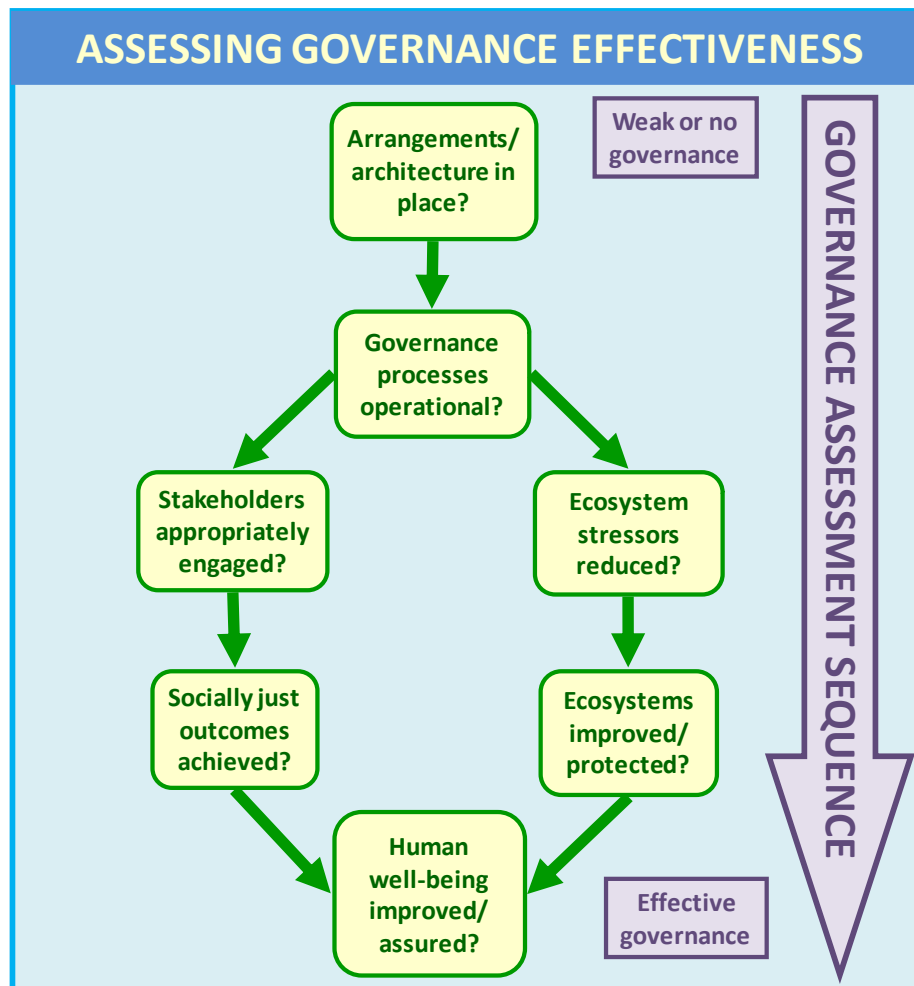# Governance assessment methodology for CLME pilot projects and case studies

R. MAHON, L. FANNING AND P. MCCONNEY

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

Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions

2012

Governance assessment methodology for CLME pilot projects and case studies

Robin Mahon[1], Lucia Fanning[2] and Patrick McConney[1]

[1]Centre for Resource Management and Environmental Studies (CERMES), University of the West Indies, Cave Hill Campus, St. Michael, Barbados, 246-417-4570, Fax 246-424-4204, rmahon@caribsurf.com, www.cavehill.uwi.edu/cermes

[2]Marine Affairs Program, Dalhousie University, Halifax,Nova Scotia, Canada B3H 3J5, Lucia.Fanning@gmail.com

Cite as:
Mahon, R., L. Fanning, R. and P. McConney. 2012. Governance assessment methodology for CLME pilot projects and case studies. Centre for Resource Management and Environmental Studies, University of the West Indies, Cave Hill Campus, Barbados, CERMES Technical Report No 53 (English): 20p.

Contents

Summary

The Caribbean Large Marine Ecosystem and Adjacent Areas (CLME) Project has identified weak governance as a root cause of the problems facing these social ecological systems (SESs). Therefore, the CLME Project has a strong emphasis on assessing LMR governance systems and on proposing ways of strengthening them.

This document outlines the approach to governance assessment that was used to assess a variety of SES situations in the CLME Project area as reflected in the CLME Case Studies and Pilot Projects. The methodology was adapted from the methodology developed for the GEF Transboundary Waters Assessment Programme (TWAP). This is based on a multilevel, policy-cycle-based Large Marine Ecosystem (LME) Governance Framework that incorporates and addresses the issues of scale, complexity and interaction inherent in most LMEs. The methodology also builds on the initial three categories of GEF IW indicators and adds four other categories as shown below:

- Governance architecture (new)
- Process indicators (initial)
- Stress reduction indicators (initial)
- Environmental status indicators (initial)
- Stakeholder engagement indicators (new)
- Social justice indicators (new)
- Human well-being indicators (new)

The methodology includes two levels. The first focuses on governance architecture and the second on governance process, stakeholder engagement and social justice. The steps for the level 1 assessment are:

- Identify system to be governed
- Identify issues to be governed
- Identify arrangements for each issue
- Identify integration of arrangements within institutions
- Identify linkages.

The outcome of this process is an index of completeness for the governance complex in place to address the suite of issues identified. The process also leads to identification of the points at which the policy processes are missing stages or where these stages are weak. This in turn leads to recommendations for establishing or strengthening governance arrangements.

The Level 2 assessment is approached through a series of questions relating to principles that are considered to be important for governance processes, stakeholder engagement and social justice: accountability, adaptability, appropriateness, capability, effectiveness, efficiency, equity, inclusiveness, integration, legitimacy, representativeness, responsiveness, and transparency. The outcome of this assessment is an indication of where these principles may be inadequately reflected in processes, and thence to a discussion of and recommendations for how to better incorporate and strengthen them.

1   Introduction

1.1   The CLME Project

The Caribbean Large Marine Ecosystem and Adjacent Areas (CLME) Project aims to improve management of shared living marine resources (LMRs) within the Wider Caribbean Region (WCR)[1]. The Transboundary Diagnostic Analyses have identified weak governance as a root cause of the problems facing these social ecological systems (Mahon et al 2011a). Therefore, the CLME Project has a strong emphasis on assessing LMR governance systems and on proposing ways of strengthening them.

The approach to LMR governance in the CLME Project recognizes the realities of geographical and organisational scale that are prevalent in the WCR. Effective governance arrangements must be developed at the appropriate geographical scale and must involve actors at multiple organisational scale levels: local, national, sub-regional and regional. There must be functional interaction among the actors at these levels. At the sub-regional and regional levels the current reality of ocean governance in the Caribbean is a diversity of networks of actors serving various purposes. These do not always interact effectively and may not provide full coverage of key issues. 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 at levels up to the ecosystem scale of the CLME.

1.2   LME Governance Framework

In the process of developing the CLME Project, the countries of the Caribbean region adopted[2] a multilevel, policy-cycle-based Large Marine Ecosystem (LME) Governance Framework that incorporates and addresses the issues of scale, complexity and interaction discussed above (Fanning et al., 2007). This differs from the conventional LME Approach in that it puts governance as overarching, rather than treating it as one of five LME modules: productivity, fish and fisheries, pollution and ecosystem health, socioeconomics and governance (Fanning et al., 2009, Mahon et al 2009). A strength of the LME Governance Framework is that it recognizes and works with the current and emerging arrangements in the CLME Project area.

Using this framework, the long-term governance goal for the CLME Project area is "fully-functional policy cycles at all appropriate levels with the appropriate vertical and lateral linkages" (Fanning et al 2007). The framework is useful in that the long-term goal can be approached incrementally with interventions targeting specific parts of the framework and aimed at establishing or completing policy cycles and building or enhancing linkages. Other strengths of the framework are that it can accommodate: (a) a diversity of policy cycle arrangements and linkages, (b) the diversity of EBM approaches that currently exist, and (c) existing organizations, but it will require that they review and adjust their modes of operation and possibly structure.

1.3   CLME Project design

The CLME Project is designed to begin the process of building the Framework for the WCR through a series of targeted activities aimed at specific parts of the framework and at testing the effectiveness of

---

[1] Defined here as extending from the mouth of the Amazon River, Brazil through the Caribbean Sea and up the east coast of North America to Cape Hatteras. This corresponds closely with the wider Caribbean region as defined in the Cartagena Convention.

[2] The LME Governance Framework was adopted by the CLME Steering Committee and also by the Caribbean Sea Commission.

the LME Governance Framework concept (Fanning et al., 2009). The full implementation of the LME Governance Framework in the CLME Project area can be expected to take several decades and 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.

The aforementioned line of thinking has underlain the development of the CLME Project, which is designed as a set of 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 living marine resource governance. It also aims to explore the Framework approach and to provide guidance on how it may be improved, redesigned, and made more effective—a learning component. The activities that will be carried out in the CLME and Adjacent Areas Project are summarized in a single diagram (Figure 1). The main aim of each activity is shown, as well as the area of the network on which it focuses.

The CLME Project Approach:
Building a multi-level policy-cycle based governance framework
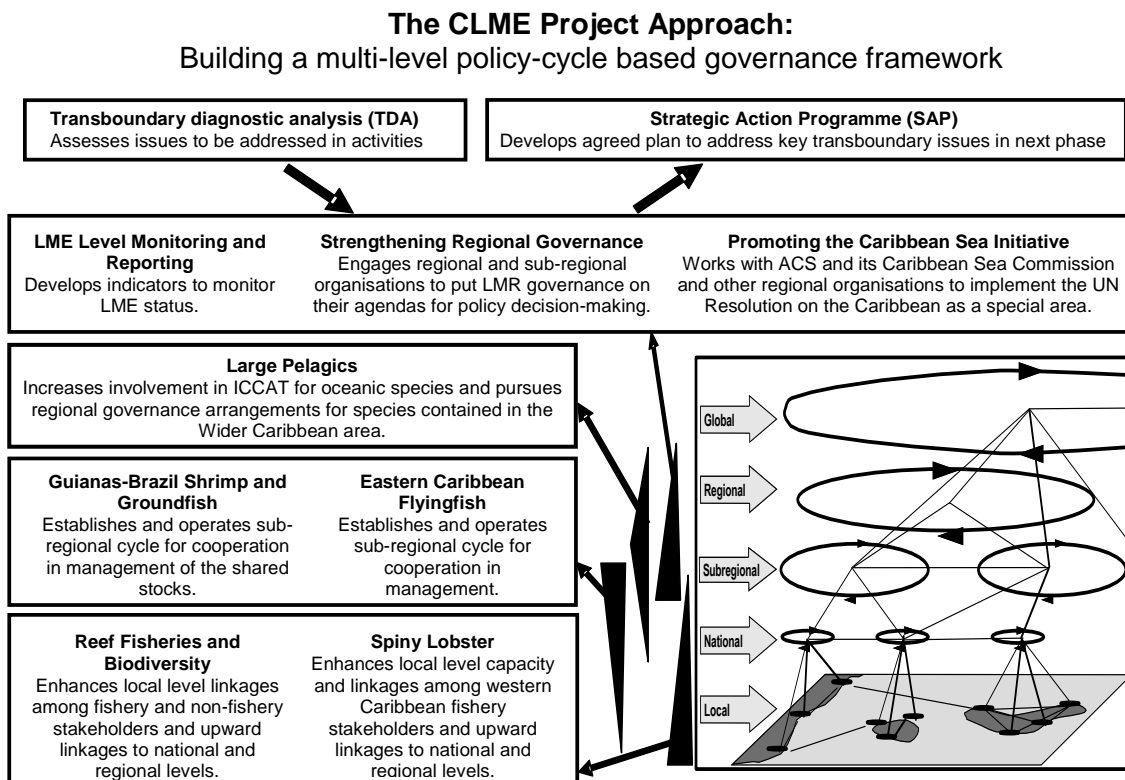
Figure 1. The linkages between CLME Project activities and the LME Governance Framework upon which they are based (after Fanning et al. 2009)

1.4   Purpose of pilot projects and case studies

The purpose of pilot projects and case studies is to explore and understand various key parts of the framework in a 'learning-by-doing' mode. They will explore how the approach of developing functional policy cycles and linkages in various parts of the framework could lead to improved transboundary LMR governance in the WCR, particularly how an ecosystem approach can be incorporated. These projects have been designed to encompass the full range of transboundary LMR situations with emphasis on different level of the framework and different geographical regions of the WCR (Figure 1).

These pilots and case studies will be approached through a common methodology that must be flexible enough to accommodate the diversity of situations that they reflect. This paper describes that methodology which was refined and applied throughout the CLME Project as a basis for input to the Strategic Action Programme (SAP).

1.5 LMR governance assessment approach

The LMR governance assessment approach for the CLME project builds on the methodology developed by Mahon et al (2011b, 2011c) for the Transboundary Waters Assessment Programme (TWAP). TWAP is a GEF project to develop indicators for monitoring all aspects of the projects in The GEF's International Waters (IW) portfolio. The discussion and methodology paper by Mahon et al (2011c) addresses the assessment and monitoring of governance. The focus of the governance assessment methodology in the TWAP is on the Large Marine Ecosystem (LME) component of the IW Programme. However, the approach and methodology were developed for the entire GEF IW programme (Mahon et al 2011b). To a large extent it was based on experience gained in the initial development of the CLME Project and is therefore considered appropriate for adaptation and application to the CLME Pilot Projects and Case Studies.

Mahon et al (2011b) expressed concern that the GEF IW Indicators approach that is used as the basis for assessment and monitoring of GEF IW projects (Duda 2002), is missing some categories of indicators that are critical for the assessment of effective governance for sustainable development. Duda (2002) proposed three types of indicators: (1) Process Indicators, (2) Stress Reduction Indicators and (3) Environmental Status Indicators. Together these are seen as successive stages of assessing the performance of governance measures (Figure 2). However, in that scheme the emphasis is largely on the environment or ecosystem.

For the indicator scheme to be in accord with current thinking regarding governance there is the need to include new categories of indicators for governance (Figure 2). The first of these is architecture (Biermann et al 2009). This provides the context for assessment of process. In order for the assessment to be appropriate for sustainable development, there is the need for indicators for social justice and human well-being that are in tandem with those for environment (Figure 2). Thus, in Figure 2 the overall outcome to be assessed is human well-being which is seen as including the achievement of ecosystem sustainability as well as social justice (Alcamo et al 2003, Daw et al 2011). Table 1 provides explanatory notes for Figure 2.

Figure 2. The expanded GEF IW indicator framework. The original GEF IW indicator categories (Duda 2002) are shaded in gray. The additional indicator categories are unshaded. Architecture is seen as a necessary basis for assessing process and stakeholder engagement and social justice are seen as essential components of human well-being.

A full governance performance assessment would include all the components shown in Figure 2. The majority of effort in GEF IW Projects has gone into developing indicators for stress reduction and environmental status. In developing the methodology for the GEF IW systems and in adapting it to the
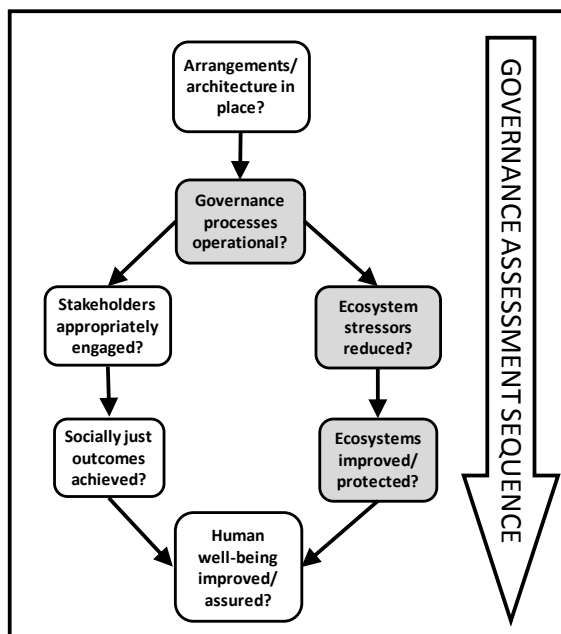
CLME Project the emphasis has been on the governance architecture, and on process indicators with reference to stakeholder engagement and other aspects of social justice.

Table 1. Relationship of a governance performance assessment to GEF IW indicators in Figure 2)

Indicator categories	Governance performance assessment components
1. Arrangements/architecture in place?	What institutional arrangements architecture are in place for governance? Not in original GEF IW.
2. Governance processes operational?	Are the processes required by the governance arrangement taking place as envisaged?
3. Stakeholders appropriately engaged?	Are the processes operating according to agreed principles for stakeholder engagement, including representation, legitimacy, empowerment, transparency, accountability? Not in original GEF IW.
4. Socially just outcomes achieved?	Are the processes resulting in outcomes that are according to agreed principles such as equitable sharing of benefits, reduction in poverty? Not in original GEF IW.
5. Ecosystem stressors reduced?	Did they result in a change in people's behavior with regard to how they use the system and its resources in such a way as to reduce conflicts and stresses on the system? (2) Stress Reduction Indicators in original GEF IW.
6. Ecosystems improved/protected?	If people's behavior changed to reduce conflicts and stresses, did these changes result in desired changes in the state of key variables in the system? Environmental Status Indicators in original GEF IW.
7. Human well-being improved/ assured?	Has attention to social justice and sustainability of ecosystem goods and services brought about assurance of, or improvements in human well-being and taken tradeoffs with ecosystem status into account? Not in original GEF IW.

In the CLME Project the methodology was adapted to the diversity of case studies in the CLME Project. Some are primarily transboundary in nature (pelagics, flyingfish, shrimp and groundfish) while others are more local (reef ecosystems, lobster fisheries). This required that different aspects of the methodology be emphasised when conducting the assessments.

2 LMR governance assessment methodology

The TWAP approach adopted and adapted here has two Levels (Mahon et al 2011c). Level 1 assesses governance architecture and aspects of governance processes and so covers component 1 in Table 1 fully and component 2 to some extent. A methodology has been developed for this and is described below. Level 2 will assess aspects the performance of the arrangements identified in Level 1 (Figure 3). No methodology was developed for this in the TWAP. In the case of the CLME Project the level 2 assessment is limited to the extent to which the processes in the arrangements identified are taking place according to agreed principles (Figure 3). Consequently, the Level 2 assessment of performance for the CLME Project does address components 3 and 4 in Table 1, albeit lightly. Components 5-7 in Table 1 are outside the time-frame of these initial assessments of governance for the CLME Project pilots and case studies.

2.1 Level 1 assessment - architecture

The steps required for the Level 1 assessment are outlined in Table 2 and Figure 3.
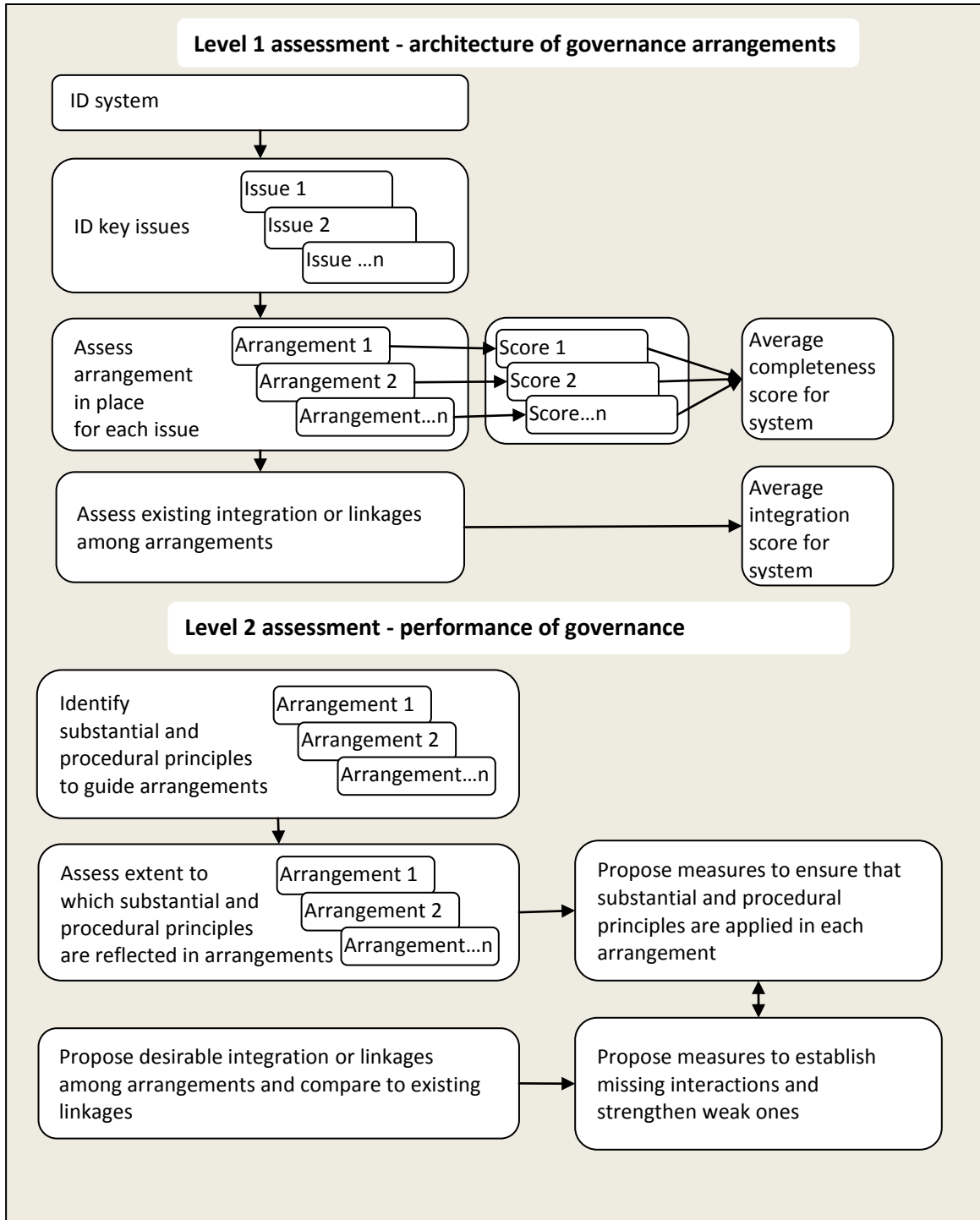
4

Figure 3. Level 1 and Level 2 process for assessing governance for CLME fishery ecosystems

Table 2. 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. Geographical boundaries of the system and the countries involved in the fishery ecosystem must be clearly identified.
Identify issues to be governed	In some fishery ecosystems, the issues will already have been identified through a TDA and may have been further explored through Causal Chain Analysis (CCA. Issues may have both a topical (e.g. habitat degradation) and a geographical component (e.g. Pedro Bank, Jamaica).
Identify arrangements for each issue	Determine the extent to which each issue is covered by an identifiable arrangement that is specific to the issue, whether formal or informal. The aim will be to evaluate the extent to which the arrangement comprises a complete policy cycle with the potential to function in three modes (Kooiman 2003): (1) Policy advisory and decision-making (principles, visions and goals are identified); (2) Management planning and decision-making (agreed ways of doing things reflected in plans and organizations; and, (3) the operational mode (covering day-to-day implementation of activities). It also examines the extent to which these modes may operate at different scale levels within the same arrangement, hence the need for linkages within arrangements.
Identify integration of arrangements within institutions	Examine the way that arrangements are integrated 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 integrating these arrangements. Alternatively, integration 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 integrated arrangements.

The assessment is based on the evaluation of issues and the arrangements that are in place to address them. The way in which issues and arrangements are perceived in this assessment methodology is further developed in Box 1.

2.1.1 Identify system to be governed

Governance of LMR must be place-based (Crowder et al 2006, Young et al 2007). Therefore, the geographical boundaries of the system to be governed (hitherto referred to as the system) and the countries involved in the system must be clearly identified as a basis for determining issues and arrangements.

2.1.2 Identify issues to be governed

Fisheries ecosystems are likely to involve a variety of transboundary issues requiring attention to governance. Four likely candidate issues for the marine ecosystems of the WCR are listed below:

- Fisheries unsustainability
- Habitat degradation
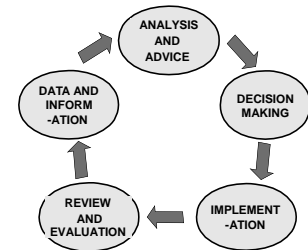- Water quality/pollution
- Biodiversity loss

The first three are the main threats identified by the TDAs whereas the fourth issue is a consequence or result of the threats being manifested. In addressing each issue, there will be the need to unpack the issue by following the drivers and pressures back to the source or root cause of the problem. This would all take place within one arrangement.

It is expected that the majority of the issues identified and associated with arrangements will fit into one of the four identified above. However, actual identification of issues must take place at the system level, at which time they may be unpacked further or elaborated upon to reflect the specific conditions in the system. For example, what is considered an issue relating to fisheries unsustainability at the level of a system such as the Pedro Bank off Jamaica may be more specific than one at the level of the entire Guianas-Brazil continental shelf.

Several additional issues are cross-cutting and are seen as being a component of all the above issues. It is expected that as the issues are unpacked and the arrangements are examined, the extent to which the crosscutting issues are addressed will be made explicit in each case. Similarly, it is assumed that governance responses will include adaptation. Key examples of these additional cross-cutting issues are:

- Climate change impacts and vulnerability
- Ecosystem-based management (EBM)
- Social justice and equitability

7

2.1.3 Identify arrangements for each issue

The Level 1 process will be used to reflect the governance architecture for each system by a set of scores for completeness of arrangements for issues (Table 3) and ultimately to a single score for completeness of architecture in the system (Figure 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. In the case of the CLME Project, every attempt will be made to ensure that the assessments are comparable among case studies and pilot projects.
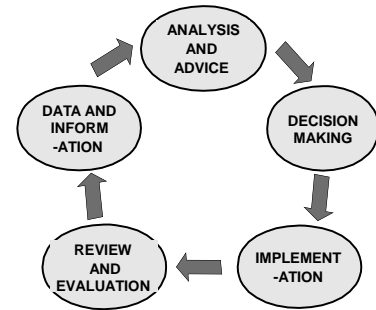
Figure 4. Stages of a basic policy cycle to be used for the proposed governance assessment methodology.

The assessment of completeness of an arrangement for an issue (Table 4) is based upon whether there are institutions or organizations with responsibility for each of the various stages of the policy cycle for that issue. For this assessment, a basic policy cycle is used (Figure 4). However, the assessment process recognises that the policy cycle must have two orders of functionality: (1) Policy advisory and decision-making, and (2) Management planning and decision-making. Kooimann et al (2005) include a third, operational order which is oriented to day-to-day problem-solving and action. In this assessment, that third order is assumed to be covered by the implementation stage of the policy cycle. These orders of function are sometimes the responsibility of different organisations (Fanning et al in prep). Thus Table 4 allows for both levels in terms of advice and decision making.

Tables 3 and 4 only provide for the identification of the bodies with formal responsibility for governance with regard to the specific issues being considered. Essentially, this provides the formal arena in which the governance process may be played out. However, governance as understood in the CLME Project includes the interactions of all the actors with interests in governance outcomes. Therefore in order to understand and assess governance processes the roles of and interactions among these actors must be considered. The first step in this process is an identification of the actors and their roles.

Table 3: CLME fishery ecosystem governance architecture - System summary[1]

IW category:	Countries:		System name:		Region:
Complete these columns then assess issues using the arrangements tables (Table 4)			*After completing the arrangements tables, complete these columns*		
Trans-boundary issue[2]	Number of countries involved[3]	Collective importance for countries involved[4]	Completeness of governance arrangement[5] % (category)	Priority for intervention to improve governance[6]	Observations[7]
1					
2					
…n					
	System architecture completeness index[8] >>				<< System priority for intervention[8]

Table notes:

[1] This page provides an overview of all the arrangements in the system and their status.

[2] 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 identify them.

[3] Indicates how many of the total number of countries are involved in the particular issue.

[4] This should be based on the TDA but may have to be based on expert judgement, or other sources of regional information. It is to be scored from 0-3.

[5] The percentage given in this column is derived from the completeness scores allocated on the arrangement specific page (Table 4). This score will then be reallocated into a category where none = 3, low = 2, medium = 1 and high = 0) for input into the Priority for intervention column. The reason for reversing the score is that the higher the completeness, the less the need for intervention.

[6] This priority would be calculated as the product of the 'collective priority for countries involved for the issue' and completeness category. It can range from 0-9.

[7] 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.

[8] Average.

Table 4: CLME fishery ecosystem governance architecture – Summary for individual issue-specific arrangements

Issue:				
Policy cycle stage (governance function)[1]	**Responsible organisation or body[2]**	**Scale level or levels[3]**	**Complete-ness[4]**	**Observations[5]**
Policy analysis and advice				
Policy decision-making				
Planning analysis and advice				
Planning decision-making				
Implementation				
Review and evaluation				
Data and information				
Overall total[6] and % completeness >>				

Table notes:

[1] This column lists the governance functions that are considered to be necessary at two levels (a) the policy setting level and (2) the policy implementation level as per Figure 4.

[2] Organisation or organisations responsible for the function should be listed here

[3] These are the institutional scale level or levels at which the function is performed (local, national, subregional, regional, extra-regional)

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

[5] 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.

[6] Assume each step is equally important and receives equal weighting. Total possible score is 21.

2.1.4   Identify integration of arrangements within systems

The assessment of integration is based on the extent to which issue specific arrangements in a system share a responsible body at various policy cycle stages. This can be determined directly by extracting the information from the arrangement summaries (Table 4) and summarized it in a table (Table 5) to facilitate comparison. The integration scores for each pair of issues at each policy cycle stage are then determined and entered into Table 6 from which average scores per issue pair or per policy cycle stage can be calculated.

The individual integration scores to be entered in Table 6 can range from zero where each of the two arrangements has a totally separate set of responsible bodies to one where both arrangements share the same responsible bodies at that stage. It is generally expected that responsibility at any stage will lie with one primary agency; however there may be situations where there is more than one agency. In such cases, it must be decided whether to give a score between 0 and 1 based on the number of agencies that are shared or simply to give a 1 if any agency is shared. For transboundary systems, in instances where the responsibility for the policy cycle stage is at the national level, the score will be 0.

Even where the responsible agency is the counterpart in each country (e.g. the Ministry of Environment) this cannot be considered to be a common agency.

There is no a priori criterion for the extent of integration that would be considered optimal. However, one would expect that without considerable attention to linkages and interaction among arrangements, a score of zero would make it difficult to have an integrated approach within a system. At the other end of the scale, in a system with highly diverse issues, one would not normally expect to find them all covered by the same responsible bodies. One could posit that it would be desirable to have arrangements share common responsible organizations at policy setting levels, but that having different responsible organizations at technical and operational policy cycle stages would be more effective and even more flexible.

Table 5. Summary of the responsible agencies for each arrangement at each policy cycle stage (from table 4)

Policy cycle stage	Arrangement 1	Arrangement 2	Arrangement 3	Arrangement 4
Policy analysis and advice				
Policy decision-making				
Planning analysis and advice				
Planning decision-making				
Implementation				
Review and evaluation				
Data and information				

Table 6. Assessment of integration among arrangements. This example is for four arrangements. Each policy cycle stage is given a score of 0 or 1 for each combination of arrangements depending on whether there is a common agency or not.

Common agency between arrange-ments	Policy analysis and advice	Policy decision-making	Planning analysis and advice	Planning decision-making	Implement ation	Review and evaluation	Data and informat-ion	Overall average
1 and 2								
1 and 3								
1 and 4								
2 and 3								
2 and 4								
3 and 4								
Average								

The outputs of this assessment of integration can be interpreted in two ways. The right hand column in the table above indicates the extent of integration among pairs of arrangements; ranging from 0-1. The bottom row indicates the extent of integration of policy cycles stages across all arrangements ranging from 0-1. The latter can be depicted as a kite diagram such as the one shown in Figure 5.
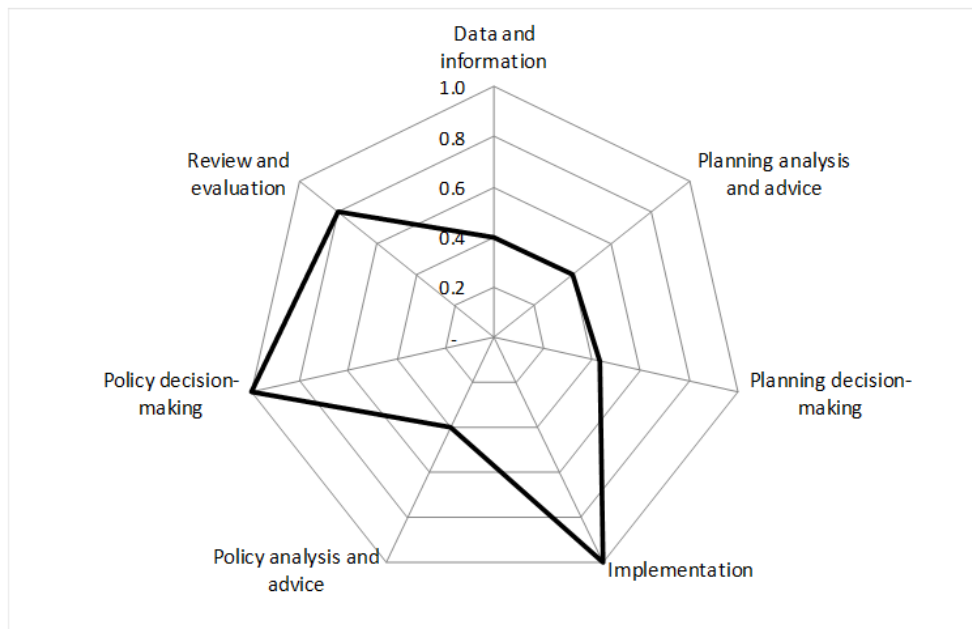
Figure 5. The extent of integration of the governance arrangements broken out by policy cycle stage (1 = full integration of responsibility for all issues).

2.2 Level 2 assessment - performance of governance arrangements

The Level 2 assessment will evaluate the functionality and performance of governance arrangements according to criteria that will be agreed by stakeholders. 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.

2.2.1 Assessment of principles

The principles that should guide the establishment and the functioning of a governance arrangement are an important part of a governance assessment. Assessing the extent to which theses principles are being observed in the processes, can provide insight into where the system may need attention. These principles can be addressed in two categories: substantial and procedural (e.g. Mahon et al 2011d). Key substantial principles are: sustainability, efficiency, rationality, inclusiveness, equity, precaution and responsiveness. Examples of key procedural principles are: transparency, accountability, comprehensiveness, inclusivity, representativeness, information and empowerment.

The assessment is based on the extent to which the policy cycles identified in the level 1 assessment are considered to be performing according to principles that have been identified as important to natural resource governance processes. In each case study or pilot, the stakeholders must decide which principles they consider to be the most important. Ideally, once the arrangements are defined, assessment of performance would consist of a group process in which stakeholders identify priority principles in both categories, and then engage in a discussion about how these are dealt with in the process and what might be required in order to ensure that the principles are addressed.

Some guidance in regard to appropriate principles for the WCR can be found in Mahon et al (2011d) where Caribbean stakeholders prioritised the principles that they thought would be most important for

EBM in the Wider Caribbean. However, each situation within the WCR is different and stakeholders must determine priorities for themselves. This aspect of the assessment is based on suites of principles developed by Lockwood et al (2008), Lockwood et al 2010, Garcia et al 2010 and Mahon et al (2011d). These include both fundamental principles and procedural principles. The latter predominate as the assessment focuses on performance of the governance process, rather than outcomes. Outcomes in terms of both pressure and state indicators, as outlined by The GEF for evaluation of its activities generally require a longer-term perspective. However, effectiveness was included as a way of determining stakeholder perception of the likelihood of good outcomes (Duda 2002). The indicators used have been adapted from a variety of sources (Ehler 2003, Abrams 2003, Adger et al. 2004, Lockwood et al. 2008, Lockwood et al 2010, Olsen 2011).

For the CLME Project assessments a default set 13 principles was selected as shown in Table 8. Representatives of the key stakeholder groups were asked to provide a score for the governance arrangement for each issue for each of the 13 principles based on the extent to which they agreed or disagreed with the statement associated with the principle in Table 8 (disagree strongly = 1, disagree =2, agree = 3, agree strongly = 4)(Appendix 3). The outputs of the assessment of principles can also be depicted as a kite diagram such as the one shown in figure 6.

Table 8. Principles assessed and the statements that were used to assess them

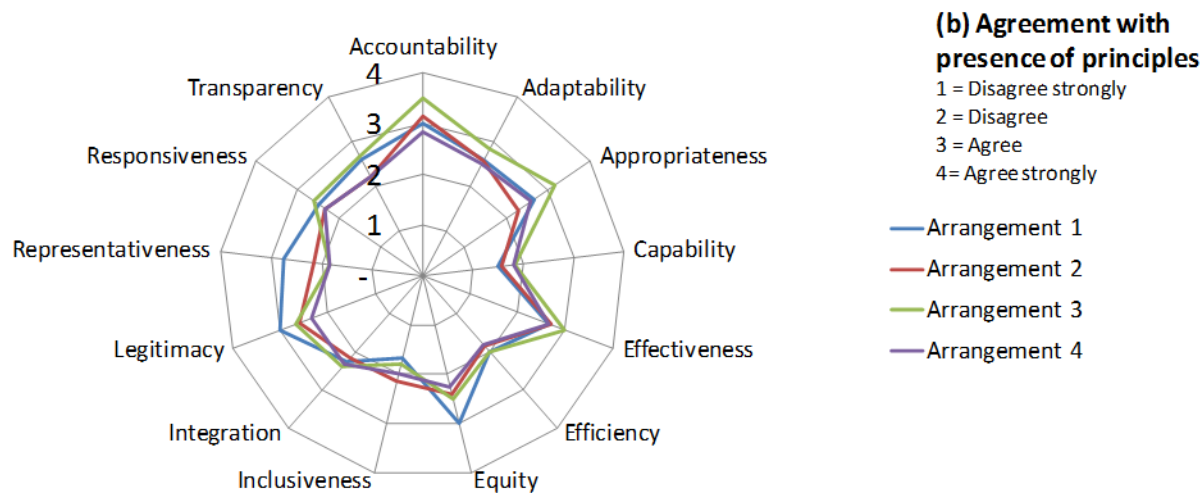| Principle	Statement
Accountability	The persons/agencies responsible for the governance processes can be held responsible for their action/inaction
Adaptability	The process has ways of learning from its experiences and changing what it does
Appropriateness	Under normal conditions, this process seems like the right one for what it is trying to achieve
Capability	The human and financial resources needed for the process meet its responsibility are available.
Effectiveness	This process should succeed in leading to sustainable use of ecosystem resources and/or control harmful practices
Efficiency	This process makes good use of the money, time and human resources available and does not waste them.
Equity	Benefits and burdens that arise from this process are shared fairly, but not necessarily equally, among stakeholders
Inclusiveness	All those who will be affected by this process also have a say in how it works and are not excluded for any reason.
Integration	This process is well connected and coordinated with other related processes.
Legitimacy	The majority of people affected by this process see it as correct and support it, including the authority of leaders
Representativeness	The people involved in this process are accepted by all as being able to speak on behalf of the groups they represent
Responsiveness	When circumstances change this process can respond to the changes in what most think is a reasonable period of time
Transparency	The way that this process works and its outcomes are clearly known to stakeholders through information sharing

Figure 6. Assessment of the extent to which desired principles are considered to be represented in the governance processes for four arrangements/issues.

2.2.2 Identify if linkages are working

The second aspect of the Level 2 assessment would be to examine the extent to which interactions deemed to be necessary for effective governance are taking place (Figure 3). This assessment on interactions should compare existing interactions as determined form the Level 1 assessment against a set of interactions that stakeholders identify as being needed for a functional governance system.

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? The extent to which they are formal or informal will also be important.

One approach to evaluating linkages would be to carry out a network analysis of interactions among main stakeholder groups based on two or three levels: sharing information, working together on activities, strategic interaction. This could illustrate where there are gaps and weaknesses.

3   Outputs of the assessment

The final outputs of the assessment for each fishery ecosystem will be an indication of where the architecture is weak or incomplete and what measures are deemed necessary in order to strengthen policy cycles, integration and interactions. These outputs are not intended to be prescriptive, but rather to provide a framework and basis for discussion of the governance arrangements for a system and the improvements needed.

4   References

Abrams, P., G. Borrini-Feyerabend, J. Gardner and P. Heylings. 2003. Evaluating governance: a
handbook to accompany a participatory process for a protected area. Parks Canada and
TILCEPA—Theme on Indigenous and Local Communities, Equity and Protected Areas of IUCN
CEESP /WCPA

Adger, W. N., N. Brooks, G. Bentham, M. Agnew and S. Eriksen. 2004. New indicators of vulnerability and
adaptive capacity. Tyndall Centre for Climate Change Research Technical Report 7, 122 p.

Alcamo, J., N. J. Ash, C. D. Butler, J. B. Callicott, D. Capistrano, S. R. Carpenter, J. C. Castilla, R. Chambers,
K. Chopra, A. Cropper, G. C. Daily, P. Dasgupta, R. de Groot, T. Dietz, A. K. Duraiappah, M. Gadgil,
K. Hamilton, R. Hassan, E. F. Lambin, L. Lebel, R. Leemans, L. Jiyuan, J-P. Malingreau, R. M. May,
A. F. McCalla, A. J. McMichael, B. Moldan, H. Mooney, S. Naeem, G. C. Nelson, N. Wen-Yuan, I.
Noble, O. Zhiyun, S. Pagiola, D. Pauly, S. Percy, P. Pingali, R. Prescott-Allen, W. V. Reid, T. H.
Ricketts, C. Samper, R. Scholes, H. Simons, F. L. Toth, J. K. Turpie, R. T. Watson, T. J. Wilbanks, M.
Williams, S. Wood, Z. Shidong, M. B. Zurek. 2003. Ecosystems and human well-being: a
framework for assessment. Island Press, London: 245 p.

Biermann, F., M. M. Betsill, J. Gupta, N. Kanie, L. Lebel, D. Liverman, H. Schroeder and B. Siebenhüner,
with contributions from K. Conca, L. da Costa Ferreira, B. Desai, S. Tay, and R. Zondervan. 2009.
Earth System Governance: People, places and the planet. Science and implementation plan of
the Earth System Governance Project. Earth System Governance Report 1, IHDP Report 20.
Bonn, IHDP: The Earth System Governance Project.

Crowder, L. B., G. Osherenko, O. R. Young, S. Airamé, E. A. Norse, N. Baron, J. C. Day, F. Douvere, C. N.
Ehler, B. S. Halpern, S. J. Langdon, K. L. McLeod, J. C. Ogden, R. E. Peach, A. A. Rosenberg and J.
A. Wilson. 2006. Resolving mismatches in U.S. ocean governance. Science 213: 617-618.

Daw, T., K. Brown, S. Rosendo and R. Pomeroy. 2011. Applying the ecosystem services concept to
poverty alleviation: the need to disaggregate human well-being. Environmental Conservation 38
(4): 370–379.

Duda, A. 2002. Monitoring and Evaluation Indicators for GEF International Waters Projects. Global
Environmnet Facility Monitoring and Evaluation Working Paper 10: 11 p.

Engle, N. L. and M. C. Lemos. 2010. Unpacking governance: Building adaptive capacity to climate change
of river basins in Brazil. Global Environmental Change 20 (2010) 4–13

Fanning, L. and R. Mahon. 2011. An overview and assessment of regional institutional arrangements for
marine EBM of fisheries resources in the Caribbean. pp 259-270. In: Fanning, L., R. Mahon and P.
McConney. [Eds.]. 2011. Towards Marine Ecosystem-based Management in the Wider
Caribbean. Amsterdam University Press, Amsterdam

Fanning, L., R. Mahon, P. McConney, J. Angulo, F. Burrows, B. Chakalall, D. Gil, M. Haughton, S.
Heileman, S. Martinez, L. Ostine, A. Oviedo, S. Parsons, T. Phillips, C. Santizo Arroya, B. Simmons,
C. Toro. 2007. A large marine ecosystem governance framework. Marine Policy 31: 434–443.

Fanning, L., R. Mahon and P. McConney. 2009b. Focusing on living marine resource governance: the
Caribbean Large Marine Ecosystem and Adjacent Areas Project. Coastal Management 37: 219 –
234.

Fanning, L., R. Mahon and P. McConney. [Eds.]. 2011. Towards Marine Ecosystem-based Management in the Wider Caribbean. Amsterdam University Press, Amsterdam, 426 p.

Fanning, L., R. Mahon, P. McConney and S. Almerigi. 2011. The Symposium on Marine EBM in the Wider Caribbean Region. pp 13-26. In: Fanning, L., R. Mahon and P. McConney. [Eds.]. 2011. Towards Marine Ecosystem-based Management in the Wider Caribbean. Amsterdam University Press, Amsterdam.

Garcia, S.M., Allison, E.H., Andrew, N.J., Béné, C., Bianchi, G., de Graaf, G.J., Kalikoski, D., Mahon. R., Orensanz, J.M. 2008. Towards integrated assessment and advice in small-scale fisheries: principles and processes. FAO Fisheries Technical Paper. No. 515. Rome, FAO. 84p.

Grafton R. Q, T. Kompasa, R. McLoughlin, N. Rayn. 2007. Benchmarking for fisheries governance Marine Policy, 31: 470–479

Lockwood, M., J. Davidson, R. Griffith, A. Curtis and E. Stratford. 2008. Governance standard and assessment framework for Australian natural resource management. University of Tasmania, Australia, 50 p.

Lockwood, M., J. Davidson, A. Curtis, E. Stratford and R. Griffith 2010. Governance Principles for Natural Resource Management. Society and Natural Resources, 23:1–16.

Mahon, R., L. Fanning and P. McConney. 2009. A governance perspective on the large marine ecosystem approach. Marine Policy 33: 317–321.

Mahon, R., L. Fanning and P. McConney. 2011a. CLME TDA Update for fisheries ecosystems: governance issues. The Caribbean Large Marine Ecosystem and Adjacent Areas (CLME) Project, Cartagena, Colombia, 113 pp.

Mahon, R, L. Fanning and P. McConney. 2011b. Observations on governance in the Global Environment Facility (GEF) International Waters (IW) Programme. CERMES Technical Report No. 45, 36 p. (www.cavehill.uwi.edu\cermes)

Mahon, R., L. Fanning, and P. McConney. 2011c. TWAP common governance assessment. Pp. 55-61. In: L. Jeftic, P. Glennie, L. Talaue-McManus, and J. A. Thornton (Eds.). Volume 1. Methodology and Arrangements for the GEF Transboundary Waters Assessment Programme, United Nations Environment Programme, 61 pp. http://twap.iwlearn.org/publications/databases/volume-1-methodology-for-the-assessment-of-transboundary-aquifers-lake-basins-river-basins-large-marine-ecosystems-and-the-open-ocean/view .

Mahon, R., L. Fanning, and P. McConney. 2011d. Principled Ocean Governance for the Wider Caribbean Region. pp 27-38. In: Fanning, L., R. Mahon and P. McConney. [Eds.]. 2011. Towards Marine Ecosystem-based Management in the Wider Caribbean. Amsterdam University Press, Amsterdam.

Olsen, S.B., G.G. Page and E. Ochoa. 2009. The analysis of governance responses to ecosystem change: a handbook for assembling a baseline. LOICZ Reports & Studies No. 34. GKSS Research Center, Geesthacht, 87 p.

Walker B. and D. Salt. 2006. Resilience thinking: sustainable ecosystems and people in a changing world. Island Press, Washington, DC. 174 pp.

Young, O. R., G. Osherenko, J. Ekstrom, L. B. Crowder, J. Ogden, J. A. Wilson, J. C. Day, F. Douvere, C. N. Ehler, K. L. McLeod, B. S. Halpern and R. Peach. 2007. Solving the crisis in Ocean Governance: place-based management of marine ecosystems. Environment, 49 (4): 20–32.

Appendix 1: Glossary of terms

Arrangement	The institutional structures and processes in place for dealing with a particular issue (such as all matters concerning fisheries unsustainability). An arrangement may include several oragnisations and may span several organisational scale levels.
Architecture	The structure of an arrangement, including the institutions and organisations that make up the arrangement and their relationships to one another.
Completeness	The extent to which an arrangement is considered to have all the necessary policy cycle stages in place and operational
Governance integration	The extent to which the arrangements in a Governance complex are linked or connected through a common organisation or organisations
Governance complex	The suite of arrangements that covers all the governance issues that co-occur in a geographical area within which integrated governance is required (i.e. for ecosystem based management)
Governance regime	An alternative term for governance complex
Issue	A governance problem of concern to stakeholders that should be addressed holistically or in an integrated fashion and thus requires an arrangement that has been developed specifically for that issue.
Operational order	The order of functioning of the policy cycle in which the actions needed to implement plans are developed and carried out.
Performance	The overall effectiveness with which an arrangement functions to address an issue. Effectiveness will include the full range of expected outputs: good architecture, processes, stress reduction, improvement of environmental status, achievement of social justice and human well-being.
Planning order	The order of functioning of the policy cycle in which there is articulation of approaches and plans to address an issue according to policies that have been developed, including development of legal instruments and regulations, informal agreements, etc.
Policy cycle	The iterative process by which governance is carried out involving provision of data and information, analysis and advice, decision-making, implementation and review, including monitoring and evaluation of the performance of the decision as implemented.
Policy (meta) order	The order of functioning of the policy cycle in which there is articulation of policies, principles, visions and goals that will determine how an issue is addressed
Priority for intervention index	The product of completeness and the priority given the arrangement by stakeholders
Stakeholder	An party with a legitimate (valid) interest in the outcome of governance for a particular issue
System to be governed (system)	The entire geographically bounded social ecological system that has been identified being in need of integrated governance
System architecture completeness index	A indicator of the extent to which all the arrangements comprising a governance system or complex are considered to be in place and complete for the given system to be governed

Appendix 2: Stakeholder mapping

Stakeholders can be mapped according to the policy cycle stages, either diagrammatically or in a table as shown below
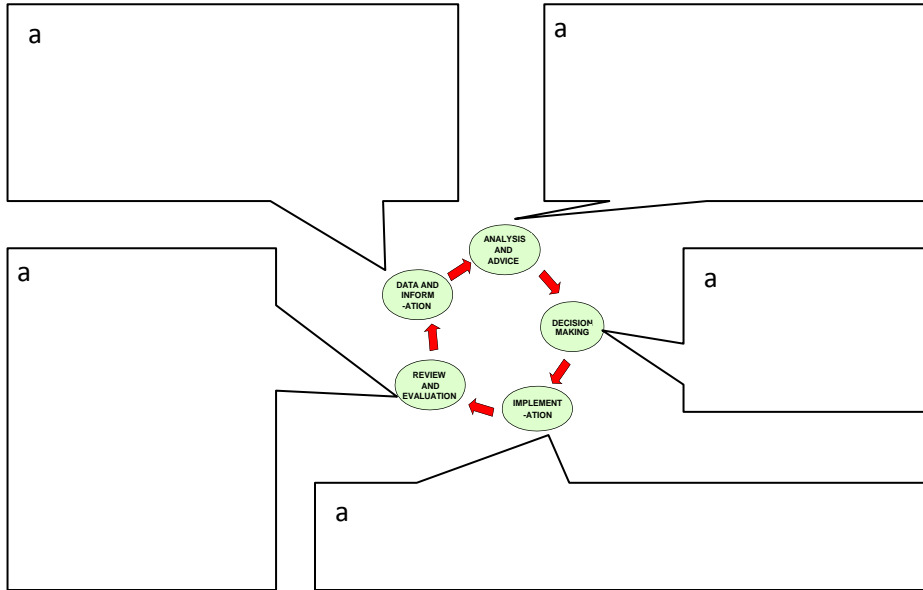

Figure A2.1. CLME fishery ecosystem stakeholders by policy cycle stage

Table A2.1. CLME Fishery ecosystem stakeholders by policy cycle level (stakeholders may appear in more than one stage with different roles)

Stage of the policy cycle	Stakeholder	Role
Policy analysis and Advice		
Policy decision-making		
Planning analysis and Advice		
Planning decision-making		
Implement-ation		
Review and evaluation		
Data and Information		

Appendix 3: Form for assessment of principles in the processes associated with each arrangement.

Please indicate your level of agreement with the following statements regarding the arrangements and processes for the governance of …. (Importance 0 = none, 1 – low, 2 = medium, 3 = high)							
Criteria/principles of good governance	**Statement of conditions that meet the criteria (indicate agreement/disagreement by ticking the appropriate box)**	**Agree strongly**	**Agree**	**Disagree**	**Disagree strongly**	**Do not know**	**Import-ance**
Accountability	The persons/agencies responsible for the governance processes can be held responsible for their action/inaction						
Appropriateness	Under normal conditions, this process seems like the right one for what it is trying to achieve						
Effectiveness	This process should succeed in leading to sustainable use of ecosystem resources and/or control harmful practices						
Efficiency	This process makes good use of the money, time and human resources available and does not waste them.						
Equity	Benefits and burdens that arise from this process are shared fairly, but not necessarily equally, among stakeholders						
Inclusiveness	All those who will be affected by this process also have a say in how it works and are not excluded for any reason.						
Legitimacy	The majority of people affected by this process see it as correct and support it, including the authority of leaders						
Representative-ness	The people involved in this process are accepted by all as being able to speak on behalf of the groups they represent						
Responsiveness	When circumstances change this process can respond to the changes in what most think is a reasonable period of time						
Transparency	The way that this process works and its outcomes are clearly known to stakeholders through information sharing						
Integration	This process is well connected and coordinated with other related processes.						
Capability	The human and financial resources needed for the process meet its responsibility are available.						
Adaptability	The process has ways of learning from its experiences and changing what it does						