implementation and review and evaluation were to be analysed for strengths and weaknesses through the TDA process (component 2) and the demonstration project design. It was also agreed that the draft project proposals must be discussed and finalised with the countries and STAG early in the first year of the Full Sized Project. Members agreed that it was important that the demonstration projects target potential SAP interventions, particularly with regard to the Precautionary Approach and Code of Conduct for Responsible Fisheries, and that the interim results feed into the SAP and LME Governance framework development process. A key objective of this component will be to engage as many of the countries in the implementation of the demonstration projects and in doing so encourage participation and engagement in the SAP process.

As approved by the CLME Steering Committee in Cartagena in June 2007, the demonstration project design will take note of the following the four propositions:

1. Any interruption at any stage of the policy cycle will result in dysfunctional governance of the target resources or ecosystems
2. Vertical linkages between functional policy cycles are necessary for effective LME governance
3. Horizontal linkages between functional policy cycles are often necessary for effective LME governance
4. Linkages between functional policy cycles specific to the ‘analysis and advice’ and ‘decision making’ stages of the cycle are essential for effective LME governance

The four demonstration projects were designed to high-light different aspects of the policy cycle at different governance levels (Figure 5). As noted in the approval by the Steering Committee, “The operation of these policy cycles will identify institutional and information gaps that need to be filled and the necessary monitoring and assessment will be funded by the GEF project to the extent that the budget allows, and complemented, as appropriate, by support from technical partners.” (p.9)

The following description of the demonstration projects is duplicated from the approved CLME TT/2 Final document of the Regional Steering Committee (Cartagena, June 6-8, 2007).

2.3.2.1 Flyingfish

Based on an emerging fishery, this demonstration project will focus on: strengthening of linkages between ‘analysis and advice’ and ‘decision making’ policy bodies; improve coordinated implementation at the Sub-Regional level; and increase stakeholder involvement at local, national and Sub-Regional levels (Figure 5). A potential promoter for this project is the CRFM whilst key partners include the WECAFC ad hoc Flyingfish Working Group and the OECS. This is seen as a guide demonstration project, a yardstick from which the implementation success of other more involved projects can be measured.

2.3.2.2 Shrimp and Groundfish

This project will target the increasing complex and sophisticated shrimp and groundfish fishery of the Guianas-Brazil shelf. The weakness and strengths of the policy cycle have been well studied by the FAO-WECAFC fishery working group and key areas for interventions have been recommended. This demonstration project will be a model for what is achievable in terms of ecosystem-based management of a sub-regional, mixed fishery (Fig 5).

2.3.2.3 Lobster

The lobster fishery is significant in that it is ecosystem wide and transboundary as a result of planktonic dispersal, whilst local and national in terms of its management and governance. The challenge will be to create an implementable policy cycles at the local level with the necessary vertical linkages to the higher sub-regional and regional levels (Figure 5). The local governance structure needs to be able to deliver data and information to the higher levels and implement regional management rules, whilst still maintaining some degree of self regulation. The demonstration project needs to find the correct balance between top-down and bottom-up approaches to achieving sustainable resource management. Involvement of local stakeholders and increased public awareness will be crucial in building an effective policy cycle and governance structure. OSPESCA is a potential promoter of the demonstration project. The project would in the first instance have a limited geographical scope however linkages to other areas within the WCR where the lobster fishery is of significant importance will be developed.

2.3.2.4 Reef Fisheries and Biodiversity

The reef fisheries and biodiversity demonstration project will articulate a policy cycle for a subset of reef systems. These are highly complex and provide a wide range of goods and services at the local and global scale. The demonstration project will develop an assessment, management, and governance framework to ensure the ecological integrity of the reef and its ability to withstand environmental shocks and stresses such as climate change. The demonstration project will be implemented at a limited number of carefully selected sites, identified on the basis of their ability to provide comparative lessons on effective reef fisheries and reef biodiversity governance over the period of the project. The sites may be transboundary and or associated with existing Marine Protected Areas. Of particular interest to the project will be the adjoining secondary reef areas where regulation is less stringent and fishing pressure is heavier. Again, the importance of involving the local stakeholders in the decision-making process will be crucial in creating an effective governance structure (Figure 5).

While it was evident that site selection for the demonstration projects could not include all countries within the region, the CLME Steering Committee stressed that the projects must be designed to be replicable, and within the life of the project, the lessons learnt must be transferred to comparable fisheries in the WCR and potentially wider afield. As part of the demonstration project design, a programme of activities was called for to disseminate the lessons learnt.

2.4 Stakeholder analyses from the PDF-B phase

Stakeholder engagement and participation is recognized as a key component of an ecosystem approach. Therefore, stakeholder identification was seen as a critical step in setting the stage for stakeholder participation in the Full Project. Recognizing that the CLME project covers some 26 countries and the need for the project to identify stakeholders that will affect and be affected by the project (academic, resource users, managers, NGOs, Government, community-based organizations, donors, fishers and fishers' organization), considerable effort was expended during the PDF-B phase to identify these players.

Resources used to identify key stakeholders included FAO WECAFC national focal points, existing stakeholder assessments conducted by the Caribbean Regional Fisheries Mechanism (CRFM) and the Caribbean Natural Resources Institute (CANARI), reports of attendance at major conferences (e.g. WW2BW) and meetings relevant to marine resources in the WCR, and review of the Caribbean Conservation Association membership, UNESCO's Ocean Portal, and GULFBASE online databases of members. This information was supplemented by information from background documentation provided by the CLME Project Implementation Unit, CERMES. This included the country information from the CLME project template questionnaire submitted by each country and the preliminary stakeholder assessment for the CLME project. In addition, several individuals actively involved in WCR fisheries governance activities were consulted, both through in-person interviews and by correspondence. The roles and mandates for each of the institutions identified were determined by reviewing existing web pages of each institution and information from existing literature.

This work revealed a large number of stakeholders relevant to the CLME Project.¹¹ The stakeholder analyses first identified key stakeholders by level of interaction (local/national, sub-regional/regional, or international). For each level of interaction, the country, name of institution, a summary of the respective mandates, roles and responsibilities, and potential role(s) in the CLME project were described. Stakeholders identified were representative of governmental, intergovernmental, nongovernmental, academic, private sector, NGOs, fisher's organization and community based organizations. In addition, a number of local and national entities were identified as key fisheries related stakeholders, but no information on mandate and roles and responsibilities were available.

2.4.1 Criteria Used in Identifying Key Stakeholders

During the PDF-B phase, final selection and recommendation of key stakeholders was based upon their potential role(s) in contributing to the objectives of the CLME Project and position in the proposed project components' partnership diagrams/generic policy cycle. This was done based upon a review of each stakeholder's current mandate, roles and responsibilities and matching these with a list of key potential roles identified from the governance framework and key activities of the CLME Project¹². Table 1 provides a summary of the key stakeholders

¹¹ Reports on the Stakeholder Analyses conducted during the PDF-B phase of the CLME project are available at <http://www.cavehill.uwi.edu/cermes/clmeInfo.html>

¹² See report entitled "Key Institutional Players at the Local, National, Sub-Regional, Regional and International Levels in the Caribbean Sea Large Marine Ecosystem" prepared for the CLME Project Implementation Unit by K. Parsram (2007).

identified during the PDF-B phase based on their potential role in CLME Project activities.

The identified potential roles include:

- Potential for co-financing;
- Technical assistance in filling knowledge gaps and sharing data and information;
- Participating in the TDA analysis and development of the Strategic Action Programme;
- Implementation of necessary institutional, legal and policy governance reforms at the national and regional levels;
- CLME project promotion, specifically with respect to advancing the achievement of the components of the project;
- Promoting ocean governance and advancing the Caribbean Sea Initiative, Sustainable regional management of large pelagics, incorporating fisheries NGOs into regional governance, and LME level monitoring and evaluation;
- Building cross-sectoral linkages and partnerships among advisory and decision-making bodies at the national, sub-regional and regional levels;
- Encouraging increased ratification and implementation of relevant international agreements;
- Public education, outreach, dissemination and sharing of project results, best practices and lessons learnt;
- Capacity building for, and implementation of, management measures and legal, policy and regulatory reforms; and,
- Design and implementation of the pilot projects (Flying fish, Reef Fisheries, Lobster, Shrimp and Ground Fish)

Table 1: Selected key institutional players in the CLME project area at the local, national, sub-regional/regional and international levels identified in the PDF-B phase of the project based on their potential role in CLME Project activities (Source: Parsram (2007))

Potential Role(s) in CLME	Levels of interaction	Organizations
Technical assistance in filling knowledge gaps and sharing data and information.	Local	Fisher folk Organizations, Fish processors, MPA Authorities (e.g. SMMA, Buccoo Reef Trust, TCMP, CORALINA etc), NGOs (Environmental Awareness Group, Barbuda Council, GRENCODA, FUNDAECO, CONAP, GMTCS, NCRPS, BREEF, SMMA etc.)
Participating in the TDA analysis and development of the Strategic Action Programme	National	National Fisheries Departments and special committees, Fisheries Advisory Committees, Universities, Research Institutions (e.g. CARICOMP, Center for Marine Sciences, INVEMAR) IDO, CIP, Aquario Nacional de

		Cuba, CIBIMA, ECOSUR, IMA, Maritime Authorities, CZMUs, National Fisherfolk Organizations
	Sub-regional/ Regional	CARSEA, CRFM, WECAFC, CERMES, MarGov, MBRS, IOCARIBE, UNEP CAR/RCU, GCFI, OPSPESCA, OLDEPESCA, FAO LAPE, IFREMER, CANARI, INCOPESCA, SPAW/RAC, CCDC, UWI CMS, CFMC, OECS
	International	Reef Check, AGRRA, NOAA, FAO, ICAAT, ICRAN, COML, University of Miami RSMAS, CINTOO, IUCN, TNC, WWF, WRI
Potential for co-financing; Implementation of necessary institutional, legal and policy governance reforms at the national and regional levels; CLME project promotion, specifically with respect to advancing the achievement of the components of the project; Building cross-sectoral linkages and partnerships among advisory and decision-making bodies at the national, sub-regional and regional levels; Encouraging increased ratification and implementation of relevant international agreements Public education, outreach, disseminate and share project results, best practices and lessons learnt; Capacity building for and implementation of management measures and legal, policy and regulatory reforms.	Local	Primary Fisherfolk Organizations, NGOs, SMMA, Buccoo Reef Trust, TCMP, CORALINA, Environmental Awareness Group, Barbuda Council, Barbados Marine Trust, CEC, GRENCODA, ART, FUNDAECO, CONAP, GMTCS, NCRPS, NEPT, NEST, BREEF, Dive Operators, Tour Operators,
	National	National fisheries authorities, Fish Processors and traders, Maritime Authorities, Naval Forces/Coast Guard, Ministries of Environment, Ministries of Agriculture, Ministries of Trade and Commerce, National Trust, NGOs, CZMUs, UNIPESCA, FENICPESCA, DIGIPESCA, CONAPESCA
	Sub-regional/ Regional	CARSEA/Cropper Foundation, OECS, CRFM, CERMES, MarGov, ACS, CARICOM, SICA, CTO, CHA, OSPESCA, CFMC, WECAFC, IFREMER, UNEP-CEP, SPAW/RAC, IOCARIBE, ECLAC, OLDEPESCA, INVEMAR, Research Institutions, CaMPAM, CCA
	International	OAS, FAO, UNDOALOS, ICAAT, CTA, IDRC, OAK, Ocean Foundation, Bill Fish Foundation, IUCN, WW2BW, IOI, UNFSA, ICRAN, NOAA, TNC, WWF
Participate in developing and implement pilot projects (Flyingfish, Reef Fisheries, Lobster, Shrimp and Ground Fish)	Local	Fishermen Organizations, Fishing Companies, NGOs, CORALINA, Coral Cay Conservation, TCMP, SMMA, Bucco Reef Trust, NCRPS, Diving Associations, MPAs
	National	Fisheries Departments/Divisions/Commissions, Research Institutes, CARICOMP, UWI CMS, IMA, EMA, CZMUs, IBAMA, ACML, Naval Forces/Coast Guard, UNIPESCA, FENICPESCA, DIGIPESCA, CONAPESCA

	Sub-regional/ Regional	CRFM, WECAFC, UNEP CEP, MBRS, SICA, OSPESCA, AECI, GCFI, CONFEPESCA, OLDEPESCA, INVEMAR, CERMES, MarGov, UWI CMS, CCCCC, CFMC, CEHI, CANARI
	International	FAO, UNEP, WWF, WRI, AGRRA, Reef Check, TNC, ICRAN

2.4.2 Preliminary Assessment of Key Stakeholders identified in the PDF-B phase of the project by Contribution to CLME Project Activities

In an effort to further analyse the importance of the identified stakeholders in contributing to the success of the CLME project objectives, two additional refinements were made during the PDF-B phase. The first refinement resulted in a categorization of the stakeholders in terms of their explicit role in each of the identified CLME project activities while the second refinement further categorized stakeholders in terms of their likelihood to be involved at a particular stage in the policy cycle for the particular CLME project activity. Tables 2, 3, 4, 5 and 6 and the corresponding Figures 6, 7, 8, 9 and 10 present the stakeholders assessed as likely to be involved in data and information provision, analysis and advice, decision-making, implementation and monitoring and evaluation for each of the five fisheries-specific sub-projects identified for the CLME project. These were listed as focusing on shrimp and groundfish on the continental shelf ecosystem, reef fisheries and biodiversity, as well as lobster found in the reefs ecosystem, flyingfish straddling both the reef and open sea ecosystems and large pelagics in the open sea ecosystem. Table 7 and Figure 11 present similar information on stakeholders likely to be involved in the regional governance component of the CLME Project, including strengthening regional governance and supporting the Caribbean Sea Initiative. Stakeholder information on the development of a region-wide monitoring and reporting system to assist with more informed decision-making on the sustainability of the shared living marine resources of the WCR Sea is provided in Table 8 and Figure 12.

Table 2: Policy cycle and multi-level governance stakeholders in shrimp and groundfish pilot project, located in the continental shelf ecosystem as identified in the PDF-B phase of the project (Source: Parsram (2007))

Stage of the Policy cycle	Levels			
	Local	National	Sub-regional/Regional	International
Data and Information	Fishermen, Fisherfolk Organizations, Local Government	Fisheries Department Maritime Authority IFREMER, IBAMA, CEPNOR EPA, FONAIAP, EMA, IMA, Hydromet, Fishing Industries / Organizations, NGOs	WECAFC CRFM CEP	FAO UNEP NGOs
Analysis and		Fisheries Department,	WECAFC	FAO

Advice		IFREMER, IBAMA, CEPNOR EPA, FONAIAP, EMA, IMA, Hydromet, Fishing Industries / Organizations, FACs, Universities, Bureau of Statistics	CRFM CEP	UNEP
Decision-making	Local Government	Ministry, Cabinet	CARICOM/ CRFM	COFI
Implementation	Local Government	Fisheries Department, IFREMER, IBAMA, CEPNOR EPA, FONAIAP, EMA, IMA, Maritime Authority, Coast Guards, Fishing Industries / Organizations	WECAFC CRFM	
Review and evaluation		Fisheries Department, IFREMER, IBAMA, CEPNOR EPA, FONAIAP, EMA, IMA, Hydromet, Bureau of Statistics, Planning Departments, FACs, NGOs	WECAFC CRFM	FAO UNEP

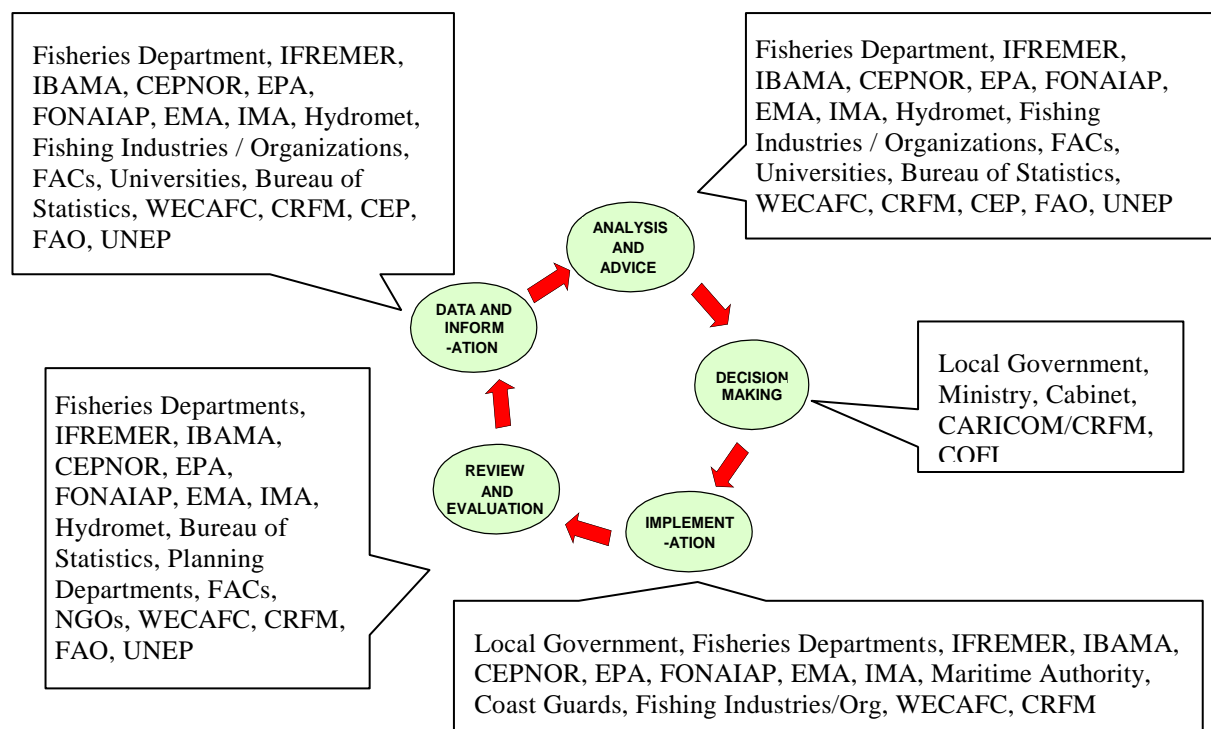


Figure 6: CLME stakeholders by policy cycle stage for the Shrimp and Groundfish pilot project as identified in the PDF-B phase of the project. (Source: Parsram (2007))

Table 3: Policy cycle and multi-level governance stakeholders in the reef fisheries and biodiversity pilot project, located in the reefs ecosystem as identified in the PDF-B phase of the project. Source: Parsram (2007)

Stage of the Policy cycle	Levels			
	Local	National	Sub-regional/Regional	International
Data and Information	Local MPA, Coral Cay Conservation, Coralina, Fishers/Fishers org., Diving associations	CZMUs IMA Government Departments (e.g. environment, fisheries),	Universities & Research institutions (UWI, CERMES, ORE MU, INVEMAR, Center for Marine Sciences, CEHI), CFMC, Databases (e.g. IABIN, SERVERE, GCRM), CCA, IFREMER. CTO, CRFM, MBRS, GCFI, UNEP-CAR/RCU, OSPESCA, Caricom	TNC, WWF, WRI, Reef Check, Aggra ICRAN, MAR, ICRA
Analysis and Advice	(Buccoo Reef Trust), Fishers/Fishers Org. TCMP, SMMA	Government departments, IMA, CZMU	CRFM, WECAFC, UWI & Academic Institutions, CANARI, Association of Caribbean Marine Laboratories	TNC
Decision-making		Government, Private sector (seafood industry), Fishers organizations	CARICOM, ACS, OECS, CARIFORUM, CITES	FAO, UNEP, CCAD
Implementation	CBO's, NGO's, Fishers cooperatives, Local governance, TCMP, SMMA, Buccoo Reef trust	Government organizations, private sector (hotels, seafood industry, diving), Enforcement & legal entities		Donors (facilitating implementation)
Review and evaluation	(Buccoo Reef Trust), Fishers/Fishers Org. TCMP, SMMA	Government departments, IMA, CZMU	CRFM, WECAFC, UWI & Academic Institutions, CANARI, Association of Caribbean Marine Laboratories,	TNC

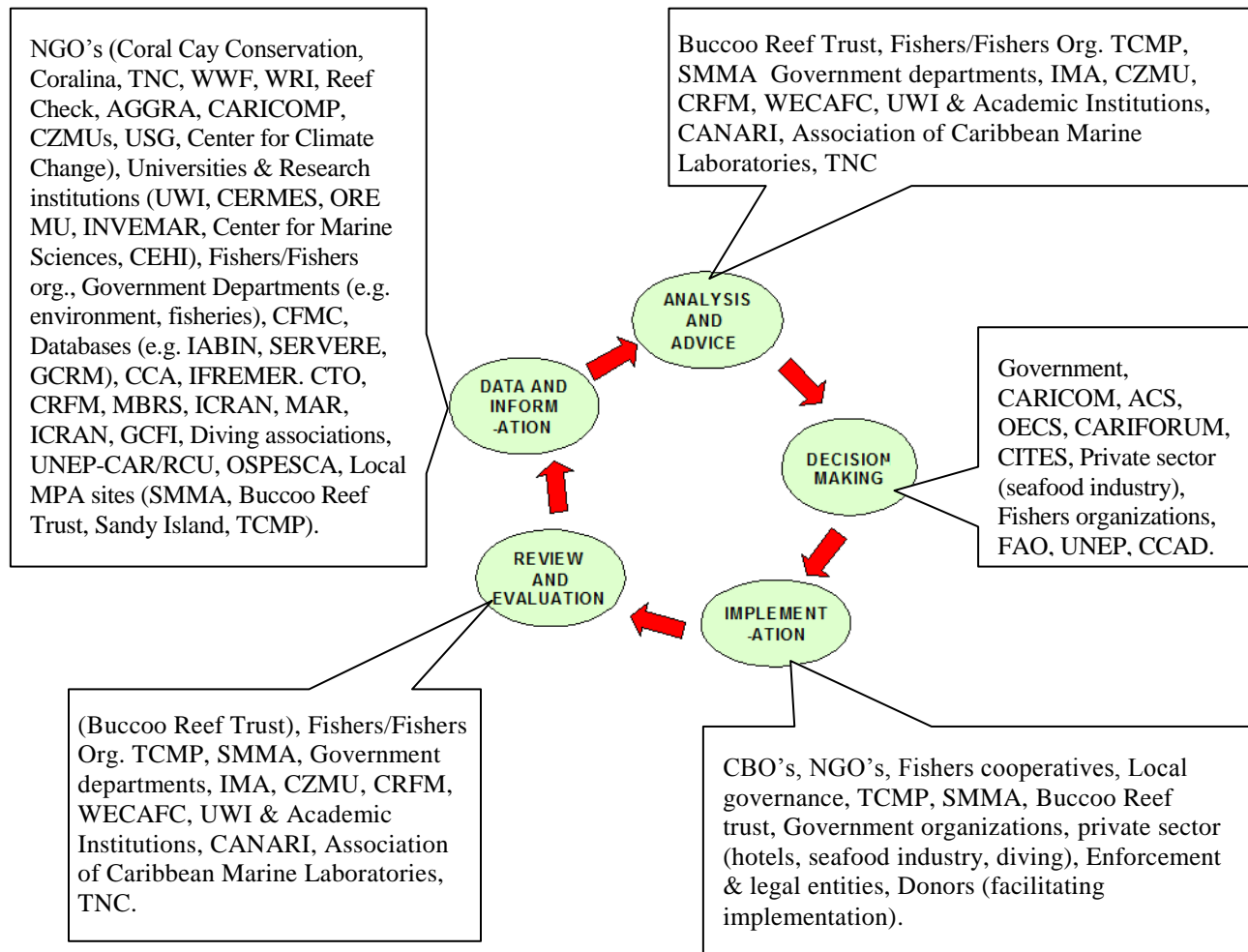


Figure 7: CLME Stakeholders by Policy Cycle Stage for the Reef Fisheries and Biodiversity pilot project as identified in the PDF-B phase of the project. (Source: Parsram (2007))

Table 4: Policy cycle and multi-level governance stakeholders in lobster pilot project, located in the reefs ecosystem as identified in the PDF-B phase of the project (Source: Parsram (2007))

Stage of the Policy cycle	Levels			
	Local	National	Sub-regional/Regional	International
Data and Information	Fishermen Organizations Fishing Companies NGOs	Fisheries Offices Research Centers Academy Ministries of Foreign Affairs Ministries of Environment Naval Forces NGO's	MBRS SICA CCAD OSPESCA WECAFC AECI CRFM CARICOM TNC WWF GCFI	FAO
Analysis and Advice		Fisheries Offices Academy Fisheries Organizations NGO's	CRFM WECAFC OSPESCA	FAO
Decision-making		Fisheries Offices		
Implementation	Fishermen Organizations	Fisheries Offices Environmental Ministries Naval Forces Police	OECA CONFEPESCA Buyers Government	
Review and evaluation		Fisheries Offices	WECAF GCFI	FAO

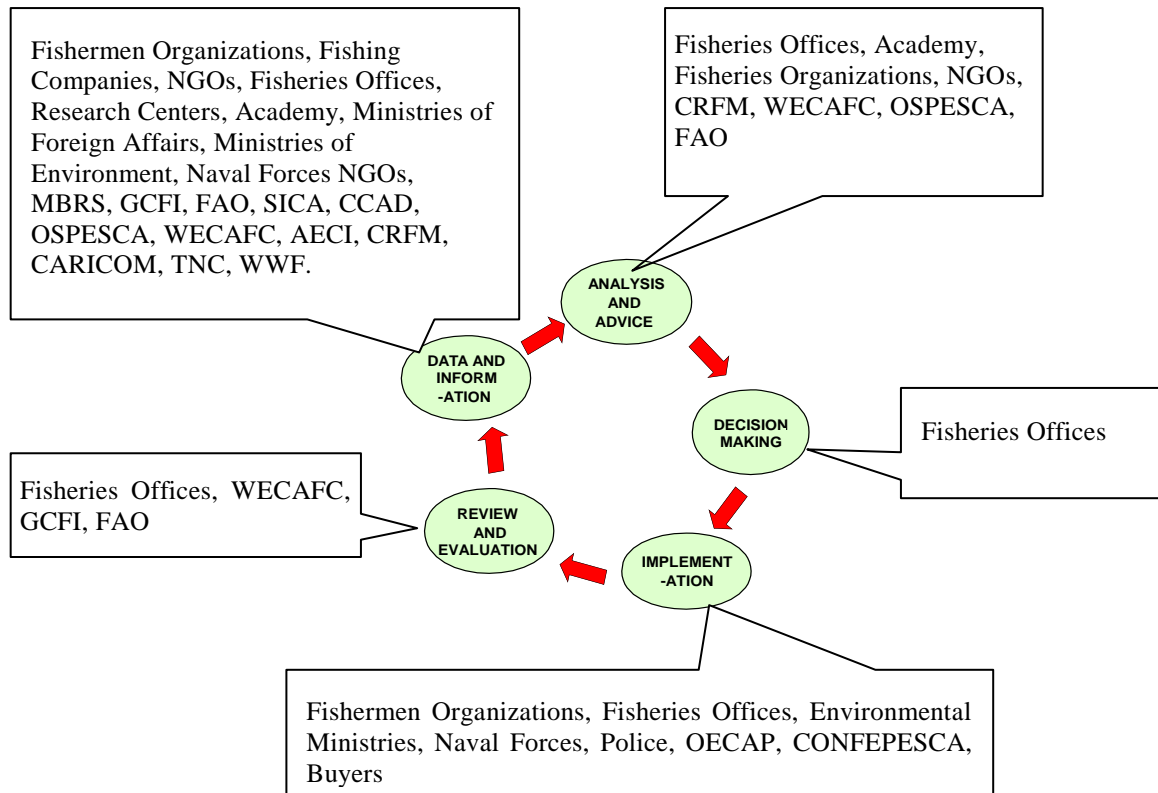


Figure 8: CLME Stakeholders by Policy Cycle Stage for the lobster fisheries pilot project as identified in the PDF-B phase of the project. (Source: Parsram (2007)).

Table 5: Policy cycle and multi-level governance stakeholders in flyingfish pilot project, located in the reef/open sea ecosystem as identified in the PDF-B phase of the project. Source: Parsram (2007)

Stage of the Policy cycle	Levels			
	Local	National	Sub-regional/Regional	International
Data and Information	Fisherfolk organizations	National Fisheries Agencies/dept. Enforcement Agencies Finance Ministry (as gov't funder) Fishing Industry Tourism Association(s)	UWI/CERMES Bi- and multi-lateral projects FAO/CRFM projects FAO/LAPE project	
Analysis and Advice		National Fisheries Agencies/dept.	WECAFC SAG WECAFC ad hoc WG on Flying fish CRFM (Scientific Working Group) FAO/LAPE Project IFREMER (France)	
Decision-making		National Fisheries Agencies/dept.	CARICOM/COTED with France	
Implementation		National Fisheries Agencies/dept. Enforcement Agencies Fishing Industry Tourism Assoc. & Operators		
Review and evaluation		National Fisheries Agencies/dept. Fishing Industry Enforcement Agencies NGOs	UWI/CERMES Regional body (CRFM)	

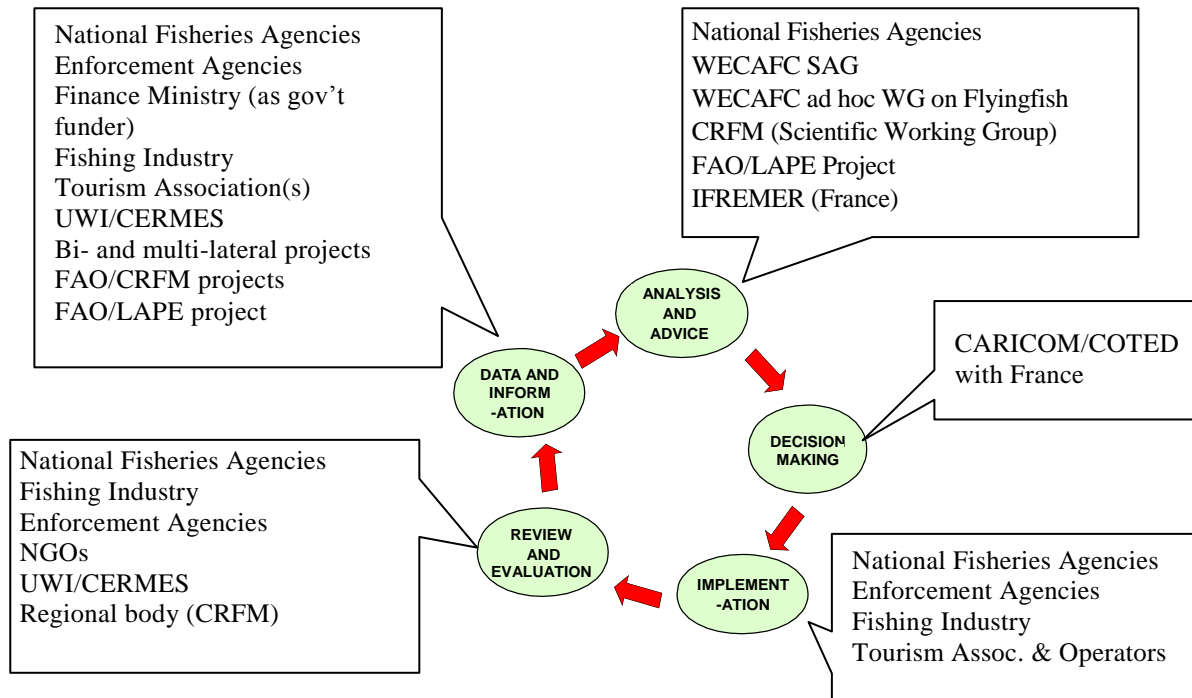


Figure 9: CLME Stakeholders by Policy Cycle Stage for the flyingfish fisheries pilot project as identified in the PDF-B phase of the project. (Source: Parsram (2007))

Table 6: Policy cycle and multi-level governance stakeholders in the large pelagics pilot project, located in the open sea ecosystem as identified in the PDF-B phase of the project. Source: Adapted from Parsram (2007)

Stage of the Policy cycle	Levels			
	Local	National	Sub-regional/Regional	International
Data and Information	Local and national FFOs, Processors and traders,	National fisheries Depts., Fisher Associations, Research institutions, Environmental groups, Research Institutions, Government S and T institutions	OECS, CRFM, OSPESCA CFMC GCFI FAO LAPE	A wide variety of technical entities with expertise in relevant areas NOAA FAO ICCAT UNDOALOS
Analysis and Advice		National Fisheries and environment Depts. Fisher Assoc., Industry Rep., Research Institutions Customs Depts., , Consumer groups (tourism),	ACS Caribbean Sea Commission reviews advice provided in response to specific requests to appropriate agencies CRFM, OECS ESDU, CSME	ICCAT
Decision-making			ACS CS Commission/Council CARICOM, SICA	ICCAT
Implementation		National Govs, Enforcement agencies Public health entities, Sanitary authorities,		
Review and evaluation		National Fisheries and Environment Depts. Fisher Assoc., Industry Rep., Research Institutions	Caribbean Sea Commission and technical agencies, CRFM, OECS-ESDU	ICCAT

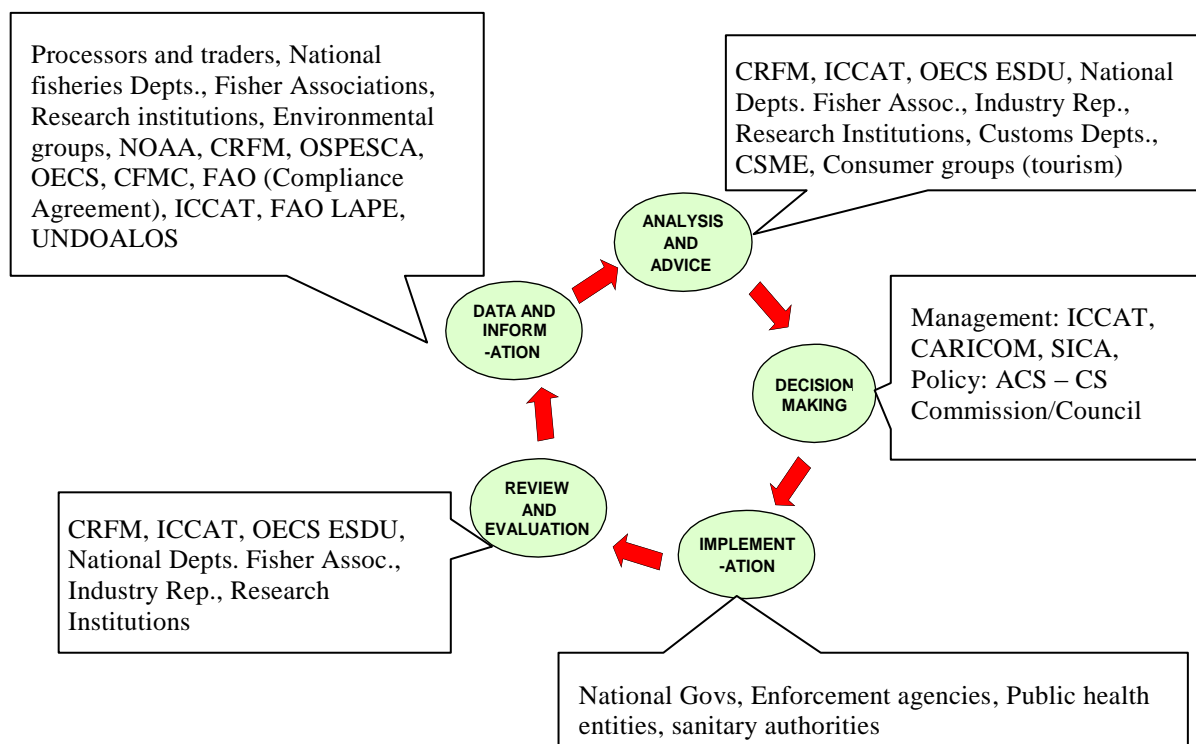


Figure 10: Identified CLME Stakeholders by policy cycle stage for the large pelagic fisheries pilot project. (Source: Adapted from Parsram (2007))

Table 7: Policy cycle and multi-level governance stakeholders in SAP development and identification of legal, policy and institutional reforms and investments for shared living marine resource management, including the Caribbean Sea Initiative as identified in the PDF-B phase of the project. Source: Adapted from Parsram (2007)

Stage of the Policy cycle	Levels			
	Local	National	Sub-regional/Regional	International
Data and Information	Local FFOs, Processors and traders,	National fisheries Depts., Fisher Associations, Research institutions, environmental groups, Research Institutions, Government S and T institutions	CARSEA, Cropper Foundation OECS, CRFM, CERMES OSPESCA CFMC Cropper Foundation (CARSEA), GCFI FAO LAPE IOCARIBE	A wide variety of technical entities with expertise in relevant areas IOI, IOC LOS Office, Seabed Authority, NOAA FAO ICCAT UNDOALOS

Analysis and Advice		National Fisheries and environment Depts. Fisher Assoc., Industry Rep., Research Institutions Customs Depts., , Consumer groups (tourism),	ACS Caribbean Sea Commission reviews advice provided in response to specific requests to appropriate agencies CRFM, OECS ESDU, CSME CDB, Caribbean Assoc Ind Comm., ECCA	ICCAT
Decision-making			ACS CS Commission/Council CARICOM, OECS, SICA CTO, CHA	
Implementation		National Govs, Enforcement agencies National Fisheries and Environment Depts. Fisher Assoc.,	Cropper Foundation, Universities, regional NGOs (TNC), CANARI, CRFM, SICA, CARICOM Universities (UWI, etc.) Non-fishery NGOs, capacity building orgs (mgmt training institutes)	
Review and evaluation		National Fisheries and Environment Depts. Fisher Assoc., Industry Rep., Research Institutions	Caribbean Sea Commission and technical agencies	

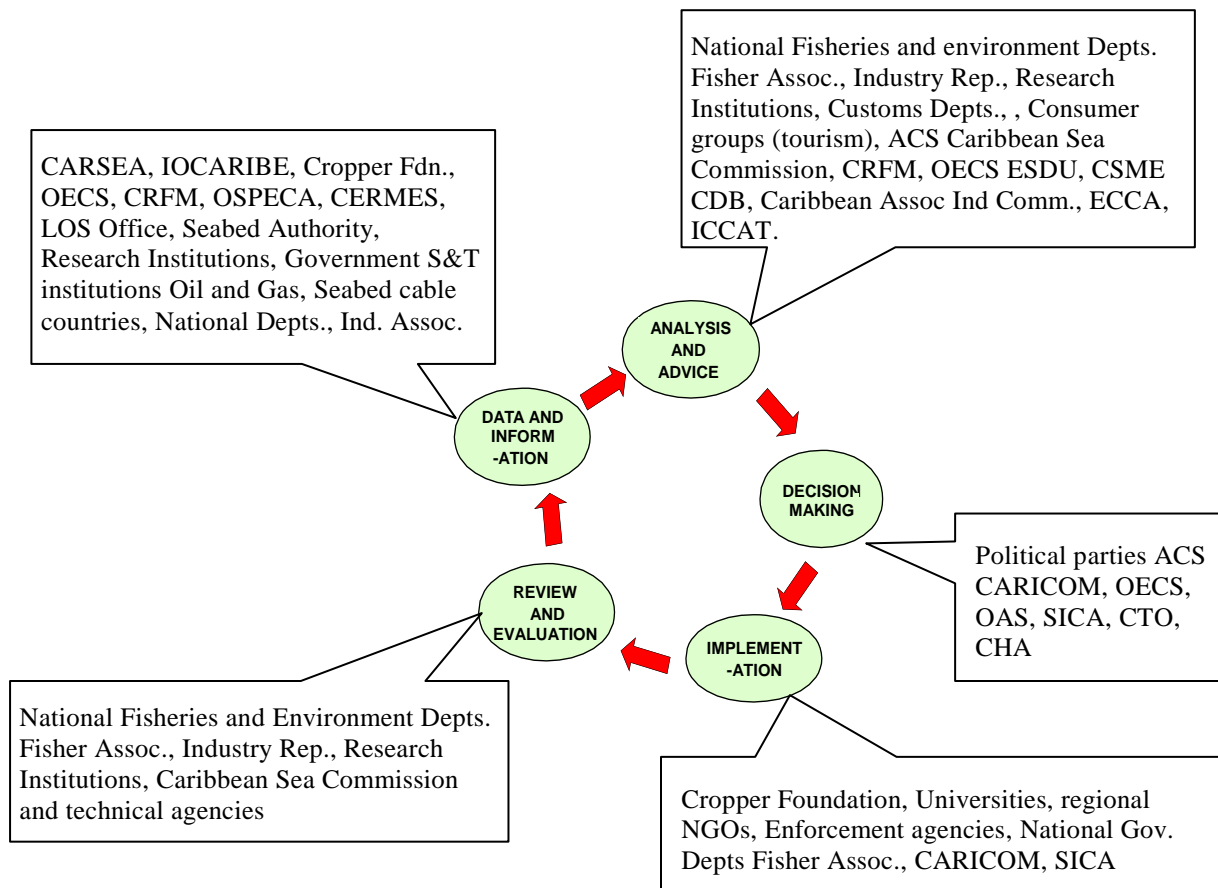


Figure 11: CLME Stakeholders by Policy Cycle Stage for the promotion of regional ocean governance and the Caribbean Sea initiative as identified in the PDF-B phase of the project. (Source: Adapted from Parsram (2007))

Table 8: Policy cycle and multi-level governance stakeholders in the regional monitoring and evaluation project for shared living marine resource management as identified in the PDF-B phase of the project. Source: Adapted from Parsram (2007)

Stage of the Policy cycle	Levels			
	Local	National	Sub-regional/Regional	International
Data and Information	Local FFOs, Processors and traders,	National fisheries Depts., Fisher Associations, Research institutions, environmental groups, Research Institutions, Government S and T institutions	CARSEA, Cropper Foundation OECS, CRFM, CERMES OSPESCA CFMC Cropper Foundation (CARSEA), GCFI FAO LAPE IOCARIBE, UNECLAC	A wide variety of technical entities with expertise in relevant areas, e.g. IOI, IOC LOS Office, Seabed Authority, NOAA FAO, ICCAT UNDOALOS
Analysis and Advice		National Fisheries and environment Depts. Fisher Assoc., Industry Rep., Research Institutions Customs Depts., , Consumer groups (tourism),	ACS Caribbean Sea Commission reviews advice provided in response to specific requests to appropriate agencies CRFM, OECS ESDU, CSME CDB, Caribbean Assoc Ind Comm., ECCA	ICCAT
Decision-making			ACS CS Commission/Council CARICOM, OECS, SICA	
Implementation	Local agencies and NGOs	National Govs, NGOs		
Review and evaluation			Caribbean Sea Commission and technical agencies	IOC

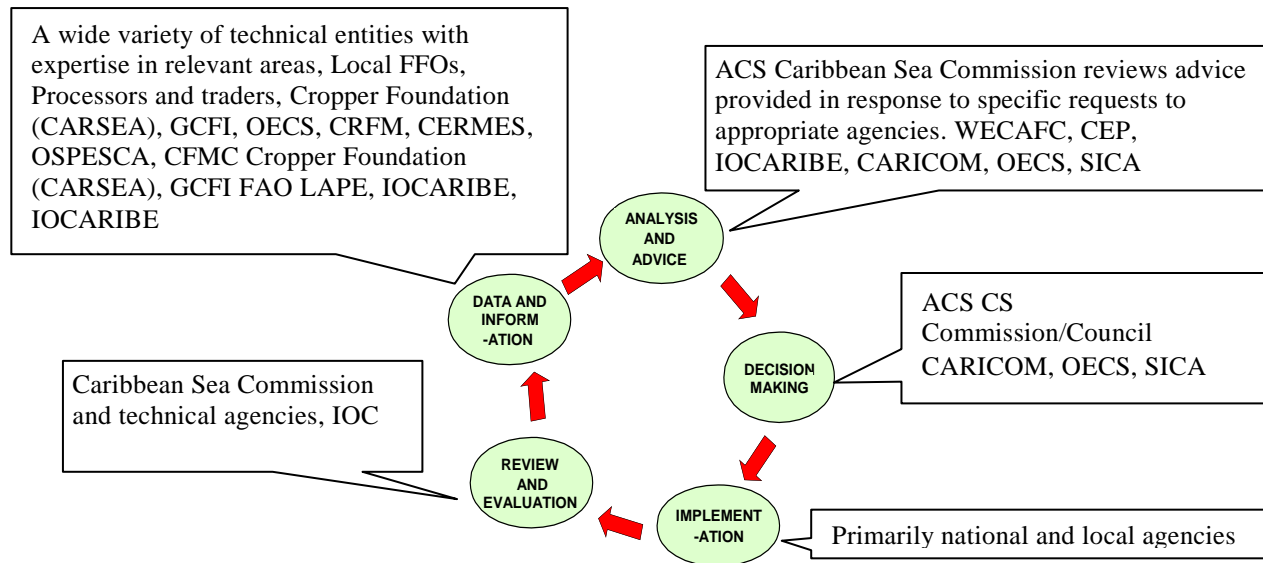


Figure 12: Stakeholders in the CLME Partnership: Caribbean Sea Initiative, LME level monitoring and reporting as identified in the PDF-B phase of the project. (Source: Adapted from Parsram (2007))

2.4.3 Taking an Ecosystem-Based Approach in Identifying CLME Project Stakeholders

As evident from Tables 2 through 8 and Figures 6 through 12, the key categories of stakeholders identified during the PDF-B phase show considerable overlap between those stakeholders involved in the reef fisheries ecosystem pilot projects (reef fisheries and biodiversity sub-project and lobster sub-project), the continental shelf ecosystem sub-project (shrimp and groundfish) and straddling reef/open sea ecosystem (flyingfish) and the open sea ecosystem sub-project (large pelagic). Furthermore, an analysis of the involvement of these stakeholders at different stages of the respective policy cycles (data and information, analysis and advice, decision-making, implementation and monitoring and evaluation) shows a consistency for each of the levels (local, national, subregional/regional and international), regardless of the particular fisheries sub-project. This is to be expected given that the identification of stakeholders was guided primarily by the potential involvement of actors in the fisheries sector generally, rather than within particular ecosystems.

It is worth noting that while key stakeholders have been identified who affect and may be affected by the decisions taken with respect to the management of shared living marine resources, in practice, the main users of the living marine resources located in each of the identified fisheries ecosystems (fisheries sector, tourism, etc.) are generally only marginally involved in any phase of the policy cycle. At the national level, there is minimal stakeholder participation in decision-making, national legislation/regulation changes, and evaluating compliance with agreed regulations. Greater emphasis on involvement of stakeholders is needed for effective management of transboundary living marine resources in the CLME project area.

3 Advances in ocean governance in the WCR since the CLME Project PDF-B

In this section the report examines changes that have taken place in the WCR since the end of the PDF-B that should be taken into consideration in developing the governance approach to the three fishery ecosystems as well as at the overarching regional level. These include progress with: international agreements; legal and institutional arrangements and research and development activities. These changes indicate the trends in ocean governance in the WCR and also its current status.

3.1 International policy and instruments (including legal)

3.1.1 The Wider Caribbean Region Special Area under MARPOL

The United Nations International Maritime Organisation (IMO) promotes the adoption of 15 conventions and protocols that deal with pollution prevention and marine management. Levels of ratification/accession by WCR countries to the marine pollution conventions varies greatly from 28% for the London Convention Protocol to 86% for MARPOL (Annex I/II). Of the 29 ACS countries, Costa Rica, Haiti and Turks and Caicos I. are contracting parties to only one instrument, namely the London Convention. As has been the case for the maritime safety instruments, most ratifications/accessions to marine pollution conventions have taken place in the last decade (around 24%). In particular Colombia, Cuba, El Salvador, Jamaica, St. Vincent & the Grenadines, Aruba and the Netherland Antilles have become contracting parties to a number of conventions and protocols since 2008. These efforts have brought the total proportion of marine pollution convention ratifications/accessions to 63%.

The Marine Environmental Protection Committee (MEPC) of the IMO has established 1st May 2011 as the date on which the discharge requirements for the Wider Caribbean Region Special Area under MARPOL Annex V *Regulations for the prevention of pollution by garbage from ships* will take effect. This area, which includes the Gulf of Mexico and the Caribbean Sea, was designated as a Special Area under MARPOL Annex V in July 1991. Most countries in the region have now given notice that adequate reception facilities are provided in most relevant ports, so that the Special Area status can now be made effective. In Annex V, Special Areas, disposal of all garbage into the sea, including plastics, is prohibited.

3.1.2 The Association of Caribbean States, Caribbean Sea Initiative (CSI) and Caribbean Sea Commission (CSC)

3.1.2.1 The UN resolution on the sustainable development of the Caribbean Sea

The Association of Caribbean States (ACS) includes all the countries of the WCR except Brazil and the USA. The ACS and partners have been pursuing the CSI since 1998 mainly through promotion of the UN Resolution '*Towards the sustainable development of the Caribbean Sea for present and future generations*' at the UN General Assembly. It was first adopted in 1999. It was then reported upon, revised and readopted in 2000, 2002, 2004, 2006 and 2008 (Res 63.214). In the resolution the UNGA '*Recognizes* that the Caribbean Sea is an area of unique biodiversity and a highly fragile ecosystem that requires relevant regional and

international development partners to work together to develop and implement regional initiatives to promote the sustainable conservation and management of coastal and marine resources, including, inter alia, the consideration of the concept of the Caribbean Sea as a special area in the context of sustainable development, including its designation as such without prejudice to relevant international law’.

3.1.2.2 The Caribbean Sea Commission (CSC)

In pursuing the CSI the Caribbean Sea Commission (CSC) was established in 2008 in order to have a body for integrated regional ocean governance. In the past two years there has been considerable progress with the institutionalization of the CSC as a key ocean governance mechanism for the Wider Caribbean Region and for achieving the goals of the Caribbean Sea Initiative. The CSC met on five occasions since the beginning of 2008: 7th Meeting of the CSC - 30th June 2008; 8th Meeting of the CSC - 23rd January 2009; 9th Meeting of the CSC - 22nd June, 2009; 10th Meeting of the CSC - 6th October 2009; and 11th meeting of the CSC – 14th June 2010.

The 10th meeting of the CSC finalized the establishment of the three Sub-commissions and appointed Co-chairs for them: Scientific and Technical Sub-commission – co-chairs are the Centre for Resource Management and Environmental Studies, University of the West Indies, Barbados; and Centro de Investigaciones Marinas, Universidad de la Habana, Cuba; Governance, Outreach and Public Information Sub-commission – co-chairs CARICOM and SICA; Legal Sub-commission – co-chairs Mr. Oscar Monge Castro, Attorney-at-Law, Costa Rica and Mr. Derrick Oderson, Attorney-at-Law, Barbados.

The first (inaugural) meeting of the Scientific and Technical Sub-commission was held by teleconference on March 9th 2010, while the first (inaugural) meeting of the Legal Sub-commission was held on March 16th 2010. There were also supporting meetings held by the ACS and CSC during this period with assistance from donors and partners:

- A conference entitled ‘The Caribbean Sea: harnessing and protecting a vital resource’ was held at the University of the West Indies, on July 1st, 2008, for over 70 regional participants with the aim of promoting the CSC and the CSI and gaining support for them.
- The 1st meeting of the Bureau of the CSC was held in Port of Spain, Trinidad and Tobago, August 13th, 2008
- The Conference on the Institutionalization of, and International Co-operation by the Caribbean Sea Commission was held in Port-of-Spain, Trinidad and Tobago, August 6th -7th, 2009 with the theme: “The Caribbean Sea Commission – prospects and challenges in the governance of the Caribbean sea as a special area in the context of sustainable development”.

Planning for the operationalisation of the CSC has progressed to the level of a proposal for a four-year implementation project. This was shared with member countries, regional partners and potential funders at an ‘Expert Consultation on Operationalisation of the Caribbean Sea Commission Building a Science-Policy Interface for Ocean Governance in the Wider Caribbean’.

The Expert Consultation was held at the University of the West Indies, Cave Hill Campus, Barbados, July 7-9, 2010. It was funded by the Ministry for Foreign Affairs of the Government of Finland and was organized by the Centre for Resource Management and Environmental Studies (CERMES) of University of the West Indies, Cave Hill Campus on behalf of the Association of Caribbean States (ACS). The ACS and partners have been pursuing the Caribbean Sea Initiative since 1998 through the UNGA Resolution (63-214) 'Towards the sustainable development of the Caribbean Sea for present and future generations' at the UN General Assembly. In the process, the CSC was established in 2008 to promote and oversee the sustainable use of the Caribbean Sea.

The CSC is envisaged as having the following characteristics:

- It would make best use of the full range of information and expertise available in the region by creating an effective network;
- It would allow for two-way communication and information flow: upwards from information sources through an advisory mechanism to policy makers and back down for feedback and queries;
- Its processes would be regular and transparent.

Since the establishment of the CSC, the ACS and the CSC have been working towards developing appropriate structures and arrangements for its work. The Expert Consultation was held to carry forward the process of establishing the CSC and its functions. The purpose of the Expert Consultation was to:

- Share information on the plans for and status of 'Operationalisation of the Caribbean Sea Commission' with critical partners;
- Obtain their feedback on the feasibility of the proposals and ideas for improvement of the plan;
- Build consensus on how the partners can work together to achieve the overall goal of ocean governance in the WCR.

The 54 participants attending the Consultation were from a wide range of countries and organizations. Overall, 30 regional organizations or organizations operating in the region were represented. These included: Intergovernmental organizations; United Nations organizations; NGOs; Regional Projects; and Universities. Experts from the Black Sea and Baltic Sea Commissions as well as extra-regional institutions also provided inputs. There were over 30 technical presentations highlighting the work of the partners attending.

The Consultation was organized to address three topics that are key for the CSC:

1. Regional ocean governance architecture and the role of the CSC
2. The science-policy interface of the CSC
3. The information system to support the interface.

As a basis for discussion of how to adapt and proceed with the plans of the CSC, each topic started with presentations about CSC plans to date as well as those of many different partner organisations. Next, in facilitated breakout sessions, Working Groups discussed the three consultation topics and provided their observations and recommendations. They pursued the three topics by addressing four questions:

- ✓ What aspects of the approaches and proposals you have heard in the meeting seem feasible and beneficial in making the Caribbean Sea Commission more effective?
- ✓ What aspects of these approaches and proposals would cause the most difficulty for implementation?
- ✓ What aspects of these approaches and proposals would you change or improve to make the Caribbean Sea Commission more effective?
- ✓ What would it take for you to buy into this overall process?

Participants concluded:

- That the Caribbean Sea is a common shared resource and that the function of the CSC should be to oversee and promote the sustainable use of the Caribbean Sea as a whole.
- That considerable expertise and information was available within the various groups present, but seldom used by decision makers.
- That the likely reason is that many sources are unconnected to science-policy interfaces.
- There is the need for a regional science-policy interface.
- That the CSC should focus on the connection between science, policy making and policy coherence at the regional level.
- That the proposed structure was workable with modifications.
- That they were committed to working together to build this interface.

The ideas, recommendations and constraints from the Working Groups were summarised in the following themes:

- The CSC can promote cooperation at both regional and national levels by facilitating networking among existing formal bodies and promoting mechanisms needed to build consensus at national and regional levels.
- The CSC should work as much as possible through existing mechanisms and organisations to avoid overlaps and duplication of effort. It must clearly define its own role in relation to regional partners.
- National level inputs and engagement are critical for success as decisions of the CSC are implemented by countries. Mechanisms are needed for obtaining national commitment for implementation
- Clear planning should underlie the development of the CSC in all areas to produce clear definitions of the roles and functions of the CSC and its sub-commissions as well as of roles and responsibilities of partners. A Strategic Action Plan that includes regular evaluation of programmes to identify strengths, weaknesses and effectiveness is needed.
- Legal arrangements are important and ultimately a legally binding instrument under which there could be consequences or sanctions will be needed to protect the resources of the WCR.
- Dedicated financial and human resources are essential for the CSC to achieve its objectives. These include both start-up and sustainable financing. The CSC needs a dedicated Secretariat with staff, funding, and appropriate location to support its work and that of the Sub-commissions.

- Several key principles for success include: transparency of activities and open access to/sharing of information; inclusivity, with national and regional partners being fully engaged in planning and decision-making; efficiency and effectiveness, ensured through regular monitoring and evaluation.
- The information system to support the science policy interface should be distributed rather than a central repository. It should provide a regional portal for data and information gathering and interpretation. It should facilitate equitable access to information in participating countries and by all organizations in the region.
- Communication will be the key to the success of the CSC. Information and communication strategies are needed for policy makers, national and regional partners and the general public. Communication should promote bringing science to policy makers and help policy makers frame appropriate questions for scientists. Public information is a key element if the benefits of the CSC are to be recognized in the region
- Capacity building is essential for success of the CSC especially the information system, owing to widely different capacities of countries to provide and generate information.

In conclusion, it was agreed that the proposed structure and operation of the CSC could provide considerable added-value to the current ocean governance arrangements in the WCR. Many participants indicated their willingness and the willingness of their organizations to take part in the process of building the CSC. There is a full report of the consultation (ACS/CERMES-UWI 2010).

The pursuit of the CSI and continued development and operationalisation of the CSC are highly relevant to the objectives of the CLME Project. As was shown in Section 2, in the initial development of the CLME Project, the CSC was perceived as playing the role of a high level ocean policy body for the WCR. This role has been confirmed and the linkage with CLME strengthened at the Expert Consultation. Much of the CLME Project activity towards establishing a regional monitoring and reporting system for policy making will be oriented towards the needs of the emerging CSC as well as other regional intergovernmental bodies such as the OECS, OSPESCA and CRFM.

3.1.3 The Cartagena Convention

With regard to the Cartagena Convention and its three protocols, all but six WCR States (Bahamas, Guyana, Haiti, Honduras, Nicaragua and Suriname) have become contracting parties to the Convention and the Oil Spills Protocol. The SPAW Protocol has an accession/ratification level of 46% as Antigua & Barbuda, Guatemala, Jamaica, Mexico and Turks & Caicos are signatories only to the protocol. The Protocol Concerning Pollution from Land-Based Sources and Activities in the Wider Caribbean (LBS Protocol) is not yet in force with only six countries having become contracting parties and six having signed. Reports from countries at the Fifth Meeting of the Interim Scientific, Technical and Advisory Committee (ISTAC) to the LBS Protocol in May 2010 indicate that several anticipate ratification in the upcoming biennium.

3.1.4 The UN Convention on the Law of the Sea and the UN Fish Stocks Agreement

With regard to UNCLOS, one WCR country (the Dominican Republic) ratified the Convention in 2009; bringing the total number of ACS ratifications to 22.

The 1995 Agreement for the Implementation of the Provisions of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement or UNFSA) is of particular relevance to the pelagic ecosystem. There were no further ratifications of the UN Fish Stocks Agreement in the last biennium leaving the ACS total at seven ratifications. At the 2009 Informal Consultations of State Parties (ICSP) it appeared that, in the short-term, the focus will remain on implementing management measures, but not necessarily from an EAF perspective. Developed countries, perceived as being largely responsible for overcapacity and overfishing, stressed conservation while some developing countries wished to use the financial and technical provisions of UNFSA to expand national fleets. These differences in outlook may play out at a smaller scale within the WCR, especially in relation to ICCAT. Draft model national legislation, prepared with assistance from FAO for CARICOM countries that have signed the UNFSA and the 1993 Compliance Agreement so that they can meet multiple treaty obligations, is still under consideration in some countries.

3.1.5 FAO Code of Conduct for Responsible Fisheries

Pitcher et al (2008) evaluated the degree to which the fisheries management of the 53 top fishing countries is in compliance with Article 7 of the Code. These countries land over 95% of the reported world marine fish catch with more than 150,000 tonnes each per year. This study uses 44 questions designed to capture the key features of the 46 clauses of Article 7 of the Code. Each question is scored against objective criteria on a scale of zero to ten, and a statistical ordination procedure incorporates the stated uncertainty of each score.

Overall compliance with the Code is dismal: not one country out of the 53 achieves a “good” score of 70% or more. Only six countries (11%) have overall compliance scores whose confidence limits overlap 60% (Norway, USA, Canada, Australia, Iceland, Namibia). This means that, twelve years after the Code of Conduct was agreed, there is a great deal of room for improvement in compliance even among those countries at the top end of the rankings. At the lower end, the alarming finding is that 28 countries (53%) had ‘fail grades’ of less than 40%.

Only three WCR countries feature in this assessment: Brazil, México and the USA. It may be useful to pursue this type of assessment adapted to WCR countries as a means of monitoring progress with the Code and reporting to policy makers?

At its Tenth Session, WECAFC recommended that the Commission should report on the progress made by members in implementing the 1995 FAO Code of Conduct for Responsible Fisheries (the Code) chiefly via country self-evaluation questionnaires distributed by the FAO Fisheries Department. At the Thirteenth Session of WECAFC held in Cartagena, Colombia, 21-24 October 2008, it was noted that similar to previous years the constraints upon

implementation included institutional, human resource and financial weaknesses. The solutions included capacity building and “strengthening of institutions”¹³. Some members called for more technical and financial assistance from FAO and other international organisations to assist in implementing fisheries management in accordance with the Code’s guidelines. It was said that at the regional level there was an apparent decline in development and effective implementation of fisheries management plans.

The Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing was signed on September 1 2009. Key points of the treaty include:

- Foreign fishing vessels wishing to dock will be required to request permission from specially designated ports ahead of time, transmitting information on their activities and the fish they have on board -- this will give authorities an opportunity to spot red flags in advance.
- The treaty commits countries to regular inspections and outlines a set of standards that will be used during those inspections. Reviews of ship papers, surveys of fishing gear, examining catches and checking a ship's records can often reveal if it has engaged in IUU fishing.
- Signatories must ensure that ports and inspectors are adequately equipped and trained;
- When a vessel is denied access, port states must communicate that information publicly and national authorities from the country whose flag the vessel is flying must take follow-up action;
- The treaty calls for the creation of information-sharing networks to let countries share details on IUU-associated vessels, and also contains provisions intended to assist resource-strapped developing countries meet their treaty obligations.

3.1.6 CONCAUSA Declaration and Action Plan

The Central American Governments, meeting on October 12, 1994 in Managua, signed the Alliance for Sustainable Development (ALIDA)¹⁴. ALIDA is a national and regional strategy, aimed at making the Central American isthmus a region of peace, liberty, democracy and development, which promotes a change in individual and societal attitudes in order to assure the construction of a development model which is sustainable in political, economic, social, cultural and environmental terms. At the Ecological Summit in Managua and the International Conference on Peace and Development in Tegucigalpa October 24-25, 1994, the leaders of the Central American countries invited the international community to join them in the achievement of the goals of the Alliance. The Government of the United States accepted this invitation and the CONCAUSA (Central America-USA Alliance) Declaration and Action Plan were signed in Miami, Florida, on December 10, 1994, by the leaders of the USA, Belize, Costa Rica, Republic of El Salvador, Republic of Guatemala, Republic of Honduras, Republic of Nicaragua and Republic of Panama.

¹³ FAO 2008 Progress in the implementation of the Code of Conduct for Responsible Fisheries in the WECAFC region. WECAFC/XIII/08/Inf.5E

¹⁴ ALIDES, Alianza Centroamericana para el Desarrollo Sostenible <http://www.ccad.ws/antecedentes/alides/alides.htm>

These leaders declared their political commitment to cooperate in the following areas within Central America:

- Conservation of Biodiversity
- Energy
- Environmental Legislation
- Sustainable Economic Development

The agreement is given effect through PROARCA a Regional Environmental Program for Central America, funded by the United States Agency for International Development (USAID). Since 1996, PROARCA has supported the agenda of the Central American Commission on the Environment and Development (CCAD), which is part of the Central American Integration System (SICA). During its first 5 years, PROARCA focused on conservation and natural resources management in the region. The objective for the second five year phase (2002-2007) is to improve environmental management in the Mesoamerican Biological Corridor (CBM). PROARCA has structured its work in four components to achieve this regional objective. They are to:

- Improve the management of protected areas
- Promote environmentally sound products and services
- Harmonize environmental policies
- Promote the use of less polluting technologies in the municipal and private sectors.

3.1.7 Legal and institutional basis for the establishment of a shared resource management in the Gulf of Honduras (PROARCA/CAPAS)

This agreement provides the legal and institutional base for management of shared marine resources coastal in the Gulf of Honduras. It was signed by Belize, Guatemala and Honduras in 1998. There has been a variety of activities under this agreement; many funded by the US AID, including capacity building, protected areas, certification of agricultural products, sustainable forestry.

3.1.8 Tulum and Tulum+8 Declarations

The Tulum Declaration was signed in June of 1997 by Belize, Guatemala, Honduras and Mexico in Tulum, Mexico. It is oriented towards the protection of the MesoAmerican Barrier Reef (MBRS), the second longest barrier reef in the world". It directed the agencies responsible for the environment and natural resources in these countries to develop an action plan for the region. The Tulum+8 declaration which carried forward and strengthened the Tulum Declaration was signed in Panama in June 2006.

There are several initiatives being undertaken by different organizations linked to this agreement:

- The Nature Conservancy (TNC) Mesoamerican Reef Program (ongoing)
- WWF Mesoamerican Reef Initiative which focuses on a Regional System of Protected Areas, Fisheries management through eco-certification, promotion of adequate land-

use, management of key watersheds and reduction of coastal water pollution, building local capacity, regional coordination and communication (1997 - ongoing);

- MesoAmerican Reef Tourism Initiative (MARTI) which focuses on tourism on the Mesoamerican Reef (ongoing);
- The Mesoamerican Reef Fund, a participatory, privately managed fund with a Board of Directors comprised of regional funders, experts, the Central American Commission on Environment and Development (CCAD), and the in-country funds from each of the Mesoamerican Reef countries - PACT (Belize), Fundación para la Conservación de los Recursos Naturales y Ambiente en Guatemala (FCG), Fundación Biósfera (Honduras), and Fondo Mexicano para la Conservación de la Naturaleza (Mexico). (ongoing);
- The GEF World Bank Mesoamerican Barrier Reef (MBRS) Project to enhance protection of the ecologically unique and vulnerable marine ecosystems comprising the MBRS, by assisting the littoral states to strengthen and coordinate national policies, regulations and institutional arrangements for the conservation and sustainable use of this global public good (2001-2006);
- The ICRAM MAR (UNEP-USAID-CCAD) - project completed

3.1.9 UN Regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects

In 2004, the UN General Assembly called for a 'Regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects'. In 2009 it endorsed the recommendations offered by the Ad Hoc Working Group of the Whole for the 'Regular Process'. The recommendations propose a framework for the Regular Process; describe its first cycle and a way forward. It requested the Secretary-General to convene an informal meeting of the Ad Hoc Working Group of the Whole from 30 August to 3 September 2010 to further consider and make recommendations to the General Assembly at its sixty-fifth session on the modalities for the implementation of the regular process, including the key features, institutional arrangements and financing, and to specify the objective and scope of its first cycle, key questions to be answered and primary target audiences, to ensure that assessments are relevant for decision-makers, as well as on the terms of reference for the voluntary trust fund and the scholarship fund (UNGA A/64/347).

The GA requested the UN Division for Ocean Affairs and the Law of Sea to provide support for the Regular Process from existing resources or resources from the voluntary trust fund, in cooperation, as appropriate, with relevant United Nations specialized agencies and programmes. There is no specific reference to UNEP and IOC in terms of the regular process but there are opportunities up to the informal meeting of the Ad Hoc Working Group of the Whole from 30 August to 3 September 2010 to seek the support of member states in that regard.

The final report of the Group of Experts (UNEP and IOC-UNESCO 2009) includes a chapter on the WCR. The proposed establishment of a regular reporting and advisory process for the WCR by the CLME Project in collaboration with the Caribbean Sea Commission and other regional partners is timely given this UNGA emphasis on the establishment of a global Regular

Process for reporting on the oceans. The adoption in November 2009 by the GA of the recommendations of the Ad Hoc Working Group of the Whole for the 'Regular Process' signals that this will be a priority activity in coming years. The CLME Project and CSC could benefit from linking the establishment of its own regional mechanism to the global process and harmonizing its outputs so that they can contribute directly to the latter. The Regular Process will be looking for regional assessment initiatives that it can support and link¹⁵.

3.2 Regional organizations and agencies

This section provides an update on transboundary cooperation and related developments in the CLME region through the area's regional and subregional bodies and projects. It builds on the PDF-B reports on governance for non-extractive use of LMRs (CLME 2007) and fisheries (Parsons 2007).

3.2.1 Intergovernmental organizations

The four most prominent regional intergovernmental organizations in the WCR are the Caribbean Community and Common Market (CARICOM), The Central American Integration System (SICA), The Organisation of Eastern Caribbean States and the Association of Caribbean States (ACS). The first two of these CARICOM and SICA have a number of parallel functions, some of which are discharged by associated bodies. The broad functions of these two organizations are compared in Table 8. In Table 9 the functions of their two fisheries sub-bodies, OSPESCA and the CRFM, are compared.

Subsequently, fuller descriptions of activities are provided for the key marine ecosystem related sub-bodies of the CARICOM and SICA, as well as for the OECS. Information for the ACS, its Caribbean Sea Initiative and the Caribbean Sea Commission is provided in section 3.1.2.

Table 8: A comparison of SICA and CARICOM with particular reference to their sub-bodies OSPESCA and the CRFM.

Feature	Sistema de la Integración Centroamericana ¹⁶ (SICA)	Caribbean Community (CARICOM)
Agreement	Protocol to the Charter of the Organization of Central American States (ODECA) or Tegucigalpa Protocol	Treaty of Chaguaramas establishing the Caribbean Community; Revised Treaty of Chaguaramas establishing the Caribbean Community including the CARICOM Single Market and Economy
Established	13 December 1991	4 July 1973; revised 2001
Headquarters	El Salvador	Guyana

¹⁵ Personal communication with Mr. Julian Barbière of IOC

¹⁶ Central American Integration System. Sources: www.sica.int/; www.caricom.org/

Objectives	<ul style="list-style-type: none"> a) To consolidate democracy and strengthen its institutions based on the existence of governments elected by universal, free and secret suffrage, and on the unrestricted respect for human rights. b) To set up a new model of regional security based on the reasonable balance of forces, the strengthening of civilian authority, the overcoming of extreme poverty, the promotion of sustainable development, the protection of the environment, and the eradication of violence, corruption, terrorism, and drug and arms trafficking. c) To promote a broad regime of freedom to ensure the full and harmonious development of the human person and of society as a whole. d) To achieve a regional system of welfare and economic and social justice for the peoples of Central America. e) To attain economic union and strengthen the Central American financial system. f) To strengthen the region as an economic bloc in order to insert it successfully into the international economy. g) To reaffirm and consolidate the self-determination of Central America as it pertains to the region's external relations, through a single strategy to strengthen and expand the participation of the region as a whole in the international arena. h) Promote, in a harmonious and balanced way, the sustained economic, social, cultural and political development of Member States and the region as a whole. i) Establish concerted actions directed toward the preservation of the environment through respect and harmony with nature, ensuring the balanced development and rational exploitation of natural resources of the area, with a view to establishing a New 	<ul style="list-style-type: none"> a) Improved standards of living and work; b) Full employment of labour and other factors of production; c) Accelerated, coordinated and sustained economic development and convergence; d) Expansion of trade and economic relations with third States; e) Enhanced levels of international competitiveness; f) Organisation for increased production and productivity; g) The achievement of a greater measure of economic leverage and effectiveness of Member States in dealing with third States, groups of States and entities of any description; h) Enhanced co-ordination of Member States' foreign and [foreign] economic policies; and i) Enhanced functional co-operation, including - <ul style="list-style-type: none"> a. more efficient operation of common services and activities for the benefit of its peoples; b. accelerated promotion of greater understanding among its peoples and the advancement of their social, cultural and technological development; c. intensified activities in areas such as health, education, transportation, telecommunications
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	Ecological Order in the region. j) To constitute the Central American Integration System based on a legal and institutional order and mutual respect among Member States.	
Institutions most relevant to marine affairs	<ul style="list-style-type: none"> • Organization of the Fisheries and Aquaculture Sector of the Central American Isthmus (OSPESCA) • Central American Commission for Maritime Transportation (COCATRAM) • Coordination Center for Natural Disaster Prevention in Central America (CEPREDENAC) • Central American Commission for Environment and Development (CCAD) 	<ul style="list-style-type: none"> • Caribbean Regional Fisheries Mechanism (CRFM) • Caribbean Community Climate Change Centre (CCCCC) • Caribbean Disaster Emergency Management Agency (CDEMA) • Caribbean Environment Health Institute (CEHI)

Table 9: A comparison of the SICA and CARICOM fisheries sub-bodies - OSPESCA and the CRFM

Feature	Organización del Sector Pesquero y Acuícola del Istmo Centroamericano ¹⁷ (OSPESCA)	Caribbean Regional Fisheries Mechanism (CRFM)
Agreement	Acta de San Salvador	Agreement Establishing the CRFM
Established	18 December 1995	4 February 2002
Members	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá.	Anguilla, Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago and the Turks and Caicos Islands.
Headquarters	El Salvador	Belize (with office in St. Vincent and the Grenadines)
Objectives	OSPESCA aims to promote sustainable and coordinated development of fisheries and aquaculture in the context of Central American integration process, defining, approving and implementing policies, strategies, programs and regional fisheries and aquaculture. a) To promote the strategies of the	The Mechanism has as its objectives: a) the efficient management and sustainable development of marine and other aquatic resources within the jurisdictions of Member States; b) the promotion and establishment of co-operative arrangements among interested States for the efficient

¹⁷ Organization of the Fisheries and Aquaculture Sector of the Central American Isthmus
Sources: www.sica.int/ospesca/; www.caricom-fisheries.com/

	<p>Policy Integration of Fisheries and Aquaculture;</p> <p>b) Promote and monitor the Regional Framework Treaty on Fisheries and Aquaculture.</p> <p>c) Coordinate interagency and inter-regional Fisheries Development in Central America, with an ecosystem approach and interdisciplinarity.</p> <p>d) Join efforts to harmonize and enforce the laws on fisheries and aquaculture.</p> <p>e) Develop and promote strategies, programs, projects, agreements or regional fisheries and aquaculture</p> <p>f) Promote the regional fisheries and aquaculture producers.</p> <p>g) To coordinate an appropriate and coordinated regional participation in international fora dealing with fisheries and aquaculture.</p>	<p>management of shared, straddling or highly migratory marine and other aquatic resources;</p> <p>c) The provision of technical advisory and consultative services to fisheries divisions of Member States in the development, management and conservation of their marine and other aquatic resources.</p>
Formal structure	<p>a) The Council of Ministers, which is the highest authority of OSPESCA representing the political level, responsible for policy decisions at regional level.</p> <p>b) The Committee of Vice-Ministers, which is the executive level of the organization and directs, guides, tracks and evaluates the implementation of policies, programs and regional projects.</p> <p>c) The Committee of Directors of Fisheries and Aquaculture, which is the scientific and technical body of OSPESCA, responsible for ensuring scientific and technical supports regional scope.</p>	<p>a) The Ministerial Council, which is the highest authority of the CRFM representing the political level, that determines the policy of the Mechanism;</p> <p>b) The Caribbean Fisheries Forum, comprising the chief fisheries officers of member states, and its Executive Committee, determine the technical and scientific work of the Mechanism;</p> <p>c) The Technical Unit, or CRFM Secretariat, is the permanent Secretariat of the Mechanism that inter alia provides technical, consultative and advisory services to Member States in the development, assessment, management and conservation of marine and other aquatic resources and, on request, in the discharge of any obligations arising from bilateral and other international instruments</p>
Working groups	<ul style="list-style-type: none"> Working Group for the Harmonization of Fishery Regulations 	<ul style="list-style-type: none"> Working groups on: Conch and Lobster Fisheries, Large Pelagic Fisheries, Reef and Slope Fisheries, Small Coastal Pelagic Fisheries, Shrimp and Groundfish Fisheries,
Fish worker body	<ul style="list-style-type: none"> Confederation of Artisanal Fishermen of Central America (CONFEPESCA) 	<ul style="list-style-type: none"> Caribbean Network of Fisher folk Organisations (CNFO)

	<ul style="list-style-type: none"> Industrial marine and aquaculture Central American Organization (OECAP) 	
Major policy initiatives	<ul style="list-style-type: none"> Managua Memorandum on spiny lobster management Policy of Integration of Fisheries and Aquaculture Regional Fisheries Agreement for the management of the spiny lobster <i>Panulirus argus</i> Regional Fisheries Vessel Monitoring System (VMS) Regional Code of Ethics for Fisheries and Aquaculture 	<ul style="list-style-type: none"> Castries (St. Lucia) Declaration on Illegal, Unreported, and Unregulated (IUU) Fishing Common Fisheries Policy

3.2.1.1 Caribbean Regional Fisheries Mechanism (CRFM)

For CARICOM (including OECS) countries, the Caribbean Regional Fisheries Mechanism (CRFM) remains the main active sub-regional fisheries organization. Specifically concerning governance at the transboundary policy level, most pertinent is the Common Fisheries Policy (CFP) that is still under active negotiation amongst Member States, mostly now in terms of technical and legal wording rather than the broad content agreed to by the CRFM Ministerial Council, most recently in July 2010. The draft CFP specifically mentions EAF, but the policy is now disconnected from the “regime”, so many aspects of implementation remain uncertain in terms of practical provisions and timetable.

The Castries (Saint Lucia) Declaration on Illegal, Unreported and Unregulated Fishing by Member States of the Caribbean Regional Fisheries Mechanism (CRFM) was agreed to at the 2nd Special Meeting of the CRFM Ministerial Council, Castries, St. Lucia, 28 July 2010. It mentions Member State obligations under several international fisheries instruments and the United Nations General Assembly Resolutions on Sustainable Fisheries, including resolution A/Res/64/72 of 4 December 2009. It also mentions efforts to use and cooperatively manage fisheries and associated ecosystems in a sustainable manner but does not focus upon any one ecosystem. This declaration draws upon the FAO and EU instruments of similar focus.

CRFM Resource Working Groups convene physically at the annual scientific meeting the role of which is to conduct assessments to determine the state of stocks and provide management advice. The working groups cover all three ecosystems: large pelagics; small coastal pelagics (including flyingfish); reef and slope fisheries; conch and lobster; and shrimp and groundfish. These groups should have critical roles to play as institutions within the multi-level policy cycles. However their current low level of activity and emphasis on stock assessment with limited data and linkage to the remainder of the policy cycle constrains their current involvement. The groups have not explicitly adopted EAF as a guiding approach.

The more recently established CRFM Working Group on Data, Methods and Training could be significant across ecosystems in data generation and information management within the Resource Working Groups, but also more generally in capacity development aligned to EAF.

3.2.1.2 Caribbean Community Climate Change Centre (CCCCC)

The Caribbean Community Climate Change Centre (CCCCC) has published a Regional Framework for Achieving Development Resilient to Climate Change that it says provides a roadmap for action over the period 2009-2015. Given the general agreement that climate change and disaster risk reduction need to be incorporated more into policy, planning and management, the relevance of this organization to EAF is increasing. However, at present there is little institutional linkage of CCCCC to fisheries matters at any level. While incorporation of climate change into fisheries is necessary, the reverse is also an important organizational change needed. Since CCCCC has formal agreements with several organizations for services ranging from down-scaling climate models to community-based adaptation and communication, the opportunities to forge linkages exist. See the section below on climate change.

3.2.1.3 Central American Fisheries and Aquaculture Organization (OSPESCA)

OSPESCA, established in 1995 under the auspices of SICA, promotes fisheries and aquaculture sustainable development in the framework of the Central American integration by drawing up, approving and implementing policies, strategies, programs and regional projects. It comprises a Council of Fishery Ministers, Vice-ministers (Steering Committee), Fishery Directors (Technical Commission) and Working Groups.

OSPESCA is guided by policy that was agreed upon in 2005 (OSPESCA 2005). The purpose of the policy is to establish a common regional system to increase the integrated participation of the countries of the Central American Isthmus and in this manner to contribute to the appropriate and sustainable use of the fisheries resources and the aquaculture products. Specific policy statements are provided in Table 9.

Since the completion of the PDF-B, OSPESCA has been active and there have been significant advances in its programme (Table 9), including:

- A Regional Fisheries Agreement for the management of the spiny lobster, *Panulirus argus*, was concluded and the first regional closed season in the Central American Caribbean from Belize to Panamá was implemented from 1 March - 30 June 2010.
- Implementation of a Regional Fisheries Vessel Monitoring System in 2010
- Development of a Regional Code of Ethics for Fisheries and Aquaculture

In the next five years OSPESCA will provide continued support to the policy of integration of fisheries and aquaculture including:

- Work towards new regional regulations for the regional governance of the ocean and resources;
- A focus on regional management such as new TED technologies, translation of laws (Spanish to English), aquatic invasive species, and Compliance of the laws;
- Regional training for small-scale fishers and technical fisheries institutions
- Regional research in deep waters
- Management of aquatic resources and economic alternatives (MAREA)

3.2.1.4 Organisation of Eastern Caribbean States (OECS)

The Revised Treaty of Basseterre Establishing the Organisation of Eastern Caribbean States Economic Union was signed on 18 June 2010. Although not focused on marine matters, this treaty seeks to strengthen governance arrangements in the OECS (Figure 13) and by extension impacts upon their Sustainable Ocean Governance (SOG) programme. The overall objective of SOG is to promote OECS maritime cooperation arrangements as a framework for the sustainable management of ocean resources, and for the protection of the marine environment (Murray 2010). To date SOG has addressed mainly maritime boundaries, safety and security, but fisheries management and conservation, climate change, marine environmental protection, and biological diversity are components that may be addressed in the future. SOG is relevant to the pelagic and, to a lesser extent, reef ecosystems. The latter are more the focus of several OECS projects on sustaining biological diversity and livelihoods in part through a network of protected areas.

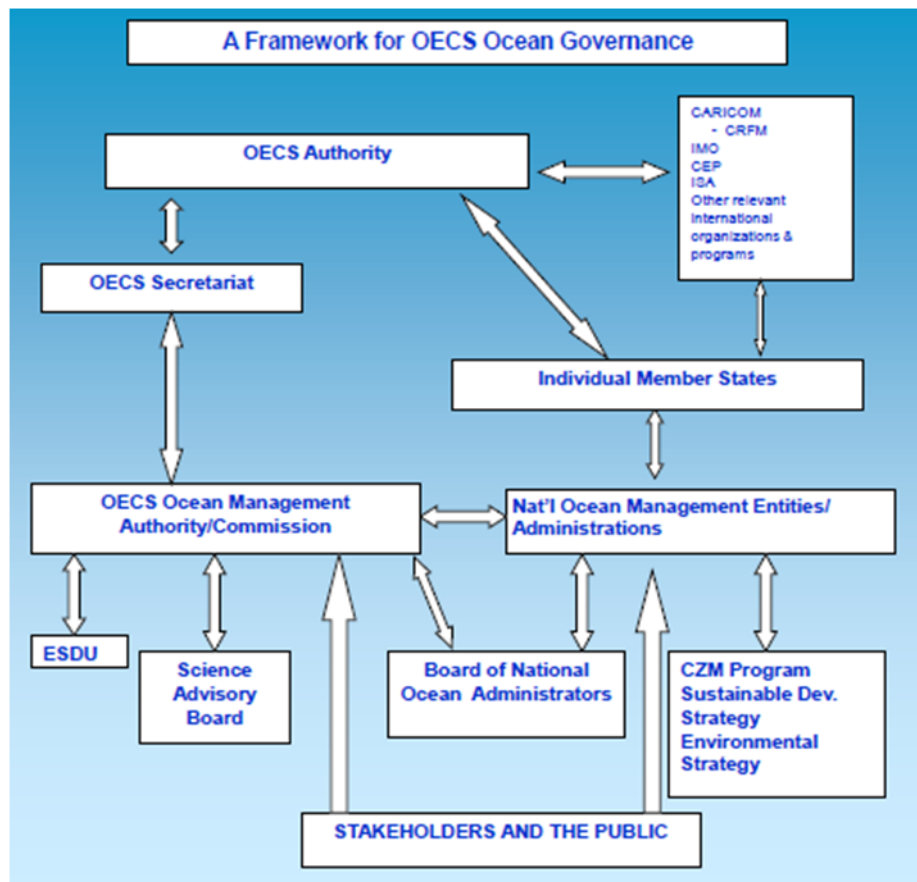


Figure 13. Framework for OECS ocean governance (Murray 2010)

3.2.2 United Nations regional agencies

Several United Nations agencies are amongst the sub-regional/regional stakeholders playing or having the potential to play critical roles in all of the ecosystems. These include FAO-WECAFC, ECLAC, UNEP, and UNESCO-IOC-IOCARIBE. Updates on these agencies are largely included in discussions on the institutional arrangements in which they participate.

3.2.2.1 ECLAC

The Economic Commission for Latin America (ECLA) -the Spanish acronym is CEPAL- was established by Economic and Social Council resolution 106(VI) of 25 February 1948 and began to function that same year. The scope of the Commission's work was later broadened to include the countries of the WCR, and by resolution 1984/67 of 27 July 1984, the Economic Council decided to change its name to the Economic Commission for Latin America and the Caribbean (ECLAC); the Spanish acronym, CEPAL, remains unchanged.

ECLAC, which is headquartered in Santiago, Chile, is one of the five regional commissions of the United Nations. It was founded with the purpose of contributing to the economic development of Latin America, coordinating actions directed towards this end, and reinforcing economic ties among countries and with other nations of the world. The promotion of the region's social development was later included among its primary objectives.

In June 1951, the Commission established the ECLAC subregional headquarters in Mexico City, which serves the needs of the Central American subregion, and in December 1966, the ECLAC subregional headquarters for the Caribbean was founded in Port-of-Spain, Trinidad and Tobago. In addition, ECLAC maintains country offices in Buenos Aires, Brasilia, Montevideo and Bogotá, as well as a liaison office in Washington, D.C. The secretariat of the Economic Commission for Latin America and the Caribbean (ECLAC):

- a. Provides substantive secretariat services and documentation for the Commission and its subsidiary bodies;
- b. Undertakes studies, research and other support activities within the terms of reference of the Commission;
- c. Promotes economic and social development through regional and subregional cooperation and integration;
- d. Gathers, organizes, interprets and disseminates information and data relating to the economic and social development of the region;
- e. Provides advisory services to Governments at their request and plans, organizes and executes programmes of technical cooperation;
- f. Formulates and promotes development cooperation activities and projects of regional and subregional scope commensurate with the needs and priorities of the region and acts as an executing agency for such projects;
- g. Organizes conferences and intergovernmental and expert group meetings and sponsors training workshops, symposia and seminars;
- h. Assists in bringing a regional perspective to global problems and forums and introduces global concerns at the regional and subregional levels;
- i. Coordinates ECLAC activities with those of the major departments and offices at United

Nations Headquarters, specialized agencies and intergovernmental organizations with a view to avoiding duplication and ensuring complementarity in the exchange of information.

3.2.2.2 UNEP CEP RCU

The Caribbean Environment Programme (CEP) is one of the UNEP administered Regional Seas Programmes. The CEP is managed by and for the countries of the WCR through the Caribbean Action Plan (1981) outlining regional environmental challenges.

The Action Plan led to the 1983 adoption of the Convention for the Protection and Development of the Marine Environment of the WCR (Cartagena Convention), which provides the legal framework. The Convention has been supplemented by three protocols addressing specific environmental issues namely, oil spills, specially protected areas and wildlife and land-based sources and activities of marine pollution. The CEP provides the programmatic framework for the Cartagena Convention.

The Caribbean Regional Coordinating Unit (CAR/RCU) located in Kingston, Jamaica was created in 1986 and serves as Secretariat to the CEP. The CEP has three main sub-programmes:

- Assessment and Management of Environment Pollution (AMEP)
- Specially Protected Areas and Wildlife (SPAW)
- Communication, Education, Training and Awareness (CETA)

The mission of the CEP is to promote regional co-operation for the protection and sustainable development of the marine environment of the WCR.

3.2.2.3 The Western Central Atlantic Fishery Commission of FAO (FOA-WECAFC)

The general objective of the Commission, with its secretariat in Barbados, is to promote the effective conservation, management and development of the living marine resources of the area of competence of the Commission, in accordance with the FAO Code of Conduct for Responsible Fisheries, and address common problems of fisheries management and development faced by members of the Commission. The work of the Commission is guided by the following three principles:

- Promote the application of the provisions of the FAO Code of Conduct on Responsible Fisheries and its related instruments, including the precautionary approach and the ecosystem approach to fisheries management;
- Ensure adequate attention to small-scale, artisanal and subsistence fisheries; and
- Coordinate and cooperate closely with other relevant international organizations on matters of common interest.

The Commission has the following main functions and responsibilities:

- To contribute to improved governance through institutional arrangements that encourage cooperation amongst members;
- To promote and facilitate harmonizing of relevant national laws and regulations, and compatibility of conservation and management measures;

- To assist its members in implementing relevant international fisheries instruments, in particular the FAO Code of Conduct for Responsible Fisheries and its related International Plans of Action;
- To promote, coordinate and, as appropriate, undertake the collection, exchange and dissemination of statistical, biological, environmental and socio-economic data and other marine fishery information as well as its analysis or study;
- To promote, coordinate and, as appropriate, strengthen the development of institutional capacity and human resources, particularly through education, training and extension activities in the areas of competence of the Commission;
-
- To assist its members in and facilitate, as appropriate and upon their request, the conservation, management and development of transboundary and straddling stocks under their respective national jurisdictions;
- To seek funds and other resources to ensure the long-term operations of the Commission and establish, as appropriate, a trust fund for voluntary contributions to this end;
- To serve as a conduit of independent funding to its members for initiatives related to conservation, management and development of the living resources in the area of competence of the Commission.

3.2.2.4 UNESCO-IOC IOCARIBE

IOCARIBE is a regional subsidiary body of the Intergovernmental Oceanographic Commission (IOC). It is the IOC Sub-Commission for the Caribbean and Adjacent Regions and is responsible for the promotion, development and co-ordination of IOC marine scientific research programmes, the ocean services, and related activities, including training, education and mutual assistance (TEMA) in the Caribbean and Adjacent Regions. In establishing its programmes, it takes into account the specific interests and needs of the Member States in the region. IOCARIBE can be envisaged as an international networking system created by the Governments of Member States, for the co-ordination and promotion of marine and coastal sciences and associated operational services in the region. Its major objectives are to:

- Foster the generation of knowledge, sharing of information, expertise and experience on the WCR and its coastlines;
- Assist Member States to develop their capacity to formulate national policies and plans to meet their needs in marine science and technology;
- Reinforce and broaden scientific co-operation, regionally and internationally through networking and institutional arrangements with organizations operating within and without the region, for example, UN bodies, IGOs, NGOs, the scientific community;
- Provide regional the input to global ocean sciences and observation programmes; and to
- Promote and facilitate implementation of IOC global science programmes and ocean services at the regional level.

IOCARIBE is pursuing several marine science activities in the region that are relevant to the CLME Project and is actually responsible for technical oversight of the CLME Project itself. Other IOCARIBE activities include:

- Caribbean Large Marine Ecosystem (CLME)
- Tsunamis and Other Coastal Hazards Warning System (CARIBE EWS)
- Harmful Algal Blooms (HAB-ANCA)
- Integrated Coastal Area Management (ICAM)
- Global Ocean Observing System (GOOS)
- Ocean Data & Information Network for the Caribbean & South America (ODINCARSA)

3.2.3 Regional non-governmental organisations

There are several NGOs of interest in the implementation of the CLME Project. The main ones are a mix of indigenous organizations and regional branches of big international NGOs. The latter tend to have a broader mandate and bring with them a measure of global networking. The ones reviewed below are believed to have activities that should be linked with the CLME Project. The diversity reflected here is indicative of the organizational complexity that characterizes the WCR and the difficulty of compiling information on all that is happening.

3.2.3.1 The Nature Conservancy (TNC)

The Nature Conservancy (TNC) continues to strengthen its role as an actor in governance related to the reef ecosystem especially, with involvement ranging from high levels of policy to data gathering. In May of 2008 the Caribbean Challenge was initiated to conserve and protect marine and coastal habitat and billed as “a campaign to end paper parks in the Caribbean forever” (TNC web site ref). WCR governments that sign on to the challenge pledge to protect at least 20 percent of their marine and coastal habitats by 2020. TNC, in turn, supports sustainable financing arrangements and technical work mainly focused on MPAs. These interventions span policy cycles at the national level with sub-regional linkages.

3.2.3.2 International Union for Conservation of Nature (IUCN)

Formally launched at the IUCN World Conservation Congress in Barcelona in October 2008, IUCN Caribbean focuses on the Insular Caribbean, and so is less relevant to the continental shelf ecosystem. The 2009 – 2012 Programme of Work and 2009 Communication Strategy set out areas that intersect with the interests of the CLME project such as using ecosystem approaches, networking, climate change and biodiversity conservation. While, there is no indication to date that fisheries will become a major area of activity, the coral reef fishery ecosystem is one that IUCN has expressed its intention of addressing.

3.2.3.3 Other regional conservation NGOs

Other regional NGOs with activities that will be relevant to the CLME Project are listed below. There are probably others.

- World Wildlife Fund (WWF) is mainly active in the area of the Mesoamerican Barrier Reef and has supported many projects there for over two decades.
- The WCR is a high priority for BirdLife International. It has focused on the development of an integrated bird conservation program based firmly on the Important Bird Area initiative. It has a focus on seabirds that is relevant to CLME.

- The Wider Caribbean Sea Turtle Conservation Network (Widecaste) continues to promote sea turtle conservation. It has regular meetings and publishes sea turtle management plans and research results.
- The CoML has been active in inventorying marine biodiversity in the WCR and has recently published a paper on regional estimates and distribution patterns (Miloslavich et al 2010).
- Seabirds are a focus of the Society for the Conservation and Study of Caribbean Birds (SCSCB) which had a session on 'Applied research for the conservation and management of Caribbean seabirds' at its 17th Regional Meeting, July 14-18, 2009, in Antigua.
- Flora and Fauna International (FFI) has activities in the WCR, notably Antigua and has indicated an interest in increasing its presence. The most notable output of FFI that is relevant to CLME is its report on 'Comparison of Approaches to Management of Large Marine Areas' (Bensted-Smith and Kirkman 2010)
- CaribSave is a new NGO that has recently established itself in the region and is seeking partnerships with regional organizations. Its focus is on the impacts of climate change on livelihoods and natural resources, including coastal and marine.
- Caribbean Network of Fisherfolk Organizations (CNFO)

The CNFO was formed at a 2007 CRFM workshop as a coordinating unit for a tri-level network of fisher folk organizations in CRFM Member States. It is still a work in progress and organizationally weak in capacity, but the CNFO has explicitly espoused EAF in its vision and mission. The CNFO has already entered the CRFM policy-making domain of the Ministerial Council and has an advisory role as an observer at the Caribbean Fisheries Forum. It could cover all three ecosystems and become of increasing importance as its capacity develops.

3.2.3.4 The Gulf and Caribbean Fisheries Institute (GCFI)

The GCFI offers itself annually as the WCR's main forum for information exchange on almost any matter concerning fisheries and marine protected areas, but with emphasis on marine science. It is relevant to all three ecosystems, although reef and pelagic topics are prevalent. Within the past two years the GCFI has attempted to support increased fisher participation in the institute and marine activities in the region (from policy to practice) through its Fisheries for Fishers initiative that is still under development.

3.2.3.5 The Association of Marine Laboratories of the Caribbean (AMLC)

The Association of Marine Laboratories of the Caribbean (AMLC; founded 1957) represents a forum for information exchange and collaboration between 33 labs in 20 countries and ~300 individual members. Biennial conferences rotate between labs. Many are associated with larger institutions and additional researchers. The AMLC has participated in coordinated Caribbean-wide research programs, e.g., CARICOMP and can be a major source of marine science information for the CLME Project as it takes up and EA. The AMLC has indicated its interest in contributing to science based governance of marine resources in the WCR.

3.3 Projects and activities

3.3.1 Transboundary Waters Assessment Project (TWAP)

The Transboundary Waters Assessment Programme (TWAP) is a GEF mid-size project to develop indicators for monitoring all aspects of the projects in its International Waters (IW) portfolio. A governance perspective on the LME component of the IW Programme is provided by Mahon et al (2010), however, the points raised are considered to be relevant in other IW areas as well and have been adopted by the project as a common issue among all five IW transboundary water categories (groundwater, lakes, rivers, LMEs and open ocean).

The first point made is that governance has received much less attention than the natural science aspects of LME Projects. Therefore, it is far behind in terms of its development and application. The fact that this is also the case in the GEF Transboundary Diagnostic Analysis/Causal Chain Analysis/Strategic Action Plan methodology that underlies its IW programme suggests that this may be an issue in other IW areas as well. The dominance of natural scientists in the LME program is a likely cause of the low effort expended on understanding governance. This may have resulted in an imbalance between the emphasis on ecosystem conservation and resource rehabilitation relative to the social and economic issues that inform and include the establishment and operation of governance institutions.

This deficiency in emphasis on governance is seen as a gap between the GEF IW program and the recent emphasis on human well-being that can be found in the MDGs and WSSD targets. If this gap is allowed to remain, it may diminish the impact that the GEF funding has on global initiatives to ensure that sustainability is pursued in a way that is socially just. Addressing this gap will require that the GEF evaluation process encompass a much wider range of criteria than currently appears to be in use for LMEs.

Two key issues were raised with regard to assessment of resource governance initiatives such as the GEF IW projects. The first is that governance can only be evaluated against context specific goals and objectives. Some global norms can be assumed at the level of principles, but tradeoffs among socioeconomic and conservation objectives must be established through an appropriate process at the level of those affected. The second key issue is the multi-scale, multi-level nature of governance in social-ecological systems (SESs). Mahon et al (2010) conclude that these issues preclude the possibility of a simple set of universal indicators that can be used to assess governance across LMEs globally. They argue that what is needed is a general assessment framework within which each situation can be approached. This framework must allow the flexibility for context specific governance evaluation within IW systems that can nonetheless ultimately be compared across systems for a global perspective.

Based on a review of several of the governance frameworks that are available in the literature, Mahon et al (2010) propose a set of characteristics that an assessment framework should include in order to be flexible while allowing comparison among IW systems. They propose the policy cycle-based, multi-scale, multi-level LME Governance Framework that was developed for the CLME Project as having most of the desired characteristics. This framework is noted as useful for both designing interventions to improve governance in LMEs and for assessing governance.

Given the relatively low investment of the GEF in developing governance concepts and approaches for the LME component of its IW Programme it was recommended that the GEF seek to engage the diversity of current intellectual activity that is taking place regarding governance for sustainability of Social Ecological Systems and focus it on International Waters. This would require a two-phased approach. The first phase would be to synthesize current governance thinking and activities into an assessment framework that can be applied in an IW setting. The second phase would be to test the framework by applying it in a variety of IW situations.

The above two-phased approach could be pursued by establishing a working group comprising individuals with a broad range of experience in governance drawn from groups such as the Resilience Alliance, Fisheries Governance Network and the Earth System Governance Project. In our view, this will serve to enhance the current level of understanding surrounding governance issues within the GEF International Waters portfolio. By complementing the level of effort expended in the natural sciences with a focused effort aimed at the social sciences, the potential for achieving the GEF's International Waters aim of helping countries work with their neighbors to modify human activities can be significantly enhanced.

The approach adopted by the Transboundary Waters Assessment Project (TWAP) methodology will address governance assessment as a common issue for all five International Waters focal area (IW) categories (groundwater, rivers, lakes, Large Marine Ecosystems (LMEs) and Open Ocean). It will do so by undertaking the governance assessment in two phases which will be referred to as the Level 1 and Level 2 governance assessments. The purpose of this assessment is twofold: (1) To provide a holistic picture of governance arrangements for individual water systems as a basis for discussion about how to improve governance at the system level; and (2) To provide a common approach to evaluating governance arrangements across systems to facilitate a global picture and also to facilitate allocation of resources to systems within IW categories.

For the Level 1 assessment all five IW categories will include in their global assessments a preliminary assessment of governance arrangements for each transboundary water system. This will assess the extent to which transboundary governance architecture is in place for the system, but will not assess the performance or functionality of the arrangements. This Level 1 assessment will be about whether or not the critical transboundary issues are covered by governance arrangements that have full policy cycles. It is expected to reveal the extent to which the issues are covered, whether there are gaps or overlaps in coverage and the nature of the arrangements that are in place.

The Level 2 assessment will assess the functionality and performance of governance arrangements in terms of a fuller range of criteria such as effectiveness, inclusiveness, efficiency and equitability. This methodology remains to be developed. This can be pursued by further integrating the governance models reviewed and presented in the Transboundary Waters Assessment Medium-Sized Project (TWAP) LME governance working paper (Mahon et al 2010) and others such as the Integrated Lake Basin Management (ILBM) guidelines for lake brief preparation (Shiga University Research Center for Sustainability et al 2010) into a comprehensive assessment process. It is proposed that this be undertaken by a small working group of governance experts and IW water category experts and then applied to about 20-40 selected IW situations drawn from the five IW categories.

One of the objectives of the TWAP governance assessment methodology is to develop the approach in a way that it can be applied by key stakeholders with the water system as a self-assessment. Attention will also be paid to how the assessment can be integrated into the GEF IW Transboundary Diagnostic Analysis (TDA)/Causal Chain Analysis (CCA)/Strategic Action Programme (SAP) methodology.

The TWAP methodology is relevant to the CLME Project as an evolving focal point for governance assessment methodology in GEF IW Programs. Aspects of the TWAP methodology may be relevant to the CLME Project. It can also be said that the CLME Project has been a source of ideas for the TWAP Methodology. Therefore, there is likely to be considerable mutual benefit in maintaining the connection between these activities.

3.3.2 Study of national communication and coordination mechanisms for interaction with regional organisations and projects in the Wider Caribbean Region (COGNET)

In the WCR most ocean governance issues are transboundary and thus require regional cooperation. This project examined how the states in the WCR relate to regional organizations and projects that deal with transboundary ocean governance issues, specifically regarding participation of states in their meetings (Mahon et al 2010). The term state covers both independent states and semiautonomous dependencies in the region. The nature of national level arrangements determines the extent to which there is consultation at the national level that can lead to genuine representation of the full range of stakeholders (government, private sector and civil society) at regional meetings, and also whether information from such meetings is in turn communicated back to these stakeholders. These national level processes underlying interaction with regional initiatives are important if there is to be effective, efficient, accountable, transparent governance of transboundary matters in the region.

The research project was conducted in two phases. Phase 1 was a telephone survey of 39 states of the WCR to determine if they have mechanisms for national level consultation and coordination among private and public sector stakeholders that are used to inform national level participation in regional organizations and projects and to distribute feedback from them. The main findings were that informal and formal arrangements for communication were equally prevalent. But the former were more typical of preparation and the latter more typical of feedback. There was always communication among national state agencies, but not always with relevant regional bodies or with national or local non-state actors. Communication pathways varied considerably, but both preparation and feedback were regular, and with good documentation of processes.

Phase 2 was an evaluation in more detail of the effectiveness of the arrangements in eight states: Belize, the British Virgin Islands, Colombia, Dominican Republic, Grenada, Guatemala, Jamaica, and St. Lucia, selected based on the results of the phase 1 survey. The assessment was conducted through face-to-face interviews with persons from government, NGO, and private sector agencies in each of the eight states. The assessment was based on the two most recent meetings of the Intergovernmental Meeting on the Action Plan for the Caribbean Environment Programme and the Meeting of the Contracting Parties to the Cartagena Convention (UNEP IGM), and the Caribbean Large Marine Ecosystems Project. The interview covered the following themes regarding these meetings: prior knowledge of the meeting, receipt of

invitations, decision to attend, selection of representatives, pre-meeting preparation, attendance, post-meeting reporting and follow-up, and respondents' general perception of good governance.

The case studies for the eight states confirm the overall picture provided by the Phase 1 survey and reveal substantial further information about the reasons for the findings. States view regional meetings as important. In addition to the typical stated purposes of decision-making, formal collaboration or coordination, they are of the view that regular national participation in regional and international meetings allows for networking and information sharing opportunities. This, they say, increases and improves institutional and project linkages across states and regions. The key points emerging from the Phase 2 study are summarized below.

With regard to meeting preparation and feedback processes, knowledge of meetings that countries would be attending was largely limited to government personnel, and even then only to those directly involved in the activities of the specific organization or project. Non-governmental stakeholders are seldom made aware of such meetings and when they do know it is by virtue of their own linkages and seeking of information on the web. In the case of Colombia there is a mechanism by which these stakeholders are made aware of meetings.

Invitations to attend meetings often go to a central ministry. At times this may result in the responsible government agency receiving late notification. At the extreme when the invitation goes directly to the focal point for that activity, wider distribution within government may not take place. It was suggested that governments request that invitations be sent to a central agency with responsibility for coordinating international relations in ocean affairs and also copied to the individual focal point.

In all cases the decision to attend a meeting is based upon the perceived relevance of the meeting (organization or project) to the country's needs. However, in most cases the provision of travel funding by the organization holding the meeting is a major factor in determining if the country attends, or at least the size of delegation.

Low human resource capacity in most government departments/agencies resulting in an excessive meeting burden for individuals is considered to be a primary contributing factor to poor and ineffective national/institutional inputs to regional meetings and to follow-up and implementation of meeting outputs.

Few countries have a structured process for selecting representatives to attend meetings. In most cases this is left to the head of the responsible agency. It was noted that at time inappropriate representations may lead to a low return from the participation or even errors that affect the country. Selection of appropriate representatives is considered to be essential for ensuring effective representation of national policies and interest at regional and international fora. This is especially the case when much of the pre-meeting process is left to the initiative of this individual. Continuity of representation was flagged as a problem.

In several states, preparation is mainly at the representatives' personal discretion or preference.

Informal personal level communications across government allows for quick, timely and specific responses to requests for information. Informal personal relations and rapport are vital to getting things done and sharing information at all levels of society, but do not provide the accountability and transparency that would be expected of good governance.

In all states the preparation of a report is required upon return from a meeting. In most cases these are not widely shared even within government and post-meeting feedback and communication to NGOs and private sector is virtually nonexistent.

With regard to cross-sectoral integration, it was concluded that the sectoral and fragmented approach to ocean and environmental management that appears to prevail among many of the states of the WCR reduces the overall effectiveness of communication and coordination regarding regional and international organizations and projects.

Committees and other mechanisms established with the express purpose of promoting cross-sectoral participation for coordinating input and linkages to regional meetings and projects, appear to be somewhat successful in achieving improved communication and information sharing. This varied among countries with regard to the extent to which the mechanism was fully used (e.g. Colombia) or partially used (e.g. Jamaica).

Even where mechanisms are not in place, there is wide recognition among the individuals interviewed that multi-stakeholder arrangements or mechanisms are needed and have the potential to add value to national level interactions in preparation for and following regional meetings for MEAs and projects.

Several multi-stakeholder coordinating committees already exist in the case study states that can provide some guidance in the establishment and operation of these mechanisms.

It was said to be important to utilize existing committees or arrangements for national level communication rather than establish separate arrangements for individual meetings.

With regard to civil society and private sector engagement, the majority of existing coordinating committees for sustainable development do not have adequate representation from civil society or the private sector. The agendas of several of these committees does not appear to be sufficiently broad to provide an adequate forum for the range of topics that should be considered for ocean governance and hence to facilitate effective linkages to regional institutions and projects. Although there has been some progress and several attempts at multi-stakeholder consultations and communications in most of these states, civil society and private sector participation has not been adequately advanced.

Improved access to information through the internet is enabling civil society and private sector stakeholders to become more aware, better informed and interested in actions and commitment to marine resources governance at the regional and international levels. Thus they are less dependent on information coming from government and also more conscious of the activities in which they should be included; but are not. Institutional capacity, weakness, and lack of leadership characterize most NGOs and CBOs in most of the states, resulting in government finding it difficult to maintain contact and ensuring regular communication.

The study revealed a wide diversity in the development of national level mechanisms for effective and efficient engagement with regional organizations and projects in ocean and coastal governance. In some countries the process is entirely informal depending on personal communication among relevant partners. In others the feedback mechanism was formal but the preparation for engagement was informal.

In a few countries, there were fully fledged mechanisms for engagement. In all but a few countries the mechanism was not well geared towards engaging civil society and private sector stakeholders. The need for attention to this aspect of governance is prominent in most regional and international multilateral agreements.

3.3.3 Future of Reefs in a Changing Environment (FORCE) Project

The FORCE Project will work towards improving reef management in the WCR by addressing four key objectives. It began in January 2010 and will run for four years. There are 17 partners from throughout the WCR and the European Union. The total budget for the project is about €8.6 million.

The 1st objective of the FORCE project is to understand the ultimate and proximate causes of change in Caribbean reef environments.

The 2nd objective of the FORCE project is to assemble a region-wide management toolbox. The toolbox will collate existing tools and also offer enhanced tools that have been developed through the research activities of the FORCE project.

The 3rd overall objective of the FORCE project considers both the efficacy of management tools and the governance constraints to successful implementation.

The 4th objective of the FORCE project is to disseminate its recommendations and tools to stakeholders, practitioners, and policy-makers.

The FORCE project comprises 12 work-packages:

1. Governance of coral reefs
2. Livelihoods and coral reefs
3. Physical environments of Caribbean reefs
4. Ecological status of Caribbean reefs
5. Ecological processes on coral reefs
6. Impacts of climate change on corals
7. Integrated modeling of processes and drivers
8. Ecosystem-based fisheries and marine reserve design
9. Evaluation of restoration methods for Caribbean corals
10. Evaluation of the efficacy and constraints to management tools
11. Dissemination
12. Project management

The work of the FORCE Project is highly relevant to the CLME work on the reef ecosystem. There is tremendous potential for the two projects to benefit from each other's activities.

3.3.4 PROGOVNET

Between 2007 and 2011, the Marine Affairs Program (MAP) and the Marine and Environmental Law Institute (MELI) at Dalhousie University, the International Ocean Institute – Canada (IOI) and the Center for Resource Management and Environmental Studies

(CERMES) and the Caribbean Law Institute Centre (CLIC) at the University of the West Indies (UWI) are undertaking a project funded by the Nippon Foundation of Japan entitled, 'Strengthening Principled Ocean Governance Networks: Transferring Lessons from the Caribbean to the Wider Ocean Governance Community' (PROGOVNET). PROGOVNET's aim is to contribute to improving ocean governance worldwide through the implementation of a pilot study in the WCR and concomitant transfer of lessons learned to the global ocean governance community. The project also aims to assist WCR states and those benefiting from shared marine resources in putting key sustainability principles into national and regional practice.

The program elements constitute the mechanisms of interaction and transfer leading to the development of a regional ocean governance network template as a model for use by the broader ocean community worldwide and improved governance capacity in the WCR. The main components are: capacity development; collaborative research and workshops; and seminars.

The project builds capacity in the area of ocean governance by utilizing both graduate level and short term training in the area of ocean governance. Six Master's level students from across the WCR attended Dalhousie during the period 2008 to 2010 (three in Marine Management and three in Marine Environmental Law)¹⁸.

In addition, given the existing effort to strengthen academic research emphasis in the area of oceans governance in the region, a PhD level scholarship was awarded to Ms. Alexcia Cooke at UWI. The title of her research project is 'Interactions among regional organizations in the WCR on the governance of living marine resources'.

Capacity building also included regional level, short-term training. An IOI training module on Principled Ocean Governance was held in the region for mid-level career professionals. As well, funding support was made available for six WCR marine professionals to attend the eight-week IOI Ocean Governance Training Program in Halifax during the summers of 2008 and 2009.

Another component of the PROGOVNET was the opportunity to bring together regional players in a workshop setting to discuss and advance issues of sustainable ocean governance. Three such workshops were held. First, key experts on ocean governance issues in the WCR provided a state of knowledge assessment of ecosystems-based management (EBM) in the region at a major symposium held in Barbados in December 2008. The outputs of this

¹⁸ Ms. Alana Lancaster (2009). Small fish in a big ocean? towards a transboundary marine protected area network in the CARICOM Caribbean: charting a course from international and regional policy.

Ms. Suzuette Soomai (2009). Information and influence in fisheries management: a preliminary study of the shrimp and groundfish resources in the Brazil-Guiana's continental shelf.

Mr. Orlando Harvey. (2009). Community-led integrated coastal zone management (ICZM): case study from Malpeque Bay, Prince Edward Island

Ms. Johanan Lafeuille-Doughlin. (2010). Directions for effective management of tuna and tuna-like species in the Atlantic to ensure the sustainable development of small island developing WCR states

Mr. Kerith Kentish. (2010). Transferring lessons from the Caribbean to the wider ocean governance community: the marine environment and the possibility of ocean energy systems

Ms. Sarita Williams-Peter. (2010). Towards a participatory governance model for state-influenced fish marketing in St. Lucia

symposium are available in the form of a CERMES technical report and in a forthcoming book entitled *Towards Marine Ecosystem-based Management in the Wider Caribbean*. A second Legal Principles workshop was held in April 2009 that examined the current national legislation for ocean management in the region. The report of this workshop, entitled 'A report on ecosystem based management principles in the Caribbean' is a valuable addition to the state of knowledge in the region regarding the adoption of ocean governance principles in national legislation of a wide selection of countries in the region, including Cuba and Suriname. Finally, a Transboundary Waters Assessment Project (TWAP) workshop was held in Halifax in March 2011 to advance the methodology for assessing governance in GEF IW transboundary water systems, particularly large marine ecosystems.

Other PROGOVNET project included the exchange of WCR and Canadian researchers to participate in seminars and conferences. Some of these venues included participation at regional events such as the Gulf and Caribbean Fisheries Institute (GCFI) and the IOCARIBE meetings. International events included the Global Forum on Oceans, Coasts and Islands held in Paris in 2010 and the IMCC meeting in Washington, DC 2009.

3.3.5 Marine resource governance in the eastern Caribbean (MarGov) project

MarGov started in 2007 and due to end in 2012, this project based at CERMES has research and communication as its main components, including implementation through a number of partnership projects that emphasise capacity development. Although its geographic core is the eastern Caribbean, in practice MarGov has touched much of CARICOM. Current activities include researching transboundary and local level fisheries networks with emphasis on governance. Other elements include communication research to determine how marine policy is influenced in the Caribbean and building grassroots capacity for communication. Constructing a research framework, based on network and social-ecological system concepts, for marine resource governance is an ongoing component of the project.

3.3.6 IWCAM

The Global Environment Facility-funded Integrating Watershed and Coastal Areas Management in Caribbean Small Island Developing States (GEF-IWCAM) Project aims to assist Caribbean SIDS to adopt an integrated approach to watershed and coastal areas management. The Project is currently being implemented in thirteen countries; it began in 2006 and ends in July 2011.

The shortage of data and information for decision-making in participating countries (PCs) meant that the assessment of capacity to utilize and monitor indicators for the IWCAM approach, and the development of an indicators template based on GEF International Waters Indicators (Process, Stress Reduction and Environmental Status indicators) were key activities. PCs had to identify a suite of basic, priority IWCAM indicators addressing national needs and priorities. A set of core indicators is currently being tested in a pilot activity in Barbados.

The Project has nine demonstration projects in eight of the PCs. The project will document lessons learned and good practices through a series of long- and short-form case studies and experience notes developed using the triple bottom line approach (which looks at social, environmental and economic impacts of activities).

3.3.7 GoM LME

This is a GEF funded LME project. The long-term development/environmental goal of the project is the enhanced sustainable development of the Gulf of Mexico LME through ecosystem-based management approaches. The project objective is: to set the foundations for LME-wide ecosystem-based management approaches to rehabilitate marine and coastal ecosystems, recover depleted fish stocks, and reduce nutrient overloading

Project Components:

- Updating the Transboundary Diagnostic Analysis (TDA) and confirmation of priorities.
- Formulation and adoption of the Strategic Action Program (SAP) and associated National Action Programs (NAPs).
- Strengthening of the LME wide ecosystem based management approaches through the successful implementation and integration of the Pilot Projects and their results through the GoM LME region.
- Monitoring and Evaluation System for the Project and the GoM LME under continuous development.

The CLME Project should establish close cooperation with the GoMLME Project for comprehensive coverage of ocean governance in the WCR.

3.3.8 Ecosystem-based management activities and advances

Ecosystem-based management (EBM) is fundamental to both sustainable use of marine resources and marine biodiversity conservation in the WCR. Significant progress towards marine EBM by 2010 is a WSSD target. In the biennium, there has been progress on several fronts while moving towards marine EBM for the WCR. The CLME Project has re-oriented its activities to take an ecosystem-based approach and will be pursuing this through the FAO Ecosystem Approach to Fisheries. EBM principles have been incorporated into the Common Fisheries Policy that is being developed for CARICOM Countries by the Caribbean Regional Fisheries Mechanism and are already present in the programmes and plans of la Organización del Sector Pesquero y Acuícola del Istmo Centroamericano (OSPESCA). In December 2008, a PROGOVNET sponsored symposium on Marine EBM, involving participants from 18 ACS countries, was held to support the efforts of the CLME Project and the CSC.

The Status of Ecosystem-Based Management in the WCR was recently reviewed by Fanning et al (2009). They noted that no comprehensive definition of EBM can be said to be in general usage in the CLME Project Area. There is the need to elaborate on what EBM means in the variety of resource contexts and geographical scales in the CLME Project Area. In spite of the aforementioned situation, most states have signed global multilateral environmental agreements that include various definitions of and commitments to EBM. At the regional level, most countries have reaffirmed their commitment to EBM through various agreements. For example, with regard to fisheries, the revised statutes of the Western Central Atlantic Fishery Commission (WECAFC), adopted in 2005 include a new principle that the Commission will “promote the precautionary approach and the ecosystem approach to fisheries management.” Subregional fisheries bodies are taking steps to incorporate EBM into their principles and practices. For the CARICOM CRFM, the January 31, 2007 Draft Agreement Establishing the

Common Fisheries Policy and Regime includes the following definition: “‘ecosystem-based approach’ means taking account of species interactions and the interdependence between species and their habitat when making decisions.” OLDEPESCA (Latin American Organization for Fisheries Development) and OSPESCA (Central American Fishery and Aquaculture Sector Organization) both promote EBM in their programs and policies (SICA/OSPESCA, 2005). Clearly, the intentions signaled by these regional initiatives and organizations carry important precursors to the actual implementation of EBM for national and transboundary resources.

Ecosystem boundaries are of concern in developing EBM. The boundaries of the Caribbean Sea LME and the North Brazil Shelf LME were determined when the LMEs of the world were first defined (Sherman & Alexander, 1986). The geophysical, enclosed nature of the CLME has been the major factor in determining the LME boundaries in the WCR. However, the CLME Project area comprises a nested set of ecosystems for which boundaries at spatial scale levels lower than LME have not yet been defined for management purposes. Schemes such as the recently defined marine ecoregions of the world (Spalding et al., 2007) may guide subdivision of the region at a level below the LME. Using this scheme, there appears to be about eight ecoregions within the CLME Project area.

The problems of degradation of the WCR marine environment have been of concern to many agencies and have been the topic of discussion at many regional and international meetings for at least the past two decades. However, it is only in recent years that there have been systematic attempts to conduct region-wide reviews of the status of marine ecosystems and the impacts of human use upon them. Some notable recent efforts include:

- The Global International Waters Assessment (GIWA) (UNEP, 2004a, 2004b, 2006);
- The Caribbean Sea (CARSEA) Subassessment of the Millennium Ecosystem Assessment (Agard et al., 2007);
- Caribbean Coastal Marine Productivity Program (CARICOMP) (Linton & Fisher, 2004);
- Atlantic and Gulf Rapid Reef Assessment (AGRRA) program (Lang et al., 2003);
- The Reefs at Risk assessment of the WRI (Burke & Maidens, 2004);
- The Ecoregional Planning initiative of The Nature Conservancy (Huggins et al., 2007).

Despite the lack of a comprehensive, widely accepted approach to EBM for marine ecosystems in the WCR, there have been projects and programs for fisheries and other living marine resources that can be considered as contributing to EBM. These span the full range of activities from the basic physical and biological sciences required to understand ecosystem processes through applied sciences for management to human resource development for increased management capacity, stakeholder participation, and alternative livelihoods. In most cases activities can be identified at a wide range of geographical and institutional scales. A common observation is that these activities are not well coordinated and are seldom documented in ways that make them readily available. This often leads to duplication of effort and a limited opportunity for adaptive learning with the region. A comprehensive review of such activities would be voluminous and take a team of experts in the various areas many months to complete. Such a review may not even be useful. Instead, the better approach to coordinating these efforts may be to build learning networks through which problem-solving initiatives can readily access relevant information and contact knowledgeable and experienced individuals.

A survey of national fisheries management measures in the WCR found that the number and extent of species, gear, and other effort restrictions varies widely throughout the region (McManus & Lacumbra, 2004). Few can be said to be specifically aimed at ecosystem management. Much legislation that would relate to ecosystem protection through control of land-based sources of pollution or impacts of development on coastal habitats is the responsibility of other departments. The situation at a transboundary level has been outlined earlier.

In another initiative Pitcher et al. (2008) evaluated progress in implementing ecosystem-based management of fisheries in 33 countries. The assessment involved three main sets of the listed attributes (Ward et al. 2002): Overall principles (5 attributes); criteria for success (6 attributes) and implementation steps (12 attributes). Only three countries in the WCR were included in the assessment: Brazil, México and the USA. The usefulness of pursuing this type of assessment for WCR countries as a means of monitoring progress with the Code and reporting to policy makers could be considered.

3.3.8.1 EBM Symposium

The Regional Symposium on ‘Marine Ecosystem-Based Management in the Caribbean: an essential component of Principled Ocean Governance’ was held at the University of the West Indies, Cave Hill Campus, Barbados, December 10-12, 2008 (Fanning et al 2007). Participants from throughout the region and beyond and from a diversity of occupational backgrounds came together in a facilitated process to explore principles, a vision and strategic directions for Marine Ecosystem-Based Management in the Caribbean. Participants first ranked principles resulting in a list that was considered as reflecting the priorities necessary to the implement EBM and as such, principled ocean governance, for the WCR. They then contributed their knowledge and experience to develop shared visions in four areas: pelagic ecosystems, reef ecosystems, continental shelf ecosystems and governance. Subsequently, they discussed the strategic actions that would be required to achieve these visions. The network of strategic directions that emerged is a synthesis of the outputs of the symposium. It reflects the strategies that the symposium participants thought were most critical for moving towards marine EBM in the WCR (Figure 14). There is a strong focus on the human aspects of EBM. Stakeholder involvement, social justice, enhancing livelihoods, strong institutions and regional collaboration appear to be the most significant areas in which attention should be focused to achieve marine EBM in the WCR. The EBM symposium is to be published as a book (Fanning et al 2010).

3.3.8.2 Lesser Antilles Pelagic Ecosystem (LAPE) Project (LAPE)

The project GCP/RLA/140/JPN (Scientific Basis for Ecosystem-based Management in the Lesser Antilles Including Interactions with Marine Mammals and Other Top Predators) addresses one of the challenges related to the implementation of the ecosystem approach to fisheries, i.e. the development of management strategies that take into account biological interactions among species, including cetaceans and other top predators and any species that may be of no direct importance to fisheries but yet, may play an important role in maintaining ecosystem structure and functioning.

The medium-term objective of the project is to enable fishery institutions in the region, by 2007, to carry out improved assessments and monitoring of the status of the pelagic resources and fisheries and the ecosystem of which they form a part, for continuous adaptation and improvement of optimum management strategies. Immediate objectives include:

- Obtaining improved estimates of the abundance of key components of the Lesser Antilles pelagic ecosystem, including cetaceans and other top predators;
- The formulation of a food web model of the ecosystem as a means of investigating ecosystem interactions and impacts;
- The development of an ecosystem management plan for the pelagic waters of the EEZs of the participating countries, which will include management strategies for key species of fishery interest in the sub-region, as well as for other affected and dependent species; and
- The development of research and management capacity for ecosystem-based management of their pelagic waters at a national and sub-regional level.

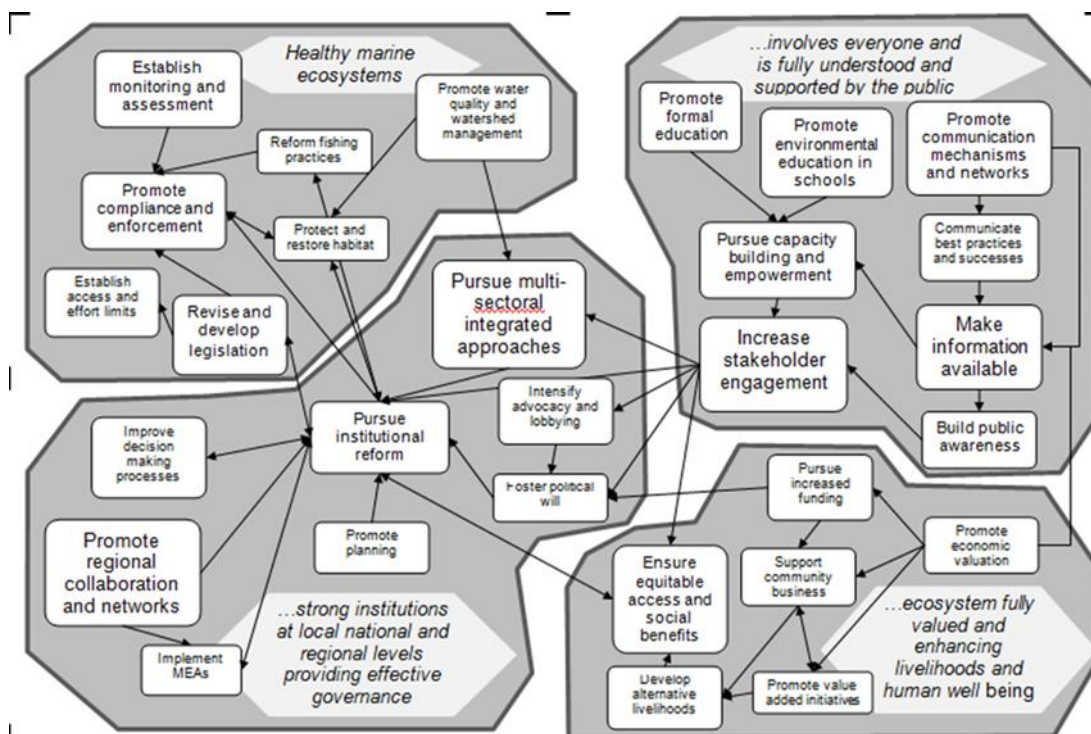


Figure 14. The network of strategic directions that emerged from the World Café groups as being needed to get from where we are towards the vision for marine EBM in the Wider Caribbean, key interrelations among them and their relationship to the main elements of the vision. Font size indicates prominence in the discussions in three levels (from Fanning et al. 2009)

Project activities in support of Objective 1 have included cetacean sighting surveys, both regional and offshore as well as national, near-shore surveys. There was a pelagic acoustic/trawling survey to obtain estimates of abundance of forage species and environmental information. Work towards Objective 2 included collection, compilation and analysis of data to estimate model parameters regarding diets, physiology, fisheries and primary production. These were incorporated into a mass-balance model of the pelagic food web using the Ecopath with Ecosim software. To address Objective 3 the LAPE project first completed a series of stakeholder consultations in each of the participating countries to identify fisheries management issues with a particular view towards ecological issues and prioritizing the identified issues. In most countries this process continued by developing performance reports, including specific indicators, for at least one of the high-priority issues. There remains work to be done in each case to complete this process for the pelagic fisheries, and other sectors have not been started. The development of national and sub-regional capacity in this regard (Objective 4) primarily included training sessions associated with specific activities i.e. 'on the-job' training. There was also training for smaller groups involved in specific tasks e.g. GIS modelers or diet analysts. The technical and capacity building findings of this project are available in a series of reports (FAO 2005, 2006, 2007a-d, Grant 2007, Mohammed et al 2007a-b) and on the internet.

Notably, the LAPE project represents the first attempt to use the FAO EAF for a Caribbean fishery ecosystem (Grant 2007). The experience gained in this project should be of considerable value to the CLME Project as it pursued the EA for the three fishery ecosystems.

3.3.9 Climate change activities

The implications of climate change for fisheries are steadily becoming better elaborated and the types of governance responses that will be required better understood. According to Cheung et al (2009) the WCR is likely to experience reduced abundance of fishery resources. A key message is that fishery governance has to address additional uncertainty from climate change in both the system being governed and the governance systems. Case studies by McIlgorm et al (2010) indicate that governance adaptation will involve more flexible fishery management regimes, schemes for capacity adjustment, catch limitation and alternative fishing livelihoods for fishers. Where fishery governance systems have been less developed, fisheries will be less able to adapt to climate change impacts. Badjeck et al (2010) emphasise the importance of adaptive capacity for fishery livelihoods and the need for approaches that build livelihoods assets and reduce vulnerability. Adaptation involves addressing some of the most intractable issues that fisheries management has been grappling with for decades.

3.3.9.1 Fisheries vulnerability

Climate change can be expected to have a wide range of impacts on WCR fisheries (Mahon 2002, Brander et al 2007). These include changes in distribution and structure of exploited populations, habitats, fishing conditions, and loss or degradation of fishing sites and infrastructure. There is the need to better understand the vulnerability of WCR fisheries to climate change (Mahon 2002), and to communicate this information to decision makers for action.

A recent global assessment of vulnerability of fisheries used an indicator-based approach to compare the vulnerability of 132 national economies to potential climate change impacts on their capture fisheries (Allison et al 2009). In the most vulnerable countries, vulnerability was due to the combined effect of predicted warming, the relative importance of fisheries to national economies and diets, and limited societal capacity to adapt to potential impacts and opportunities. Fisheries in many of the world's least developed countries were found to be among the most vulnerable to climate change. Allison et al. (2009) note that although the precise impacts and direction of climate-driven change for fisheries are uncertain, these changes are likely to lead to either increased economic hardship or missed opportunities for development in countries that depend upon fisheries but lack the capacity to adapt.

The above study included several countries from the WCR of which Colombia and Venezuela were among the top 30 most vulnerable countries worldwide. Many WCR countries, however, and SIDS in particular, were not included as data were lacking. Regional experts have expressed the view that while much of the data reported to be unavailable may be difficult to obtain, a considerable amount of this information can be found. Furthermore, it is likely that the vulnerability model used is not optimal for the WCR, and in particular the climate change projections are not downscaled to the regional or island level.

The results of recent graduate research project on fisher perceptions of climate change impacts (McConney et al. 2009) were shared within the larger context of climate modeling at a regional fisheries conference (CERMES 2009). The feedback received on this very preliminary study indicates that there is strong demand for further research in this area along with communication of findings to interested parties for decision-making.

Two activities are proposed to pursue a more comprehensive and appropriate fisheries vulnerability assessment for WCR countries with a view to informing WCR decision makers about them, and proposing adaptive measures to minimize impacts.

The first activity proposed is to apply the approach to vulnerability assessment pursued by Allison et al to as many of the countries of the WCR as possible. This will involve acquiring the data that were deemed to be missing in their study and reapplying their model. There will be particular emphasis on the SIDS which were largely absent from their study. This will make it possible to situate most, if not all, WCR countries in the global context developed by Allison et al. (2009).

The second activity proposed is to (a) evaluate the appropriateness of their approach to assessing vulnerability in the WCR context, again with particular emphasis on SIDS; and (b) carry out a new assessment of WCR countries with the improved model, using downscaled, region-specific climate change projections. This region specific approach is particularly important for the establishment of a program of monitoring vulnerability and adaptation. It is expected that this aspect of the work will lead to a significant contribution to the Monitoring and Reporting system to be established for the living marine resources of the Large Marine Ecosystems of the WCR through the CLME Project.

3.4 Revised stakeholder and governance arrangement analysis

Stakeholder and governance arrangement analysis are treated together in this section, because it is the engagement of the various stakeholders in the policy cycles of the multi-level

framework that make up the governance arrangement. This was demonstrated clearly in section 2.4 where stakeholders were categorized according to their roles in the policy cycles of the overall CLME Project and its various components.

Updating the governance and stakeholder analysis with emphasis on the recently agreed fishery ecosystems (continental shelf, pelagic and reef ecosystems) will be a focus of the various components of the Full Project in the process of implementing and testing governance arrangements. As noted by Parsram (2007), identifying and building partnerships is not a one-time, static activity. During project implementation there will be new stakeholders with common interests, and some of the existing partners may no longer exist. Any list of stakeholders will therefore inevitably be out of date before it is completed. The critical point to be made is that the process of keeping track of stakeholders must be integral to the governance arrangement, not a standalone activity. An initial stakeholder assessment as was done in the PDF-B, serves to develop awareness of the numbers and types of different stakeholders in various roles. However, at the stage of the Full Project stakeholder identification and engagement must pass to the specific project components.

While the work on stakeholder identification done during the PDF-B phase was comprehensive from a fisheries perspective, the explicit shift in focus to an ecosystem-based fisheries approach, means that there is the need to complement the earlier analysis with one that specifically identifies and analyses the role of potential stakeholders from such sectors as marine and coastal tourism, shipping, offshore oil and gas, land-based industrial activities such as agriculture and mining and coastal developers, both residential and commercial. In addition to the stakeholders identified as being related to the project component in Section 2.4, there will also be the need to categorize stakeholders for the communication and participation strategies. In this regard, the role of the media as an essential stakeholder needs to be recognized.

3.4.1 Continental shelf fishery ecosystem

Table 2 and Figure 6 from the PDF-B show the continental shelf shrimp and groundfish pilot project stakeholders by stage in the policy cycle and jurisdictional level. No major update is anticipated but the issues associated with an ecosystem approach and climate change may integrate more actors at all levels and stages concerned with habitat degradation from bottom trawling, wetland conservation including the loss of mangroves to aquaculture and other development, turtle and other species bycatch, threats to biodiversity from land based sources of pollution in big rivers especially, and more. With climate change communication for adaptation being taken more to the community or local level, more stakeholders and settlements, that are currently non-fishery, may become involved due for example to sea level rise.

In this system one can summarise the basic fishery management policy cycle as follows:

- The countries implement and provide information,
- The WECAFC & CRFM Working Groups review, conduct analysis and provide advice,
- The decision-making body is absent (although an attempt was made to have a Ministerial meeting for the countries in question),

A broader cycle that incorporates an ecosystem approach remains to be developed. It would require additional stakeholders as indicated above. It should cover the fishery resources and ecosystem of the continental slope as well where there are deepwater fisheries for snappers and groupers. Likewise, the location where policy decisions are addressed regarding how this ecosystem relates to regional level ocean governance issues remains to be determined.

3.4.2 Pelagic fishery ecosystem

Tables 5 and 6, and Figures 9 and 10, show respectively the flyingfish and large pelagics pilot project stakeholders from the PDF-B by stage at their policy cycle stages and jurisdictional levels. Adopting an ecosystem approach is likely to have little impact on the stakeholder composition of these. However, multi-sectoral integration may encourage more attention, for example, to recreational fisheries (e.g. game-fishing charters and tournaments) that have tourism linkages. Although not believed to be a major issue in the WCR, seabird and turtle bycatch issues may take on more prominence. Setting and managing boundaries between countries (e.g. Grenada and Barbados), organizational functions (e.g. ICCAT and CRFM for small tunas) and the institutions of instruments (e.g. FAO in CITES) may also be an ecosystem feature that slightly alters the stakeholders and their dynamics.

In this system there may be three basic fishery management policy cycles; one for flyingfish, one for oceanic large pelagics and one for regional large pelagics. These can be summarized as follows.

In the case of flyingfish:

- The countries implement and provide information,
- The WECAFC and CRFM Working Groups review, conduct analysis and provide advice,
- The decision-making body is unclear (although the CRFM Ministerial Council covers all but one of the participating countries and could serve in this role, it has not addressed flyingfish management explicitly).

If developed this cycle could incorporate an ecosystem approach but would need to be linked with the two cycles below. It would require additional stakeholders as indicated above. Likewise the location of policy decisions in which flyingfish management in relation to regional level ocean governance issues are addressed remains to be determined (see Appendix 2 for a hypothetical governance arrangement for flyingfish).

In the case of oceanic large pelagics ICCAT is the competent body:

- The countries implement and provide information,
- ICCAT Working Groups conduct analysis and provide assessment outputs to the ICCAT Standing Committee on Research and Statistics (SCRS) which formulates advice,
- The ICCAT Commission makes decisions (although the CRFM Ministerial Council covers all but one of the participating countries and could serve in this role, it has not addressed flyingfish management explicitly).

This cycle already incorporates an ecosystem approach but would need to be linked with the other two pelagic cycles outlined in this section. The location of policy decisions in which large pelagic management is considered in relation to ocean governance issues at the level of

the WCR remains to be determined (see Appendix 2 for a hypothetical governance arrangement for oceanic large pelagics).

In the case of regional large pelagics there is no policy cycle that can be identified (Mahon and McConney 2004) although there is the potential for one led by the CRFM as follows:

- The countries implement and provide information,
- The CRFM Scientific Working Groups review, conduct analysis and provide advice,
- The decision-making body is unclear (CRFM Ministerial Council covers 16 of the participating countries and could serve in this role if provision can be made to include other fishing countries).

This cycle could incorporate an ecosystem approach but would need to be linked with the other two pelagic cycles outlined in this section as well as to partners with interests in other large pelagic resources such as sea turtle, marine mammals and seabirds. The location of policy decisions in which large pelagic management is considered in relation to ocean governance issues at the level of the WCR would need to be determined. Together these three policy cycles and the higher level policy-making body would comprise a regional arrangement for the pelagic ecosystem.

3.4.3 Reef ecosystem

Table 3 and Figure 7 show the reef fishery pilot project stakeholders while Table 4 and Figure 8 show those from the lobster pilot project by stage in the policy cycle and jurisdictional level. These two pilots are included within the reef ecosystem. The main stakeholder shifts with reefs may more concern marine protected areas which continue to attract much attention individually and as networks of areas. This is increasing with more emphasis on marine spatial planning. If, under an ecosystem approach, there is more emphasis on managed marine areas and local area management authorities, then more coastal communities, resource users and resources may get drawn into the governance framework through integrated coastal management. The current initiatives on sustainable financing may broaden the web of links to more non-fishery activities such as tourism and port (e.g. marina) infrastructure.

The picture regarding governance arrangements for the reef ecosystem is most complex and while one can identify many stakeholders that could play specific roles in a regional governance arrangement, no such comprehensive arrangement is clearly identifiable at the regional level. There are regional arrangements that address issues of concern to reefs, such as land based sources of pollution and MPAs (see Appendix 2 for a hypothetical governance arrangement for MPAs). There are also many local level arrangements. However, the challenge remains to integrate these at appropriate subregional levels (e.g. Central America, Greater Antilles, Lesser Antilles) and to identify a regional level location for policy decisions in which reef ecosystem management is considered in relation to ocean governance issues at the level of the WCR.

With regard to subregional governance arrangements for reef ecosystems as a governance layer between local/national efforts and WCR regional efforts, there are bodies that are already active in reef ecosystem management. These include OSPESCA for Central America and the OECS for much of the Lesser Antilles. However, many geographical gaps remain.

4 A fishery ecosystem perspective on current and emerging governance arrangements

4.1 General implications for the whole framework

Broadly speaking, the conclusions reached in the PDF-B regarding the geopolitical complexity and the nature of governance arrangements that are appropriate to this situation are still considered to be valid. The reassessment of the LMR governance situation in the WCR in the light of the orientation towards fishery ecosystems, as well as with reference to changes in the governance arrangements in the region since the PDF-B, suggests that a network approach to governance that links existing LMR governance arrangements, seeks to strengthen them and to build upon their existing strengths is still appropriate. If anything, the above changes and advances are such that the suggested approach appears to be even more appropriate at the present. Increasing awareness of the uncertainty that will result from climate change will demand an approach that seeks to build resilience and adaptive capacity. At the same time, the increasing number of regional stakeholders with interests in LMR and climate change and with the capacity to contribute to addressing these problems speaks to the need for interaction and networking that is flexible and demand driven.

A shift towards an ecosystem approach such as that developed by WCR stakeholders at the 2008 EBM Symposium is highly consistent with the FAO EAF as well as the CBD principles in its recognition of the diversity of issues that must be considered in LMR governance in the WCR. It is also a recognition that agreed principles and processes must underlie effective governance. In such a diverse system, functional linkages, processes and interactions are fundamental to moving forward. Solutions can no longer be assumed to be available off-the-shelf. They must be developed rapidly, as demand arises, with the best information available and with the understanding and engagement of all concerned. As circumstances arise and change, good governance will require increased attention to the roles that are essential for responsiveness and adaptation. These will include people and institutions that facilitate process, connections and information flow¹⁹.

4.1.1 Complexity in the Caribbean LME relative to other LMEs globally

At the time of the PDF-B, it was argued that the WCR was the most geopolitically complex region of the world and also of the 64 LMEs thus far defined. It was argued that the Caribbean and Adjacent region with 44 states and all the diversity that this implies was at an extreme end of a continuum of governance complexity. This perspective has now been supported by a comparative analysis of the 64 LMEs based on a suite of variables considered to be indicative of complexity that has implications for governance. Analysis showed the Caribbean LME to be an outlier among LMEs in regard to these variables and to be most closely related to the Mediterranean, a region well known for its complexity (Mahon et al 2010). This analysis supports the perspective that a focus on interactive governance that seeks to build adaptive capacity is probably the most appropriate for the WCR.

¹⁹ For a readable perspective on these roles in the process of change in human systems consult *The Tipping Point* by Malcolm Gladwell.

4.1.2 Advances in LME Governance framework development

Subsequent to the PDF-B, there has been further development of the LME governance framework and its application. This is mainly regarding the recognition and assessment of governance arrangements that address issues and the linking of these arrangements. The Earth Systems Governance Project which has been pursuing related questions refers to these arrangements and their interrelations as governance architecture (Biermann et al. 2009). Three examples of arrangements that are relevant to the CLME Project components are shown in Appendix 2.

The application of the LME Governance Framework in the Transboundary Waters Assessment Project (TWAP) provided the opportunity to develop an approach to assessing the extent to which governance architecture is developed in a transboundary water system. This methodology is provided in Appendix 3 and it is suggested that it be used in the CLME Project.

4.2 Implications for the three fishery ecosystems

This section summarises the implications of the revised focus and recent events for the iterative processes of the basic policy cycle and how the processes involved in these cycles are formulated and implemented²⁰ in relation to the continental shelf, pelagic and reef fishery ecosystems. For each of these ecosystems, it also provides a preliminary assessment of the consequences arising from each of the current transboundary issues affecting the related ecosystems and identifies factors affecting the effectiveness of governance in the region. These factors are categorized based on the level of jurisdiction scale and span the local, through national, subregional/regional and where appropriate, international levels.

In addressing the human dimensions of the ecosystem approach to fisheries, de Young et al (2008) stress the importance of appreciating and working with the various entry points to EBM/EAF. It is possible to enter into EBM/EAF at various points and levels in a policy cycle. This flexibility was echoed at the 2008 EBM symposium (Fanning et al 2009b), mentioned earlier, that examined these three fishery ecosystems. It implies that several options and pathways are available for the introduction of EBM/EAF in each fishery depending on the specific circumstances. For example, since international agreements and institutions have paid much attention to pelagic and reef ecosystems, entry points in a high level policy cycle may be appropriate through a regional agreement. However this does not rule out entry at a lower level such as sub-regional or national technical working groups on these ecosystems. In learning about the dynamics of policy cycles, information on entry points must be included.

In order to go beyond the entry point to identify the mechanisms of transboundary cooperation through the regional and subregional bodies available in the CLME region, and the implications for subprojects including the way they are carried out, we have reviewed the stakeholder analyses by fishery ecosystem (section 3.2) and set out some of the implications.

²⁰ The Basic Policy Cycle underlies adaptive governance and the variety of stakeholders, inputs and processes that may be involved depending on the purpose of the cycle and its context

Also instructive on current thinking are the vision elements and the assisting and resisting factors identified at the 2008 EBM symposium (Fanning et al 2009b) for these ecosystems. In summary (Figure 15) the priorities assigned to the vision elements for the three ecosystems provide guidance on what is perceived to be most important to be achieved or addressed. By just looking at the highest ranked in each case the prominence of good governance is evident.

These elements need to be taken into account as the project proceeds. They are unpacked in the sub-sections below and the factors that are thought to assist/enable or resist/constrain are also shown. In most cases their implications are self-evident, but in discussion we briefly illustrate some linkages with specific components of the current project for each ecosystem.

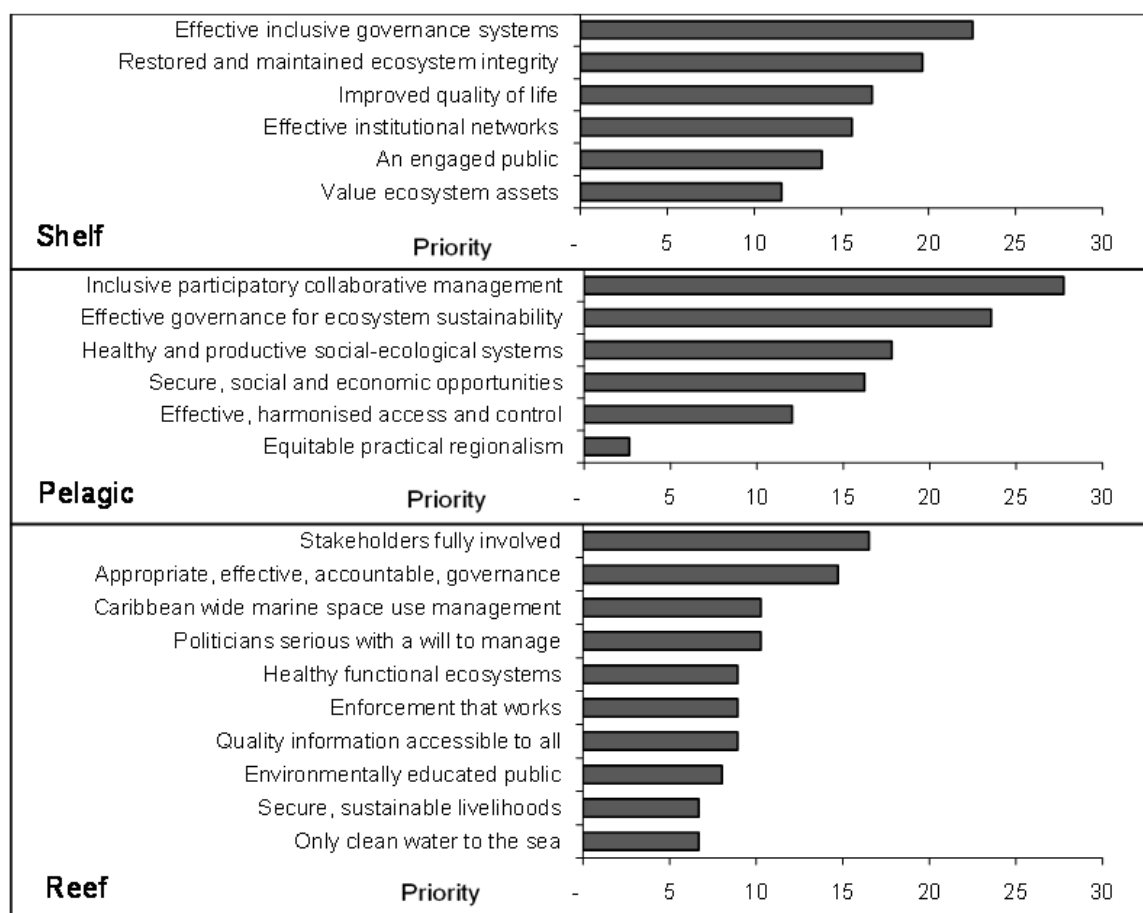


Figure 15. Priorities assigned to the elements of the ecosystem visions (Fanning et al 2009b)

4.2.1 Continental shelf

Table 10 sets out the vision elements with their sub-components, and Table 11 shows the assisting and resisting factors for the continental shelf ecosystem (Fanning et al 2009b). Table 12 illustrates the current transboundary effects arising in this ecosystem and the multi-jurisdictional root causes affecting effective governance.

The priority for the continental shelf ecosystem was said to be ‘Effective inclusive governance systems’. This may require engaging more stakeholders, more effectively, especially in the contexts of watersheds, upland drainage and extensive coastal wetlands depending upon the country. Poverty appears to be a feature of many communities, and fishing settlements in particular, along the rural continental margins. The sub-project communication and participation strategies need to be especially sensitive to engaging disadvantaged groups. If improved quality of life is also a key vision element, then the inter-sectoral approach of EBM/EAF will be the key in addressing broader issues such as marine transportation infrastructure and marketing facilities that serve transboundary purposes in several places.

Table 10. A vision for ecosystem based management for the continental shelf (Fanning et al 2009b).

FOCUS QUESTION: <i>What do you see in place in 10 years time when EBM/EAF has become a reality in the Caribbean?</i>					
Improved quality of life	Effective inclusive governance systems	Restored and maintained ecosystem integrity	Effective institutional networks	Value ecosystem assets	An engaged public
Secured livelihoods-happy faced Improved quality of life for stakeholders Healthy use of the ecosystem that benefits all users Balanced usage of freshwater including the coastal zone Sustainable benefits from ecosystem goods and services	Harmonized inclusive policy on EBM Harmonized governance Subsidiarity in decision making and management Well developed legal framework Adequate enforcement measures Wider Caribbean coordinating body established	Native marine biota very close to natural numbers Ecosystem integrity being maintained Quantify habitats under extinction risk Climate change mitigation and adaptation measures	Capacity in place to deliver EAF/EBM A well managed co-coordinated ecosystem Improved trans-boundary linkages/information sharing	Ecosystem recognized and treated as natural and regional assets	Informed educated citizens Public awareness of the concept

Table 11. Continental shelf ecosystem assisting and resisting factors (Fanning et al 2009b)

Assisting Factors	Resisting Factors
(All considered strengths and opportunities) Study cases Legislation Science and technology	Threats Poverty Jurisdictional issues Weaknesses

<p>Experienced human resource base</p> <p>Knowledge of what is required</p> <p>Regional co-ordination</p> <p>Commonality of issues</p> <p>Existing government frameworks</p> <p>Existing institutions</p> <p>Agreement among some key stakeholders</p> <p>Convergence of concerns</p> <p>Schools, universities, education systems</p> <p>Information technology (communication, information management)</p> <p>Civil society engaged</p>	<p>Resource constraints</p> <p>Inadequate money (\$\$)</p> <p>Resistance to change</p> <p>Anti-intellectual culture in decision-making</p> <p>Inadequate knowledge of EBM</p> <p>Perception that this is a pipe dream</p> <p>Unsupportive government policy</p> <p>Inadequate awareness</p> <p>Ad hoc decision-making</p> <p>Politics (Bureaucratic impediments)</p> <p>Command and control</p> <p>Both threats and weaknesses</p> <p>Ineffective governance</p> <p>Diversity-insularity</p>
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The priority for the continental ecosystem was said to be ‘Effective inclusive governance systems’. This may require engaging more stakeholders, more effectively, especially in the contexts of watersheds, upland drainage and extensive coastal wetlands depending upon the country. Poverty appears to be a feature of many communities, and fishing settlements in particular, along the rural continental margins. The sub-project communication and participation strategies need to be especially sensitive to engaging disadvantaged groups. If improved quality of life is also a key vision element, then the inter-sectoral approach of EBM/EAF will be key to addressing broader issues such as marine transportation infrastructure and marketing facilities that serve transboundary purposes in several places.

Table 12: Multi-Jurisdictional Root Causes Affecting Effective Governance of Continental Shelf Ecosystems in the CLME

Transboundary Effects
<ul style="list-style-type: none"> • Inadequate management of the resources in one country has detrimental effects in biologically connected countries • Reduction in species of global significance • Illegal fishing by foreign vessels • Increasing local and regional conflicts • Potential irreversible changes in nature of LME • Transport of pollutants across the EEZs • Extra-regional transport of dust, POPs and other contaminants to the region • Negative impact of pollutants on shared living resources • Transboundary impacts from plumes of major continental rivers and pollution in large bays • Loss of feeding, spawning and nursery grounds for species with transboundary distribution • Loss of genetic and biological diversity • Loss of over-wintering mangrove and near-shore habitat for migratory species • Alteration of oceanographic characteristics arising from upstream changes in the ecosystem and climate change

Jurisdictional Level	Issues Contributing to Unsustainable Fishing, Pollution and Habitat Degradation
International	<ul style="list-style-type: none"> • Insufficient awareness of the value of continental shelf ecosystems • Growing population pressure for food, employment and housing • Fishing over-capacity • Easy access to foreign markets and fluctuating global markets' demand for high value continental shelf species • Weak and ineffective international legal/regulatory, and institutional frameworks • Insufficient adequate data and information due to irregular or no monitoring and assessment, particularly in light of global climate change impacts
Regional/Subregional	<ul style="list-style-type: none"> • Weak and ineffective institutional frameworks for governance of the continental shelf resources of the Wider Caribbean Region • Lack of consensus in the use and management of shared resources resulting in limited harmonization of policies and laws between and among sectors at the regional level • Insufficient harmonization of policies and laws between and among sectors at the sub-regional level • Inadequate institutional, policy and legal frameworks for effective ocean governance, fisheries and integrated coastal zone management at the regional/subregional levels • Inadequate and insufficient information on the biology, economic and social importance of the shared continental shelf resources of the Caribbean, particularly in light of climate change impacts • Lack of EEZ delimitation boundaries by many countries in the region • Limited appreciation of value and vulnerability of ecosystems and their services at the regional/subregional levels • Limited incentives/disincentives for sustainable fisheries at the regional/subregional level • Limited research, monitoring, enforcement, surveillance and compliance with existing laws • Insufficient technical, human and financial capacity • Cultural differences, poverty, Illiteracy affecting societal prioritization of use of continental shelf ecosystems • Growing population pressure for food, employment and housing across the region
National	<ul style="list-style-type: none"> • Growing population pressure for food, employment and housing at the national level • Failure to integrate environmental considerations in national development plans due to lack of appreciation of value and vulnerability of continental shelf ecosystems and their services • Limited harmonization of policies and laws between and among sectors • Weak and ineffective legal/regulatory and institutional frameworks or fisheries and coastal zone management • Limited monitoring, enforcement, surveillance and compliance with existing laws • Insufficient stakeholder involvement and public awareness in national level decision-making • Open access nature of small scale fisheries and lack of priority for the fisheries by national governments • Inadequate and insufficient information on the biology, economic and social importance of each of the major fisheries and other marine resources of the continental shelf ecosystems under national jurisdiction • Insufficient technical, human and financial capacity • Need for foreign exchange • Growing export demand and easy access to foreign markets • Need for adequate returns on investment in continent shelf fisheries, particularly shrimp and groundfish • Poverty , illiteracy affecting societal prioritization of use of continental shelf ecosystem resources at the national level

Local	<ul style="list-style-type: none"> • Insufficient stakeholder involvement and public awareness limiting opportunities for input into higher level decision-making processes • Lack of appreciation of value and vulnerability of continental shelf ecosystems and their services • Lack of adequate data and information due to irregular or no monitoring and assessment at the local level • Insufficient technical and financial capacity • Growing local demand exacerbated by lack of alternative food source and increasing population • Need for adequate returns on investment • Poverty and illiteracy affecting societal prioritization of use of continental shelf ecosystems and resources at the local level • Lack of training opportunities for alternative employment
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4.2.2 Pelagic

Table 13 sets out the vision elements with their sub-components, and Table 14 shows assisting and resisting factors for the pelagic ecosystem (Fanning et al 2009b). Table 15 illustrates the current transboundary effects arising in this ecosystem and the multi-jurisdictional root causes affecting effective governance.

The deliberations over the pelagic system strongly emphasized ‘Inclusive and participatory collaborative management’ and generally the need to craft effective institutions for dealing with shared migratory resources that were often of high value for trade. Vertical linkages among policy cycles seem particularly important here and species working groups could be entry points for upward and downward connections.

Table 13. A vision for ecosystem based management for the pelagic ecosystem (Fanning et al 2009b)

FOCUS QUESTION: <i>What do you see in place in 10 years time when EBM/EAF has become a reality in the Caribbean?</i>					
Inclusive and participatory collaborative management	Equitable practical regionalism	Healthy and productive social-ecological systems	Effective, harmonized access and control	Effective & responsible governance for ecosystem sustainability	Secure, social and economic opportunities
NGOs are stronger and their values listened to Effective participation of fishers in fisheries conservation and management issues Fishers take over the	National interests give way to Regional interest	More abundant fish resources in the region Return of great whales to Barbados Make friends with the	Eradication of IUU Fishing Effective Caribbean legislation and successful enforcement Medium-	Responsible usage management and networking Sustainable utilization of fisheries resources Management decisions based on biological realities of	Most proud of: Equitability and stability of livelihoods; Health of CLME Children perceive fishing as a reputable career Profitable- high standard of living

<p>industry</p> <p>Delegation of management to fishers</p> <p>Recognize and pay full cost of fish</p> <p>Fisherfolk and government in harmony at decision making level</p> <p>Education: Listening, understanding challenges and trade-offs</p> <p>Industry contribution to research</p>		<p>sharks</p> <p>Minimize impacts on the environment</p> <p>Policy is put in place to protect the different species</p> <p>Harvesting practices changed and improved</p>	<p>scale boats legally mobile among CARICOM</p>	<p>exploited species</p> <p>Harmonized governance for ecosystem well being and human well being</p> <p>Transparent commercial operations which incentivize sustainable pelagic fisheries</p>	<p>for fisher folk</p> <p>Secure access so harvesters can plan a secure future</p> <p>Contribution of the fishing industry to greater economic development</p>
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Table 14. Pelagic ecosystem assisting and resisting factors (Fanning et al 2009b)

Assisting Factors	Resisting Factors
<p>Strengths</p> <p>More regional integration of projects in Marine Science</p> <p>Harmonized legislation</p> <p>Responsible people</p> <p>Existing regional institutions to facilitate research Some very good, capable human resources Knowledge of ecosystem health Caribbean Regional Fisheries Mechanism (CRFM)</p> <p>UWI for research</p> <p>Greater awareness and knowledge of issues</p> <p>Existing relevant organizations that can be networked for effective governance</p> <p>Collaboration</p> <p>Public awareness and consultation</p> <p>Harmony</p> <p>Regional heads are supporting the development of the RFO for the purpose of strengthening the industry</p> <p>Improved regional and international collaboration (at least among scientist)</p> <p>Caribbean Fisherfolk monuments</p> <p>Education</p> <p>Existing regional institutions CERMES & CRFM</p> <p>Strengthening of fisher folk organization to participate in</p>	<p>Threats</p> <p>Negative climate change impacts</p> <p>Declining world economy- limited resources</p> <p>Short term solutions to economic development needs</p> <p>Government actions look at short term</p>

Table 14. Pelagic ecosystem assisting and resisting factors (Fanning et al 2009b)

Assisting Factors	Resisting Factors
<p>decision making and management</p> <p>Opportunities</p> <p>Regional government commitment to Common Fisheries Policy and Regime.</p> <p>More CARICOM members are interested in ICCAT CLME project</p> <p>More research on Governance for EBM in Progress</p> <p>Growing consumer demand for organic and fair trade products</p> <p>Declining catches</p> <p>Caribbean integration</p> <p>Caribbean Sea Initiative/Commission</p> <p>Necessity- Observed decline in stocks and profits</p> <p>Government has taken more interest in the development of the fishing industry</p> <p>CARICOM Common Fisheries Policy</p> <p>Financial Institutions</p> <p>Growing demand for sustainable ecotourism</p> <p>Market forces (Eco-labeling)</p> <p>Proposed Collaboration with ICCAT</p>	

Table 15: Transboundary Effects and Multi-Jurisdictional Root Causes Affecting Effective Governance of Pelagic Ecosystems in the CLME

Transboundary Effects	
<ul style="list-style-type: none"> Inadequate management of the resources in one country has detrimental effects in biologically connected countries Reduction in species of global significance Illegal fishing by foreign vessels Increasing local and regional conflicts Potential irreversible changes in nature of LME Inappropriate management of shared resources Transport of pollutants across the EEZs Transboundary impacts from plumes of major continental rivers and pollution in large bays Extra-regional transport of dust, POPs and other contaminants to the region Negative impact of pollutants on shared living resources 	
Jurisdictional Level	Issues Contributing to Unsustainable Fishing, Pollution and Habitat Degradation
International	<ul style="list-style-type: none"> Growing population pressure for food, employment and housing Weak and ineffective international legal/regulatory, and institutional frameworks Insufficient adequate data and information due to irregular or no monitoring and assessment, particularly in light of global climate change impacts Lack of priority among ICCAT members for Caribbean regional pelagics

Table 14. Pelagic ecosystem assisting and resisting factors (Fanning et al 2009b)

	Assisting Factors	Resisting Factors
Regional/Subregional		<ul style="list-style-type: none"> • Weak and ineffective institutional frameworks for governance of the shared marine resources of the Wider Caribbean Region • Lack of consensus in the use and management of shared pelagic resources at the regional level • Insufficient harmonization of policies and laws between and among sectors at the sub-regional level • Inadequate institutional, policy and legal frameworks for effective ocean governance and pelagic fisheries management at the regional/subregional levels • Inadequate and insufficient information on the biology, economic and social importance of the shared pelagic resources of the Caribbean, particularly in light of climate change impacts • Lack of EEZ delimitation boundaries by many countries in the region • Limited appreciation of value and vulnerability of ecosystems and their services at the regional/subregional levels • Limited research, monitoring, enforcement, surveillance and compliance with existing laws • Insufficient technical, human and financial capacity • Cultural differences, poverty, Illiteracy affecting societal prioritization of use of reef resources • Growing population pressure for food, employment and housing across the region
National		<ul style="list-style-type: none"> • Growing population pressure for food, employment and housing at the national level • Failure to integrate environmental considerations in national development plans due to lack of appreciation of value and vulnerability of ecosystems and their services • Limited harmonization of policies and laws between and among sectors • Weak and ineffective legal/regulatory and institutional frameworks for pelagic fisheries management • Limited monitoring, enforcement, surveillance and compliance with existing laws • Insufficient stakeholder involvement and public awareness in national level decision-making • Open access nature of fisheries and lack of priority for the fisheries by national governments • Inadequate and insufficient information on the biology, economic and social importance of the pelagic fisheries harvested by nationals • Insufficient technical, human and financial capacity • Excessive nationalism
Local		<ul style="list-style-type: none"> • Insufficient stakeholder involvement and public awareness limiting opportunities for input into higher level decision-making processes • Lack of appreciation of value and vulnerability of reef ecosystems and their services • Lack of adequate data and information due to irregular or no monitoring and assessment at the local level • Insufficient technical and financial capacity • Growing local demand for some species exacerbated by lack of alternative food source, use of some species for bait and increasing population pressures • Need for adequate returns on investment by local fishers

4.2.3 Reef

Tables 16a and 16b set out the vision elements with their sub-components, and Table 17 shows assisting and resisting factors for the reef ecosystem (Fanning et al 2009b). Table 18 illustrates the current transboundary effects arising in this ecosystem and the multi-jurisdictional root causes affecting effective governance.

Perceptions of the reef ecosystem place stakeholder engagement and good governance at the top of the list. More elements are listed for this ecosystem than the others, perhaps reflecting its complexity being better appreciated. The elements also show the need for adaptive governance to take into account a wide range of uncertainties that are likely to interact, such as climate change impacts and space use management. Both of these, in interconnected reef ecosystems, can have transboundary implications. Of the three ecosystems, the elements here suggest that stakeholders do not expect business as usual. They will be seeking innovative institutions to provide solutions.

Table 16a A vision for ecosystem based management for coral reef ecosystems (Source: Fanning et al 2009b)

FOCUS QUESTION: What do you see in place in 10 years time when EBM/EAF has become a reality in the Caribbean? The Caribbean region - a model for reef management in the world				
Strengthened knowledge base		Healthy reefs sustaining people		
Environmentally educated public	Quality information accessible to all	Healthy functional ecosystem	Secure & sustainable livelihoods	Caribbean wide marine space use management
EBM in education curricula Reef conservation in curriculum Public environmental awareness	Easy access Caribbean SDI Good information available to everyone Accessible information system Regular data collection	Critical coastal habitats restored Limits to coastal development EBM compatible coastal development Conch off the CITES list Reefs, seagrass and mangroves with plenty of fish	Alternative livelihoods Improve fisher-folk standard of living Grow coral for income and restoration Organized equitable market structure	Network of no-take reserves Integrated protected areas networks (30%) Caribbean-wide space-use plan More no-take reserves Reefs managed at scales of the resource
		Only clean water to the sea		
		All waste-water treated before entering marine environment Watershed-based focus to management Only clean freshwater entering the sea		

Table 16b A vision for ecosystem based management for coral reef ecosystems (Source: Fanning et al 2009b)

FOCUS QUESTION: What do you see in place in 10 years time when EBM/EAF has become a reality in the Caribbean? The Caribbean region - a model for reef management in the world			
Good governance			
Serious politicians with a will to manage	Appropriate effective accountable governance	Enforcement that works	Stakeholders fully involved
Political accountability for sustainability Reefs high on political agenda	Regional EBM legislation in place Harmonized and fully integrated management and legislation among countries	Enforcement is functional and effective Functional enforcement All activities in reefs are well regulated	Stakeholders fully involved in management and decision-making Local & scientific knowledge used

<p>Greater political will by government</p> <p>More money for management</p> <p>Full value of reefs recognized</p>	<p>Binding agreements for EBM</p> <p>International agreements become national laws</p> <p>Integration of fisheries and CZM regulations</p> <p>Cross-sectoral agency communication</p> <p>Adequate capacity to manage reefs</p> <p>Fishing capacity adjusted to sustainable practices</p> <p>Elimination of resource disputes</p>		<p>Fisher/community rights to manage reefs resources</p> <p>Active stakeholder participation in governance</p>
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Table 17. Reef ecosystem assisting and resisting factors (Source: Fanning et al 2009b)

Assisting Factors	Resisting Factors
<p>Impacts of Climate Change</p> <p>Science and Information Technology</p> <p>Information and Education</p> <p>Political Understanding and Will</p> <p>Fisher and stakeholder participation</p> <p>Internet</p> <p>Ecotourism /Green Industry</p> <p>Tourism sector participation</p> <p>Disappearance of fish resources</p> <p>Favorable market forces</p> <p>New president in USA</p> <p>Education in schools</p> <p>Multi-lateral funding</p> <p>Committed Players</p> <p>Recovering rent from natural resources (economics)</p>	<p>Weakness</p> <p>Stakeholders manipulating political system</p> <p>Small size of countries</p> <p>Ineffective administration systems</p> <p>Lack of information sharing</p> <p>Limited resources</p> <p>Highly complex geo-political mosaic – think as country NOT region</p> <p>Chronic corruption</p> <p>Lack of capacity</p> <p>Open access to fisheries</p> <p>Closed access to fisheries</p> <p>Threats</p> <p>Poverty</p> <p>Climate change</p> <p>Uncontrolled investment in coastal development</p> <p>Pollution</p> <p>Increased demand in market</p> <p>Invasive species</p> <p>Dams – water flows</p> <p>Oil Infrastructure</p> <p>Farming practices</p> <p>Over-population</p>

Table 18: Transboundary Effects and Multi-Jurisdictional Root Causes Affecting Effective Governance of Coral Reef Ecosystems in the CLME

Transboundary Effects	
<ul style="list-style-type: none"> • Inadequate management of the resources in one country has detrimental effects in biologically connected countries • Reduction in species of global significance • Illegal fishing by foreign vessels • Increasing local and regional conflicts • Inappropriate management of shared resources • Potential irreversible changes in nature of LME • Transport of pollutants across the EEZs • Transboundary impacts from plumes of major continental rivers and pollution in large bays • Extra-regional transport of dust, POPs and other contaminants to the region • Negative impact of pollutants on shared living resources • Loss of feeding, spawning and nursery grounds for species with transboundary distribution • Loss of genetic and biological diversity • Loss of over-wintering mangrove and near-shore habitat for migratory species • Alteration of oceanographic characteristics arising from upstream changes in the ecosystem and climate change 	
Jurisdictional Level	Issues Contributing to Unsustainable Fishing, Pollution and Habitat Degradation
International	<ul style="list-style-type: none"> • Insufficient awareness of the value of reef ecosystems • Growing population pressure for food, employment and housing • Fishing over-capacity • Easy access to foreign markets and fluctuating global markets' demand for high value reef species • Weak and ineffective international legal/regulatory, and institutional frameworks • Insufficient adequate data and information due to irregular or no monitoring and assessment, particularly in light of global climate change impacts
Regional/Subregional	<ul style="list-style-type: none"> • Weak and ineffective institutional frameworks for governance of the shared marine resources of the Wider Caribbean Region • Lack of consensus in the use and management of shared resources resulting in limited harmonization of policies and laws between and among sectors at the regional level • Insufficient harmonization of policies and laws between and among sectors at the sub-regional level • Inadequate institutional, policy and legal frameworks for effective ocean governance, fisheries and integrated coastal zone management at the regional/subregional levels • Inadequate and insufficient information on the biology, economic and social importance of the shared living marine resources of the Caribbean, particularly in light of climate change impacts • Lack of EEZ delimitation boundaries by many countries in the region • Limited appreciation of value and vulnerability of ecosystems and their services at the regional/subregional levels • Limited incentives/disincentives for sustainable fisheries at the regional/subregional level • Limited research, monitoring, enforcement, surveillance and compliance with existing laws • Insufficient technical, human and financial capacity • Cultural differences, poverty, Illiteracy affecting societal prioritization of use of reef resources • Growing population pressure for food, employment and housing across the region

National	<ul style="list-style-type: none"> • Growing population pressure for food, employment and housing at the national level • Failure to integrate environmental considerations in national development plans due to lack of appreciation of value and vulnerability of ecosystems and their services • Limited harmonization of policies and laws between and among sectors • Weak and ineffective legal/regulatory and institutional frameworks or fisheries and coastal zone management • Limited monitoring, enforcement, surveillance and compliance with existing laws • Insufficient stakeholder involvement and public awareness in national level decision-making • Open access nature of fisheries and lack of priority for the fisheries by national governments • Inadequate national level knowledge of artisanal fishing effort • Inadequate and insufficient information on the biology, economic and social importance of each of the major fisheries and other marine resources under national jurisdiction • Insufficient technical, human and financial capacity • Need for foreign exchange • High level of investment in fishing and fishing infrastructure at the national level • Growing export demand and easy access to foreign markets • Need for adequate returns on investment • Poverty , illiteracy affecting societal prioritization of use of reef resources at the national level
Local	<ul style="list-style-type: none"> • Insufficient stakeholder involvement and public awareness limiting opportunities for input into higher level decision-making processes • Lack of appreciation of value and vulnerability of reef ecosystems and their services • Lack of adequate data and information due to irregular or no monitoring and assessment at the local level • Insufficient technical and financial capacity • Opportunistic approach to fishing and lucrative nature of high value fish • Lack of incentives/disincentives for sustainable fisheries at the local level • Growing local demand exacerbated by lack of alternative food source and increasing population • Need for adequate returns on investment • Poverty and illiteracy affecting societal prioritization of use of reef resources at the local level • Lack of training opportunities for alternative employment

4.3 Implications for other project components

4.3.1 Governance components

Advances in the development of regional governance arrangements have already taken some of the governance activities proposed by the PDF-B forward. From the perspective of the CLME Project, these can be viewed as having kept up the momentum that was gathered in the PDF-B and also as setting the stage for the proposed governance work in the FSP. However, the main aim of the of the governance components of the CLME Project, to get ocean governance in general and fishery ecosystem governance in particular on the agendas of the major regional intergovernmental organizations remains to be pursued. This includes the development of science-policy interfaces to serve these organizations as well as the marshalling of information to support the interface. The latter function will be addressed in the next section.

Close collaboration with the ACS and its Caribbean Sea Initiative, including the development of the Caribbean Sea Commission, should remain a high priority for the CLME Project as indicated in the PDF-B. The CSC, if it develops as planned in the recent Expert Consultation

(ACS/CERMES-UWI 2010), can provide a means of ensuring sustainability of the process of governance that will be developed by the CLME Project and that will be included in the SAP.

The development of a functional science-policy interface requires a dialogue with the target audience of policy-makers (e.g. Rosenström, 2006). This dialogue is needed to determine the kinds of information that they would find useful and to which they would be willing to give consideration at policy-making fora (Watson 2005). It is also needed to better understand the most appropriate form for the needed information (Cimorelli and Stahl 2005). It is also important to gain an understanding of the perceptions of policy-makers regarding the role of science in policy-making in order to try and develop an interface that makes the best use of scientific information in a transparent way (Lahsen 2009). This dialogue was a significant part of the CLME Project component on 'Strengthening Regional Governance'. Clearly, the context for this initiative would now include an emphasis on achieving EBM, although this was always seen as an important aspect of the CLME Project as it is one of the WSSD targets.

4.3.2 Monitoring and reporting component – The Regional Environmental Management Framework (REMP) and the Information Management System (IMS)

The Monitoring and Reporting component of the CLME Project consists of the Regional Environmental Management Framework (REMP) and the Information Management System (IMS). Thinking on this has evolved somewhat since the PDF-B phase. Initial discussion with IOCARIBE and other partners suggested the need to develop a system that would be an integral part of a regional science policy interface and which would be demand driven. This topic was addressed at the 2008 EBM symposium and again at the CSC Expert Consultation in 2010. There is growing consensus among regional partners regarding the preferred nature of the Monitoring and Reporting system that would be most useful. Following is a brief description regarding what has been proposed. It is suggested that it would be most appropriate for the CLME Project to support this approach.

The regional Monitoring and Reporting system is seen as comprising the 'Data and Information' stage of a regional policy cycle or cycles linked to regional intergovernmental organizations such as SICA, CARICOM, OECS and the ACS-CSC, with the latter providing an overarching policy forum for ocean governance in the entire region as discussed and agreed by the majority of regional partners at the Expert Consultation on the CSC in July 2010. Clearly, the regional Monitoring and Reporting system should be fully accessible to the policy cycles of all these organizations. It is seen as a process or mechanism rather than a product. The mechanism is seen as consisting of a regional network of data and information gatherers and analyzers that would provide access to their data and information through a central portal where adequate metadata would be located to allow users to know what was available. The COIN Atlantic system described by Butler et al (in press) is suggested as an appropriate model for the WCR.

A diagrammatic representation of the proposed structure is shown in Figure 16. It shows the role of the two CLME Project components the regional monitoring and reporting system (REMP and IMS) and the Regional Governance in creating the interface between the many stakeholders who generate and manage data and information that is valuable for ocean governance.

It is important to recognize that the data and information providers in Figure 16 are also seen as partners in providing the expertise needed for analysis and interpretation. The value of a distributed data and information system such as the one depicted is that each partner is responsible for acquiring and maintaining their own data. A partner may allow full access to their data or may set limitations of what it can be used for, the level of analysis of the data prior to access, etc. There is wide recognition in this region that many technical agencies have been conducting research and monitoring exercises leading to large quantities of good data and information, but that the policy impacts of these have been low. Therefore, it is expected that most will be willing partners who will also contribute expertise to analysis and synthesis. The system would be available to multiple users and would therefore gain widespread support among regional organizations.

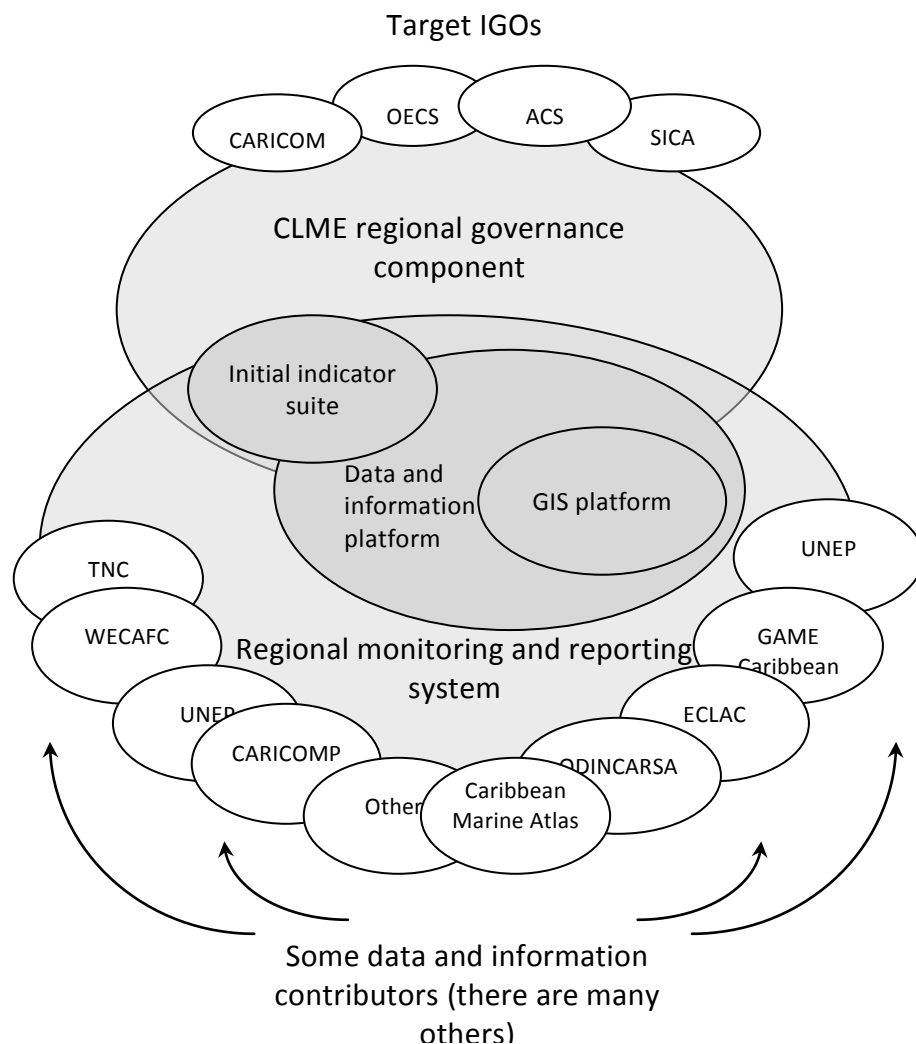


Figure 16. Proposed structure of the data and information mechanism

The type of system described above is seen as particularly appropriate in the case of the WCR where there is a high degree of complexity both in the ocean governance issues and in the network of institutions and organizations that will address these issues. It has frequently been recognized that the vast amount of information that is available on ocean issues cannot be held in a centralized system. The costs of acquisition and maintenance would be prohibitive. Consequently, a system that is flexible and open, allowing access to the data and information held by stakeholders according to their conditions is perceived as being most likely to serve the needs of the ocean governance network. A system of this type allows for policy cycle managers to access the information and expertise needed to address recurrent issues or new ones. Thus the system is seen as promoting capacity for adaptation and transformation.

Note also that there are potential synergies with the ‘Regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects’ that is due to get underway shortly as per the recommendations of the 64th UNGA²¹. The IOC is central to the implementation of the regular process.

5 Future activities in ocean governance in the CLME Project

The review of the governance aspects of the PDF-B and of advances in living marine resource governance in the WCR since the completion of the PDF-B point to certain key activities as being of value in furthering understanding of regional governance and in developing options for a Regional Governance Framework for consideration in the Strategic Action Programme. These include:

- Developing linkages with the major IGOs to determine the most useful and desirable inputs for policy making (in collaboration with the relevant fishery bodies).
- Liaising with the Monitoring and Reporting component to develop those inputs and deliver to IGOs
- Using TWAP methodology to assess fishery ecosystem governance arrangements in all three ecosystems (in collaboration with the pilot projects)
- Assessing the relationships among the regional organizations that are engaged in LMR governance
- Use above information to propose appropriate governance options for SAP

²¹ UNGA A/64/347 for Sixty-fourth session Item 78 (a) of the provisional agenda Oceans and the law of the sea -- Report on the work of the Ad Hoc Working Group of the Whole to recommend a course of action to the General Assembly on the regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects.

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Appendix 1: Terms of reference

SPECIFIC DUTIES

- a) The international consultant should use the information prepared during the PDF-B phase of the CLME project with emphasis on the preliminary Transboundary Diagnostic Analysis (TDA) developed for the Guianas-Brazil, Central America and Insular Caribbean subregions and based on that;
- b) Review information from other sources relevant to updating the governance and stakeholders analysis with focus on the fishery ecosystems (continental shelf, pelagic and reef ecosystems) as the focus of the revised TDA;
- c) Review the iterative processes of the basic policy cycle and identified how the processes involved in these iterative cycles are formulated and implemented²².
- d) Compile and review legal and institutional arrangements and international agreements currently in place in the CLME region with focus on the three fishery ecosystems (continental shelf, pelagic and reef ecosystems);
- e) Identify the transboundary cooperation through the regional and subregional bodies available in the CLME region;
- f) Coordinate and use feedback from the consultants preparing the gap filling analysis for continental shelf, pelagic and reef ecosystems fisheries.
- g) Conduct a governance and stakeholder analysis to provide the baseline for:
 - Current understanding of the interconnectedness of fisheries and aquaculture chains, and the many scales at which the chain functions;
 - Demonstrate the diversity, complexity, and dynamics of both the natural and human systems involved in transboundary living marine resource governance, especially as it relates to their predictability and controllability;
 - The need to involve the multiplicity of stakeholders/governors in fisheries governance, as it relates to their influence and the implications of excluding them;
 - Warn about challenges faced by fisheries governance that exceed the carrying capacity of the ecosystem and of management systems;
 - Address trade-offs among the governance issues that must be taken into consideration, such as ecosystem health, livelihood and employment, social justice, and food safety and security;
 - Examine possible approaches to assessing the the governability of the three fishery ecosystems
 - Identifying and list a preliminary base line of existing examples for governance at local, national and regional levels like fishing quotas, stock analysis, exclusive fishing rights, seascape planning, marine protected areas schemes, community base management, international agreements, concessions, legal harmonization among others;

²² The Basic Policy Cycle underlies adaptive governance and the variety of stakeholders, inputs and processes that may be involved depending on the purpose of the cycle and its context

- Reassess the proposal that governance systems that use partnership and learning approaches, and are based on agreement with regard to values and principles for sustainable fisheries are most appropriate for the fishery ecosystems in question;
 - Reassess the case made in the initial TDA for governance as major issue to cope with complexity, diversity and dynamics in an inclusive and adaptive learning process, with a solid foundation of ecosystem management principles.
- h) Prepare and submit a “Governance and Stakeholders Analysis” highlighting the strengthening and weaknesses of the current governance situation in the CLME region to be included in the three forthcoming fishery ecosystem-based TDAs;

EXPECTED OUTPUTS

- a) List of relevant information to updating the governance and stakeholders analysis with emphasis on the recently agreed fishery ecosystems (continental shelf, pelagic and reef ecosystems) as the focus of the revised TDA;
- b) Revision of the iterative processes of the basic policy cycle and identification on how the processes involved in these iterative cycles are formulated and implemented²³.
- c) Updated information on legal and institutional arrangements and international agreements currently in place in the CLME region with focus on the three fishery ecosystems (continental shelf, pelagic and reef ecosystems);
- d) Updated assessment of transboundary cooperation schemes present in the CLME region through the regional and subregional bodies;
- e) Comprehensive governance and stakeholder analysis and baseline for fishery ecosystems (continental shelf, pelagic and reef ecosystems).
- f) Report on “Governance and Stakeholders Analysis” highlighting the strengthening and challenges of the current governance situation in the CLME region to provide a governance context for three forthcoming fishery ecosystem-based TDAs;

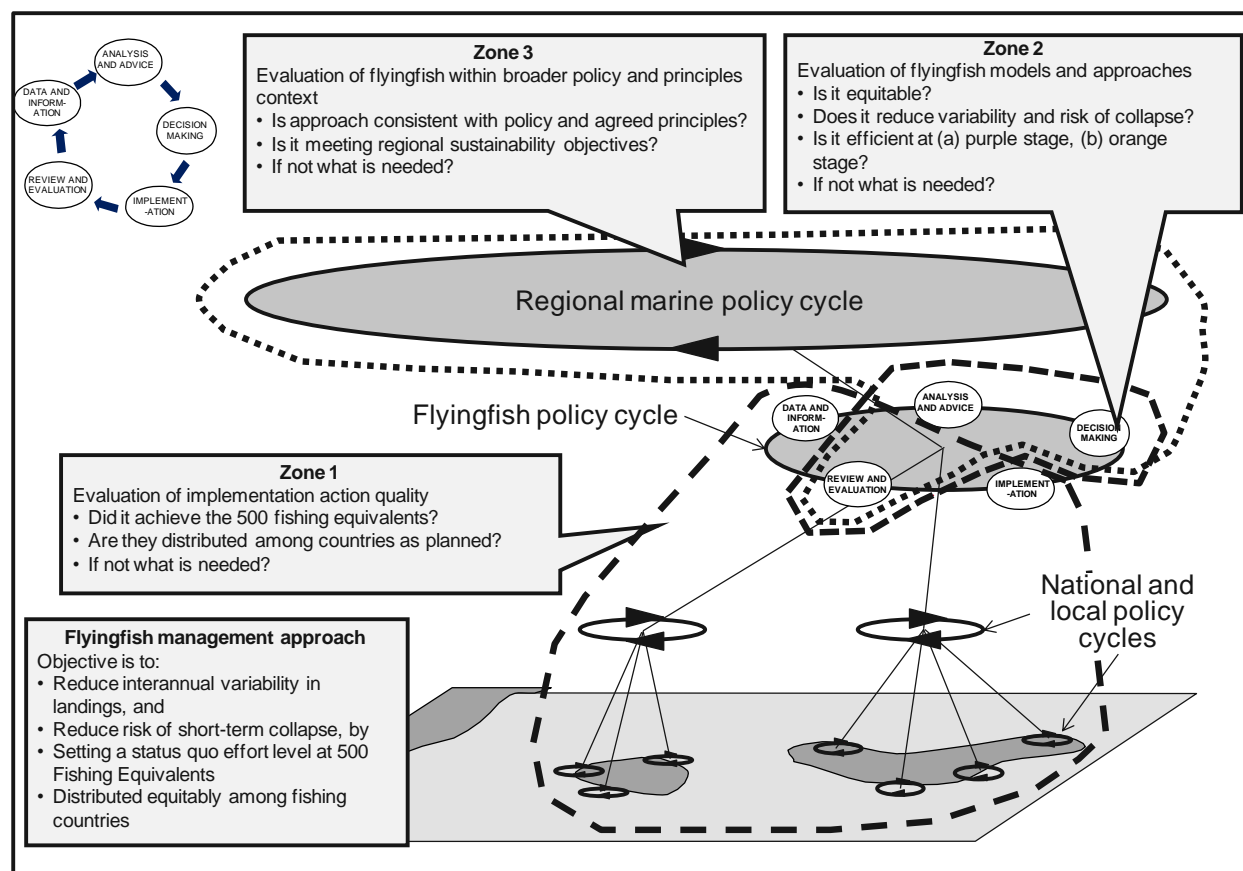
²³ The Basic Policy Cycle underlies adaptive governance and the variety of stakeholders, inputs and processes that may be involved depending on the purpose of the cycle and its context.

Appendix 2: Applications of the LME Governance Framework

The three examples provided in this appendix illustrate the application of the LME Framework to three specific Caribbean situations as a basis for facilitating and assessing governance. In each case the purpose is to show the different governance issues at policy, strategy and action levels that make up a complete governance arrangement and how these are distributed among several levels on the institutional scale that typically occur in marine resource governance.

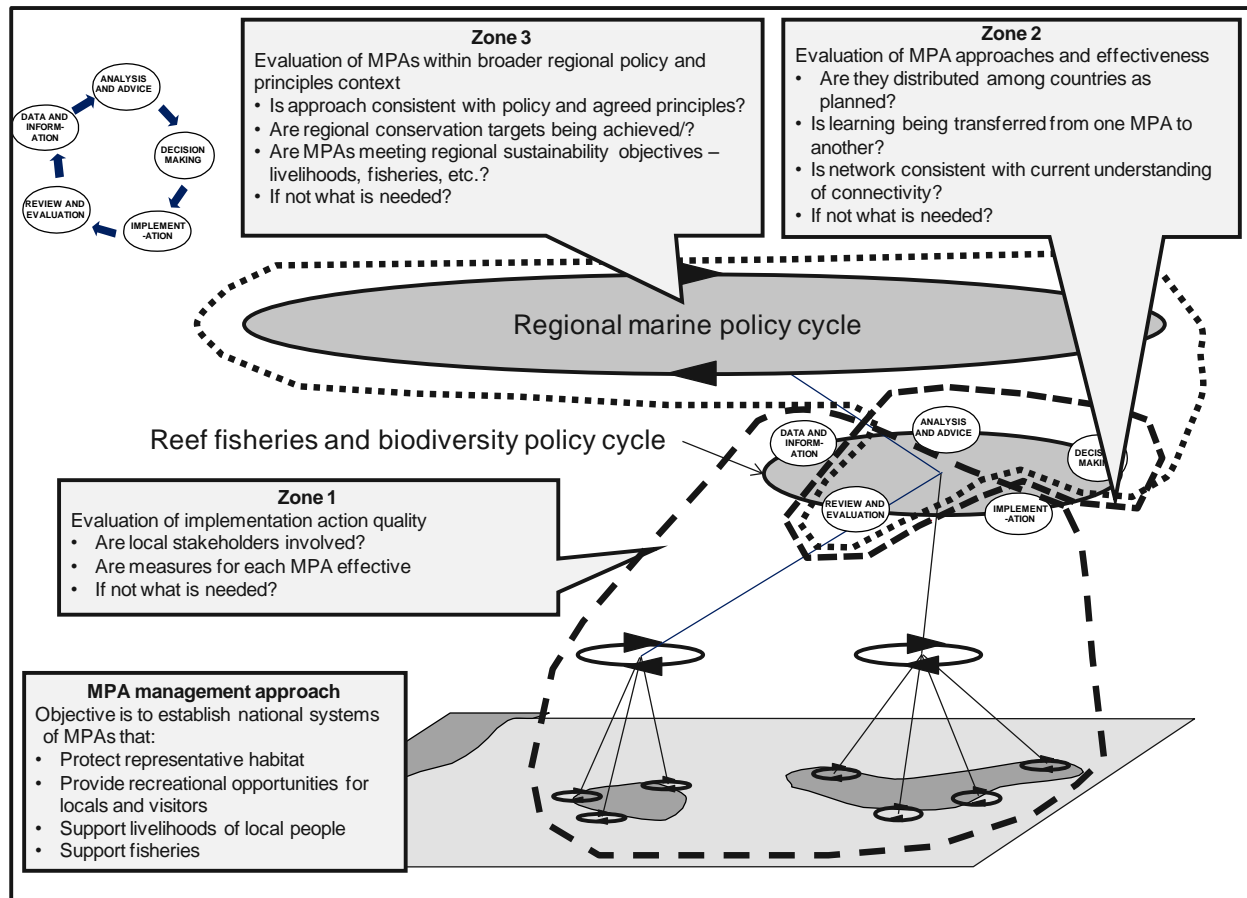
Caveat: The development and refinement of these models by the PROGOVNET and MarGov Projects for application in the Wider Caribbean Region is work in progress. The results presented here are preliminary and evolving, and thus only for discussion purposes.

In each example, the management objectives are provided in a box on the lower left. The implementation and review of actions undertaken to achieve these objectives, and of the objectives themselves must take place across different levels on the institutional scale, especially for transboundary resources. The diagrams for the three resource governance situations aim to illustrate how the various aspects of this review might be distributed among scale levels in a system where there are complete functional cycles and effective linkages.



Eastern Caribbean flyingfish fishery

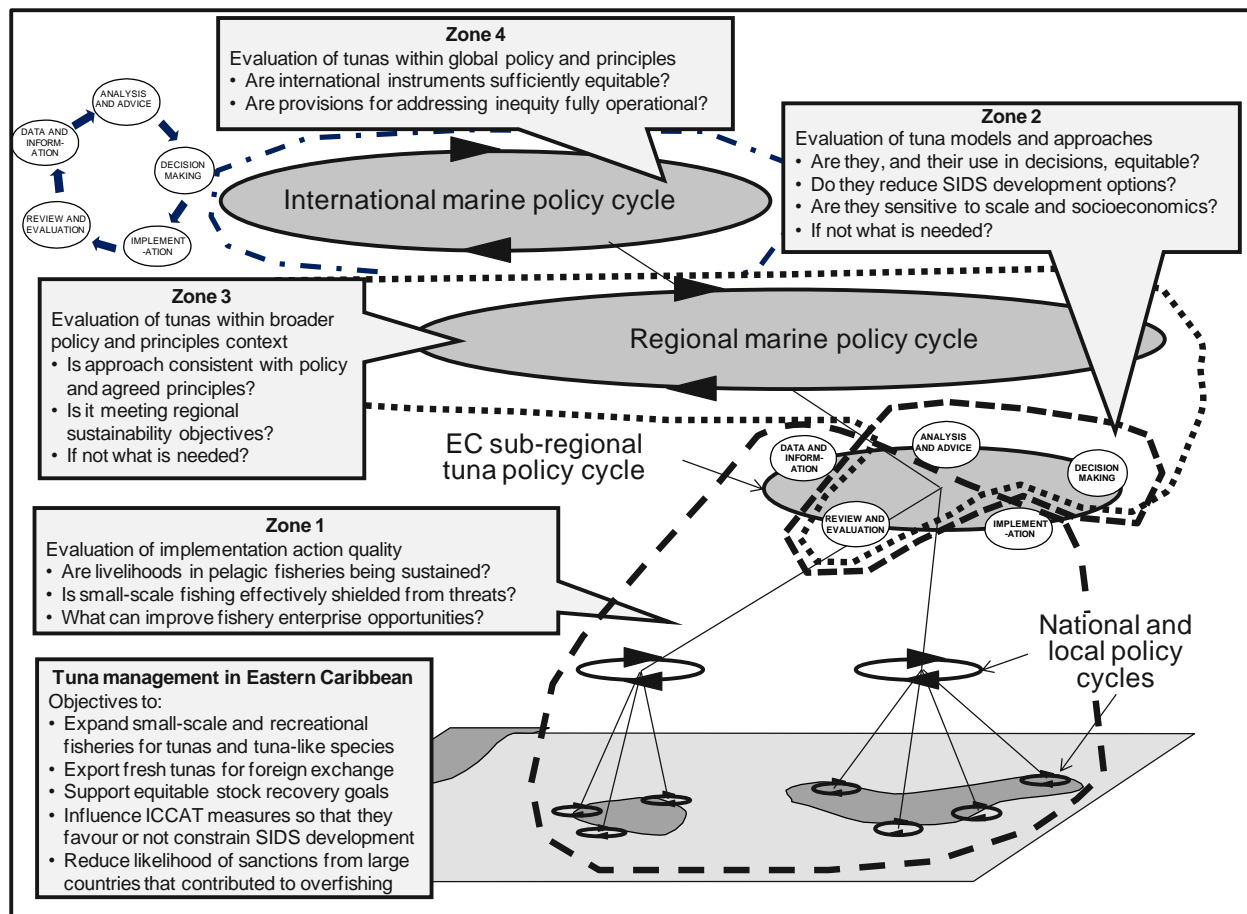
The zones are drawn to indicate the parts of the framework most involved in the particular issues listed for the zone. In each case the objectives include a mixture of conservation, social and economic issues that require resolution via high level policy intervention. In the zone below, the policy is translated into planning and instruments for implementation. Finally, there is the lowest zone where implementation actually takes place according to the plans and instruments.



Marine protected areas

In the case of the MPAs, there is a trade-off between conservation, and use, both of which appear in the objectives. There are also potential conflicts among users at multiple levels. These can only be resolved by linking or integrating multi-/cross-level policy decisions within the policy cycles. These must however be harmonized across the region for the approach to be most effective, and this demands cross-scale linkages (geographic, institutional, jurisdictional).

For example, a high-level policy decision to form a regional MPA network for biodiversity conservation will not work if some national level priorities favour tourism and the local aims are for fisheries livelihoods or food security through extraction. Even if there are complete policy cycles at each level (unlikely in this scenario) the lack of integrating linkages will result in the stakeholders at the various levels pursuing incompatible objectives that may separately seem internally consistent. Different issues and actors, but similar dynamics and dysfunctions, are evident in the tuna fisheries example below.



Eastern Caribbean tuna fisheries

Good governance in such complex adaptive systems would entail the policy cycles at each level becoming better linked and repaired in ways that reflect self-organisation and adaptive capacity in the system. This may involve destroying, innovating and re-building governance structures and institutions (see Gunderson and Holling's (2002) panarchy) several times until they become fully functional. If the system was originally close to being functional (according to whatever criteria are used), and only slight adjustments are necessary, then this could be interpreted as a demonstration of resilience. If, however, radical change must take place, then this could be an example of transformation.

Although there may be some externally generated indicators (pressure, state, process) by which we can measure and evaluate adaptive governance in systems, and hence compare across diverse systems, our experience to date points to system-generated indicators being more practically useful in governance. There are several reasons for this, mostly related to stakeholder agency in goal setting and achievement. Such agency is one of the distinguishing features of governance.

We aim to relate these concepts more to real world governance issues and examples as our thinking develops. These three scenarios provide just a glimpse of what lies ahead.

Appendix 3: TWAP Common Governance Assessment

Introduction

The Transboundary Waters Assessment Project (TWAP) methodology will address governance assessment as a common issue for all five International Waters focal area (IW) categories (groundwater, rivers, lakes, Large Marine Ecosystems (LMEs) and open ocean). It will do so by undertaking the governance assessment in two phases which will be referred to as the Level 1 and Level 2 governance assessments. The purpose of this assessment is twofold: (1) To provide a holistic picture of governance arrangements for individual water systems as a basis for discussion about how to improve governance at the system level; and (2) To provide a common approach to evaluating governance arrangements across systems to facilitate a global picture and also to facilitate allocation of resources to systems within IW categories.

The Transboundary Waters Assessment methodology for governance is part of an overall methodology that is being developed by the TWAP. The objective of TWAP is to develop scientifically credible methodologies for conducting a global assessment of the five transboundary water systems and to catalyse a partnership and arrangements for conducting such a global assessment. In addressing governance, a broad definition has been adopted; “Governance is the whole of public as well as private interactions taken to solve societal problems and create societal opportunities. It includes the formulation and application of principles guiding those interactions and care for institutions that enable them.” (Kooiman 2003). It emphasizes that governance is broader than government and includes the full range of stakeholders and interactions.

For the Level 1 assessment all five IW categories will include in their global assessments a preliminary assessment of governance arrangements for each transboundary water system. This will assess the extent to which transboundary governance architecture is in place for the system, but will not assess the performance or functionality of the arrangements. This Level 1 assessment will be about whether or not the critical transboundary issues are covered by governance arrangements that have full policy cycles. It is expected to reveal the extent to which the issues are covered, whether there are gaps or overlaps in coverage and the nature of the arrangements that are in place.

The Level 2 assessment will assess the functionality and performance of governance arrangements in terms of a fuller range of criteria such as effectiveness, inclusiveness, efficiency and equitability. This methodology remains to be developed. This can be pursued by further integrating the governance models reviewed and presented in the Transboundary Waters Assessment Medium-Sized Project (TWAP) LME governance working paper (Mahon et al 2010) and others such as the Integrated Lake Basin Management (ILBM) guidelines for lake brief preparation (Shiga University Research Center for Sustainability et al 2010) into a comprehensive assessment process. It is proposed that this be undertaken by a small working group of governance experts and IW water category experts and then applied to about 20-40 selected IW situations drawn from the five IW categories.

One of the objectives of the TWAP governance assessment methodology is to develop the approach in a way that it can be applied by key stakeholders with the water system as a self-assessment. Attention will also be paid to how the assessment can be integrated into the GEF

IW Transboundary Diagnostic Analysis (TDA)/Causal Chain Analysis (CCA)/Strategic Action Programme (SAP) methodology.

Level 1 Assessment - System governance architecture

Several steps are required to determine the governance architecture in place for a particular water system to be governed (Table 1). The whole architecture is greater than the sum of its parts, especially for integration of governance at the transboundary level. This process as summarised in Table 1 will provide a picture of: The extent to which governance issues are covered (and allow identification of gaps); the match between governance arrangements and issues; the extent to which arrangements extend outside the system; the extent to which issues are covered by multiple arrangements that could result in conflict; and, how well arrangements are clustered to make best use of existing institutions and organisations.

Table 1. Steps required to assess governance architecture in a system to be governed

Step	Key points
Identify system to be governed	Begin with a clear definition of the system to be governed. In the case of the GEF IW program the system is considered to be the entire LME or other IW area. Geographical boundaries of the system and the countries involved in the transboundary system must be clearly identified. In the case of the GEF IW program the system to be governed is considered to be the entire river basin, aquifer, lake or reservoir, LME or other IW area, or portion of the open ocean.
Identify issues to be governed	In some IW systems the issues will already have been identified through a TDA and may have been further explored through CCA. Issues may have both a topical and a geographical component.
Identify arrangements for each issue	Determine the extent to which each issue is covered by an identifiable arrangement, whether formal or informal. Must be specific to the issue and have a complete policy cycle. Each arrangement should have functionality in three modes: (1) The meta-mode (articulation of principles, visions and goals, equating to policies in ILBM parlance); (2) the institutional mode (agreed ways of doing things reflected in plans and organizations; and, (3) the operational mode if it is to be adaptive and effective. These modes may operate at different scale levels within the same arrangement hence the need for linkages within arrangements.
Identify clustering of arrangements within institutions	Examine the way that arrangements are clustered for operational purposes and/or share common institutions/organisations at different levels. Similar issues may be covered by similar arrangements. There may be efficiency in clustering these arrangements. Alternatively, clustering may occur at higher levels for policy setting or institutional efficiency, but be separated at lower levels.
Identify linkages	Identify actual and desirable linkages within and among arrangements and clusters.

IW systems are likely to involve a variety of governance issues. For the purpose of this assessment, five major categories of issues have been identified, several of which cut across IW categories (Table 2). It is expected that all arrangement level issues will fit into these categories to facilitate comparison within and among water categories

The above process will be used to reduce the governance architecture for each system to a set of scores (Table 3). These will be derived from separate assessments of the issue specific arrangements as shown in Table 4. The approaches to evaluating the arrangements may vary among systems and arrangements ranging from highly expert judgment based to being based on extensive analysis of multilateral agreements, protocols, institutional constitutions and other instruments, supported by sound science and knowledge of stakeholder opinion. This allows for considerable flexibility in approach within each system, but will also mean that the final summaries for the systems will be based on widely ranging degrees of analysis. For this reason it is important that there be provision in the system for extensive annotation in foot or endnotes, so that the user can understand what went into each analysis. The arrangements for clustering and linkages will be reflected in a matrix showing interactions among arrangements. Further development of this aspect of the assessment is to be the subject of a workshop to be held at Dalhousie University in March 2011.

Table 2. The major categories of issues for IW water categories

Issue category*	IW water category				
	Ground-water	Lakes	Rivers	LMEs	Open Ocean
Water quantity	√	√	√		
Water distribution	√	√	√		
Water quality	√	√	√	√	√
Fisheries		√	√	√	√
Biodiversity	√	√	√	√	√
Habitat destruction		√	√	√	√
Climate change mitigation					√

*Impacts of and adaptation to climate variability and change may be integrated in each issue category.

Climate change vulnerability is recognized as being a component of all the above issues. It is expected that as these issues are unpacked and the arrangements are examined, the vulnerabilities to climate change will be made explicit in each issue. Similarly, it is assumed that governance responses will include adaptation.

It should be noted that while the conceptual basis for this methodology is well accepted, the methodology itself is being developed for this purpose and has not been previously used or tested. Therefore, its application will be exploratory and its further development with respect to both purposes above should be an integral part of its application.

Table 3: GEF IW transboundary system governance architecture - System summary²⁴

IW category:			Total number of countries:	System name:		Region:
Transboundary issue ²⁵	Number of countries ²⁶	Priority for countries ²⁷	Descriptive or commonly used name for the governance arrangement ²⁸	Complete-ness of governance arrangement ²⁹	Priority for intervention to improve governance ³⁰	Observations ³¹
1						
2						
3						
4						
..n						
Governance index ³²						

²⁴ This page provides an overview of all the arrangements in the system and their status.

²⁵ There is the question of how far down in detail these should go. This can be a matter of choice, and part of the flexibility of the system, but it should ideally be to the level where the transboundary issue requires a separate arrangement for management? To use a fishery example individual species or groups of species may each require their own assessment and measures, but may all be handled in one institutional arrangement. However, for geopolitical reasons some species or groups of species may require separate processes and should be treated as separate issues needing separate arrangements. Ideally, these issues should be identified and quantified in a TDA. If not, experts knowledgeable about the system may have to ID them.

²⁶ Indicates how many of the total number of countries are involved in the particular issue.

²⁷ This should be based on the TDA but may have to be based on expert judgement. To be scored from 0-3.

²⁸ Ideally this would be the name used by the participants in the arrangement

²⁹ The score given in this column will be derived from the scores allocated on the arrangement specific page. This would preferably be a mathematical derivation weighted by importance of the functions there, but could be an overall expert assessment based on what is there.

³⁰ This would be a combination of the national priority for the issue and its status (possibly weighted by some country statistic).

³¹ This provides the opportunity for brief comments that may help the user interpret the information provided on the summary page, but is not intended to be a substitute for annotation.

³² Weighted average based on priority?

Table 4: GEF IW transboundary system governance architecture - Arrangement summary

Arrangement:		Issue:			
Governance function ³³	Responsible organisation or body ³⁴	Scale level or levels ³⁵	Complete-ness ³⁶	Priority for attention ³⁷	Observations ³⁸
Meta level - preparation of policy advice					
Meta level - Policy setting or decision-making					
Policy cycle - preparation of management advice					
Policy cycle - Management decision-making					
Policy cycle - Implementation					
Policy cycle - Review of implementation at strategic and operational levels					
Policy cycle - Provision of data and information					
Total ³⁹					

³³ This column list the governance function that are considered to be necessary at two levels (a) the policy setting level and (2) the policy cycle level.

³⁴ Organisation or organisations responsible for the function should be listed here

³⁵ These are the institutional scale level or levels at which the function is performed

³⁶ Rate on a scale of 0 = absent, 1 = low (*ad hoc*, irregular, unsupported by formal documentation or little known by stakeholders) , 2 = medium, 3 = high (clearly identifiable, regular, documented or supported by policy and legislation and widely known among stakeholders)

³⁷ This is aimed at within system assessment of where to intervene rather than at contributing to the global comparative assessment

³⁸ This provides the opportunity for brief comments that may help the user interpret the information provided, but is not intended to be a substitute for annotation.

³⁹ Assume each step is equally important and receives equal weighting?

Level 2 Assessment - Performance of governance arrangements

The Level 2 assessment will evaluate the functionality and performance of governance arrangements according to agreed criteria. Within a single IW system, the arrangements needed may differ considerably among issues and have to be tailored to the specific context or need. The Level 2 assessment should be carried out in collaboration with the organizations involved in governance so as to be sensitive to the specific context of the system to be governed. Mahon et al (2010) provides the conceptual background to what might be involved in examining the component parts or governance arrangements within selected transboundary water systems.

The governance arrangement provides an appropriate assessment unit for governance performance. The Level 2 assessment will focus on systems that are sufficiently complete that there is some level of planning and review, and thus the setting of goals and objectives against which to assess governance performance. It will assess the presence, appropriateness, completeness and functioning of policy cycles according to agreed criteria and against agreed objectives. Which of these will be most useful will depend on the nature of the cycle, e.g. whether it is formalized at the organisational level with documentation, or informal and established mainly through practice. Each of the desired criteria can be give scores in a scale depending on stakeholder responses, expert judgment or measured outputs.

Linkages within governance arrangements as well as between them are a critical component of the governance system. These can be examined from various perspectives to see what role they play in the functionality of the arrangement. One may investigate whether the linkages are bidirectional and therefore facilitate feedback for adaptation. The nature of the interactions is also relevant. Are they for information exchange only, or do they include aspects of stronger interaction such as cooperation or control? A discussion of the criteria that can be used in assessing functionality of governance arrangements is provided by Mahon et al (Appendix). Ehler (2003) provides a comprehensive list of governance performance indicators that can be applied as appropriate in assessing policy cycles, while Shiga University Research Center for Sustainability et al (2010) present a series of diagnostic questions that can be considered in evaluating water resources governance.

The Governance Working Group to be formed to develop and oversee the Level 2 assessment should be drawn from a diversity of individuals and organizations that are actively working on concepts and applications of governance in natural resource systems. Some examples would be the Earth System Governance Project, The Resilience Alliance, the Fisheries Governance Network and the Program in Water Conflict Management and Transformation (PWCMT) (Oregon State University). This WG should include members from all five IW water categories.

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