# LAND-OCEAN INTERACTIONS IN THE COASTAL ZONE (LOICZ)

Core Project of the International Geosphere-Biosphere Programme (IGBP) and the International Human Dimensions Programme on Global Environmental Change (IHDP)



# The Analysis of Governance Responses to Ecosystem Change

## A Handbook for Assembling a Baseline

*Stephen B. Olsen, Glenn G. Page, Emilio Ochoa*



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**Cover**:    The cover photograph shows fishermen in Yantai, China. What will their net gather tomorrow and what does it imply for the future? (Photo: J. Weichselgartner)

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# Key Concepts

**A)   Stewardship**

Where equitable and sustainable forms of development are the ultimate goals of ecosystem governance, the practices of stewardship are the path to that destination. Ecosystem stewardship is an ethic practiced by individuals, organizations, communities and societies that strives to sustain the qualities of healthy and resilient ecosystems and their associated human populations. Stewardship takes the long term view and promotes activities that provide for the well being of both this and future generations.

**B)   Nested Systems of Governance**

Thinking in terms of nested systems is essential because most environmental and societal issues both impact upon, and are impacted by, conditions and actions at both higher and lower levels in an ecosystem and governance hierarchy. Some issues can be addressed more effectively at one level, and less effectively at another. The choice of the issue or set of issues to be addressed must therefore be made in full knowledge of how responsibility and decision making authority is distributed within a layered governance system.  Planning and decision making at one scale, for example within a municipality or province, should not contradict or conflict with planning and management at another – for example, at the scale of the nation. The reality is that such contradictions and conflicts are common. A major challenge for the practitioner is to recognize these differences and work to either change them or select goals and strategies that recognize that such contradictions must be accommodated or resolved. In practical terms this means that a central feature of ecosystem-based governance is that all planning and decision-making must recognize and analyze conditions, issues and goals at least at the next higher level in the governance system. Thus, ecosystem-based governance at the municipal scale must – at a minimum – be placed within the context of governance at the scale of the province while governance at the scale of a province must – at a minimum – be analyzed with an eye to governance at the scales of both municipalities and the nation.

**C)   Participation**

One of the defining characteristics of the practice of the ecosystem approach is its emphasis on participation and its relevance to the people affected by its practice. The emphasis upon participation in ecosystem-based governance programs recognizes that those whose collaboration and support is needed if a program is to be successfully implemented must be won by involving them in the processes of defining the issues that the program will address and then selecting the means by which goals and objectives will be achieved.  Both individuals and members of institutions are more likely to comply with a management program when they feel that that it is consistent with their values, responds to their needs and to their beliefs of how human society should function.

Voluntary compliance by a supportive population lies at the heart of the successful implementations of a program. A participatory approach helps stakeholders and the public to see the efforts of a program as a whole.

## D)    Area of Focus

The Area of Focus is the geographically defined area that an ecosystem-based project or program has decided to address and that therefore is the focal point for a governance baseline. The term 'area of focus' is a simplification of the far more complex concept of an 'action arena' put forward by Ostrom (1986) to model the choices of an individual and a situation when studying the behavior of institutions.

## E)    Adaptive Governance

A central feature of the practice of any form of ecosystem-based governance is that it must respond positively to changing conditions and to its own experience. In other words, the practice must be grounded in a process of learning and adaptation. Adaptive management is not reactive management. This does mean that the practitioner simply responds to the unexpected. It is rather a conscious process of examining the course of events as these are revealed by pre-selected indicators of changes in the ecosystem (both its social and environmental components) and by events occurring at larger, or smaller, spatial scales.

## F)    Capacity Building

There is growing international recognition that the lack of human capacity to practice the ecosystem approach is a, if not the, key factor limiting forward progress in the conservation and sustainable use of coastal systems. Yet no standards of performance have been developed for assessing the effectiveness and impacts of projects and programs that have adopted the ecosystem approach (Cicin-Sain et al. 2006). This Guide offers conceptual frameworks and methods for assessing the maturity of management initiatives and gauging their impacts upon the condition of coastal ecosystems. These are the core ingredients for an approach that builds the capacity of local populations and local leaders to identify the forces that are shaping the coastal ecosystems of which they are a part and select the actions that can maintain and enhance the qualities that are critical to a desirable future.

# 1.    Introduction

## 1.1    Extraordinary Times

We live in extraordinary times. Never in human history have we, as a species, faced forces of change as large, as complex and as potentially catastrophic as we do at the beginning of the 21st Century. We have quintupled our population in less than one hundred years, we have introduced technologies that are thousands of times more powerful than any our grandparents had and we are changing the ecology our planet in ways that for the great majority were unimaginable only a decade ago. Yet the opportunities to better our collective condition are as great as the threats that face us. Collectively, we posses the knowledge, the technologies, and in many instances the values, that can produce a future in which we overcome the misuse and over-use of natural resources and ecosystems and inequities in the distribution of these natural assets that are at the root of many conflicts. In this positive and desirable future, qualitative improvement must replace quantitative growth as the goal of development.  One of the extraordinary features of this time is that we will determine in the next few decades, through our individual and collective choices, whether our current decisions that are reshaping our planet lead us to disaster or to a positive future.

The challenges that we face are largely challenges of governance. The planet's coastal regions are the crucible where new forms of governance, and the associated values, behaviors and knowledge, must be forged. Fifty percent of the world's people live on the ribbon of land bordering oceans, seas and great lakes on 5% of the inhabited landspace (Millennium Ecosystem Assessment 2005). Twelve of the fifteen largest cities are coastal. Coastal regions therefore contain the lion's share of humanity's infrastructure. The activities of human society in industry, transportation and trade, energy processing, tourism, recreation, communications and services are all concentrated along coasts. Coastal regions therefore generate a similarly disproportionate share of the global consumption of manmade and natural resources and the resulting generation of wastes. How humanity manages its activities and the impacts we produce on coastal ecosystems is one of the great challenges of the twenty-first century.

This Guide describes conceptual frameworks and methods for examining the governance dimensions of ecosystem change in coastal regions. It offers a step-by-step process for assembling a baseline of trends in the condition and use of the ecosystem or ecosystems in a specific place (a stretch of coastline, an estuary and its watershed, a protected area) and how the existing governance system has responded to the issues produced by those trends and issues. A governance baseline has two parts. Part One is a documentation and analysis of how the governance system in a specific place has responded – or failed to respond - to the trajectory of ecosystem change. Part Two outlines a strategic approach to designing a new program, or adapting an on-going program, to address the ecosystem management issues of the place. The program design in Part Two therefore details how the design builds upon the strengths of the existing governance

system and works to reduce its weaknesses. A governance baseline provides a reference point against which future changes in the condition of an ecosystem – both its human and environmental components – and the actions of a program can be measured and assessed.

This Guide recognizes that the implementation of an ecosystem-based program must be directed at catalyzing changes in human behavior. Implementing any issue driven coastal program is about instigating changes in how coastal ecosystems are utilized and how conflicts among social groups are addressed. A baseline of governance response to ecosystem change is the foundation for the practice of adaptive governance that responds to changes in the condition and functioning of the ecosystems of concern, changes in the governance system and to the program's own learning. The methods encourage a long-term perspective, and an appreciation of the roles played by civil society, markets and government in adapting to ecosystem change.

This Guide is designed for use by teams of professionals working to apply the principles of ecosystem-based management in coastal regions. These are typically interdisciplinary groups educated in such diverse fields as the natural and social sciences, law, and business. It is designed to engage governmental agencies, businesses, non-governmental groups and academics with an interest in achieving more sustainable forms of coastal development through ecosystem stewardship. The Guide is targeted most specifically for those engaged in programs and projects in places where the ability of government to regulate and direct the processes of ecosystem change is weak or severely constrained.

This Guide can be used to introduce the methods for assembling a governance baseline in workshop settings. Previous analysis and decision making in the coastal region to be addressed will make some elements of this Guide more relevant than others. However, we recommend assembling a complete baseline as a well-documented point of reference for any adaptive, ecosystem-based, governance initiative.

## 1.2   The Challenges of Coastal Degradation

The Millennium Ecosystem Assessment (2005) documents that the goods and services that could be generated by ecosystems to indefinitely support human well-being are being degraded and destroyed. These negative trends are particularly obvious, and are accelerating, along coastlines. These trends and their implications have been recognized for many decades and hundreds of millions of dollars have been invested in coastal area planning and management through thousands of projects and programs in both high and low-income nations. Much has been learned. There are a few documented successes in applying the ecosystem approach to achieve a better balance between needs for both conservation and human development in a diversity of coastal settings. There are some examples of success in reversing negative trends, conserving key habitats and instilling an ethic of stewardship that catalyses the changes in human behavior that are required to sustain the qualities of coastal ecosystems for the benefit of this and future

generations. But there are far more examples of disappointment and failure and this is one reason for the continuing losses in the condition of coastal ecosystems and losses in the flows of the goods and services that they generate.

The continuing losses in the goods and services that can be generated by coastal ecosystems – such as firewood from mangroves or living space in shallow waters as shown in the photographs – is an expression of a widening gap that separates research, planning, and declarations of intent from the achievement of stated goals; an implementation gap. This Guide is based on the premise that a thorough understanding of the governance dimensions of human alterations to ecosystems will increase the efficiency and effectiveness of initiatives that work to avoid or mitigate the negative impacts of human activities on ecosystems. It is designed to address the implementation gap by tailoring the design, implementation and evaluation of ecosystem-based projects and programs to the unique combination of features that are present in a specific locale. The standardized formats for governance baselines encourage comparison and learning across sites.



## 1.3   The Ecosystem Approach

Ecosystem-based management (or, more simply, the ecosystem approach) has emerged as the dominant paradigm for managing natural resources and the environment. Traditionally, management efforts have been organized around particular uses such as fisheries or mineral exploitation, resulting in separate governance regimes for each use. Over time it has become ever more apparent that such a sectoral approach results in conflicts among users and is inadequate in meeting the need for sustaining the goods and services that flow from healthy ecosystems (US Commission on Ocean Policy 2004). The shift away from the management of individual resources to a systems approach has taken hold in a number of fields such as forestry and fisheries and has been endorsed by a number of studies and expert commissions. The practice of ecosystem-based management recognizes that both the environment and the associated human population must be addressed simultaneously. It is concerned primarily with instigating the changes in human behavior that are required to restore and sustain the desired qualities of ecosystems.

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In simple terms the ecosystem approach recognizes that human communities, like plant and animal communities, are interdependent and interact with their physical environment to form distinct ecological units called ecosystems. These units, that provide the basis of all life and humanity itself, are transboundary in character, typically cutting across existing political and jurisdictional boundaries and, thus, subject to multiple management systems. Likewise, many human actions and their consequences, including pollution, extend across jurisdictional boundaries and impact the functioning of important ecosystems shared by multiple jurisdictions. Ecosystem-based management has been defined by the Ecological Society of America as management:

> …driven by explicit goals, executed by policies, protocols, and practices, and made adaptable by monitoring and research based on our best understanding of the ecological interactions and processes necessary to sustain ecosystem structure and function (Christensen et al. 1996).

The application of these ideas in this guide has been inspired by our own experiences in the design and implementation of coastal management efforts in the U.S., several low-income nations, and by the large marine ecosystem (LME) management efforts underway in several regions. When applying the ecosystem approach, the associated human population and its socio-economic systems are seen as integral parts of the ecosystem. Most importantly, ecosystem management is concerned with the processes of change within living systems. It is therefore designed and executed as an adaptive, learning-based process that applies the principles of the scientific method to the processes of management (Olsen et. al. 2006). We define coastal ecosystems to include estuaries, inshore coastal waters, and their immediate watersheds.

To be effective, ecosystem governance initiatives must (1) be sustainable over long periods of time – usually many decades, (2) be capable of being adapted to changing conditions and (3) provide the mechanisms to encourage or require specified forms of resource use and collaborative behaviors among institutions and user groups. Much of the challenge lies in achieving changes in the behavior of the user groups and institutions. Ecosystem-based governance integrates the best available science with a transparent, equitable and democratic approach to planning and decision making. Ecosystem-based management needs to be carried out in a strategic manner that tailors principles of good practice to the culture and the needs of a specific place. Successful programs advance and change through linked cycles of planning, implementation and re-assessment. These features of ecosystem management signal the transition from traditional sector-by-sector planning and decision-making to a holistic approach based on the interactions between sectors and within and among ecosystems.

## 1.4    The Governance of Ecosystems

In this handbook we define governance as the formal and informal arrangements, institutions, and mores that structure and influence:

- How resources or an environment are utilized,

- How problems and opportunities are evaluated and analyzed,

- What behavior is deemed acceptable or forbidden, and

-  What rules and sanctions are applied to affect how natural resources are distributed and used.
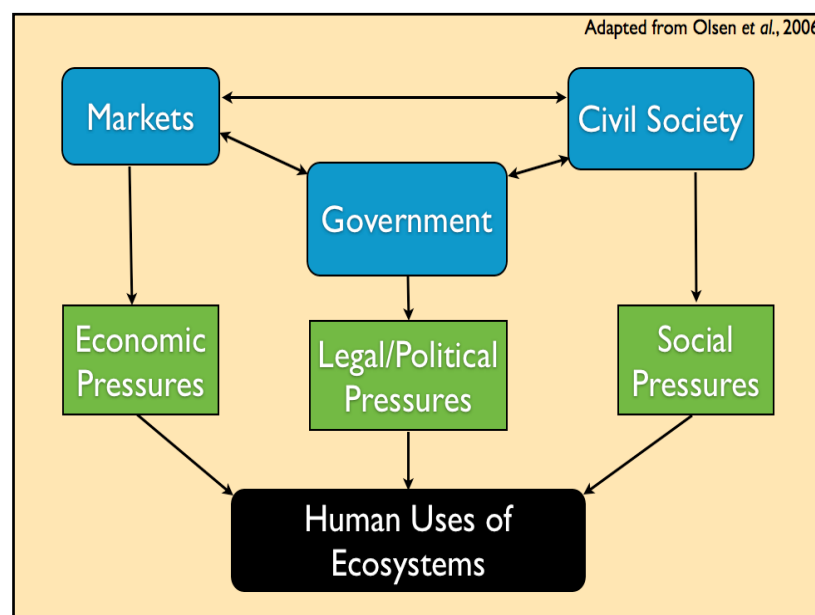


**Figure 1**:  The principle sources and mechanisms of governance

As suggested in Figure 1, there are three mechanisms by which the processes of governance are expressed: the marketplace, the government, and the institutions and arrangements of civil society (Juda 1999; Juda & Hennessey 2001; Olsen et al. 2006). These mechanisms interact with one another through complex and dynamic interrelationships that will be examined and contrasted and documented in a governance baseline. Each of the three governance mechanisms alter patterns of behavior through measures such as those identified in Table 1. In this Guide we distinguish between management and governance. Management is the process by which human and material resources are harnessed to achieve a known goal within a known institutional structure. We therefore speak of business management, park management, personnel manage-ment or disaster management. In these instances the goals and the mechanisms of administration are well known and widely accepted. Governance, in contrast, addresses the values, policies, laws and institutions by which a set of issues are addressed. It probes the fundamental goals and the

institutional processes and structures that are the basis for planning and decision-making. Governance sets the stage within which management occurs (Olsen 2003).

In this Guide we frequently refer to the processes of planning and decision making as governance in order to reinforce the idea that a reassessment of the fundamental goals and values of society is increasingly necessary. For example, economies constructed upon conspicuous consumption and the profligate use of natural resources must give way to new values and new forms of societal behavior. As suggested by Daly (1996), qualitative development rather than quantitative growth is the path of future progress. If such ideas were to made operational the changes in economic policy and governmental priorities would be significantly different from those that prevail today. Once the goals of a governance program or project have been defined as expressions of the ecosystem approach much of the day-to-day work of coastal stewardship is concerned with the well known practices of management.

| Tab.1: **Major Expressions of Governance** |
| --- |
| **Government** |
| • Laws and regulations |
| • Taxation and spending policies |
| • Education and outreach |
| **Marketplace** |
| • Profit seeking |
| • Ecosystem service valuation |
| • Cost-benefit analysis |
| • Eco-labeling and Green Products |
| **Civil Society: Organizations and Institutions** |
| • Product choices |
| • Advocacy and lobbying |
| • Vote casting |
| • Co-management |
| • Stewardship activities |

## 1.5    Assembling a Baseline

A governance baseline has two parts. As shown in Figure 2, Part One is a documentation and analysis of how the governance system in a specific place has responded – or failed to respond – to the trajectory of ecosystem change. It examines the long-term trends in both human well-being and the environmental conditions and case studies that examine the processes and outcomes of responses to the issues raised by past and current expressions of societal and environmental change. Part Two outlines a strategic approach to designing a new program, or adapting an on-going program, to address the ecosystem management issues of the place. The program design in Part Two therefore details how the design builds upon the strengths of the existing governance system and works to reduce its weaknesses. Parts One and Two of baseline together form the reference point against which future changes in the ecosystem, the governance system and the efforts of the program will be gauged. The methods encourage a long-term perspective, an

appreciation of the roles played by civil society, markets and government and a holistic, ecosystem-based, approach to coastal stewardship.
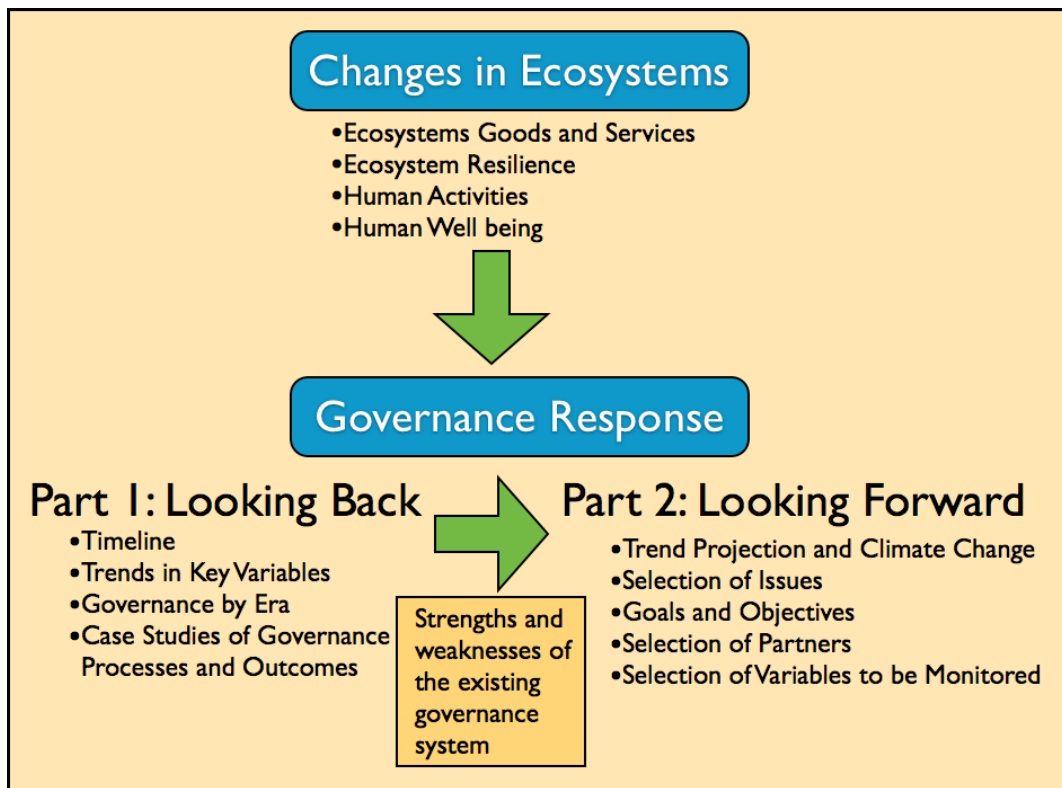


**Figure 2:** Major components of parts 1 and 2 of a governance baseline

A governance baseline assists in making the practice of ecosystem-based management operational. It documents and analyzes the context within which an initiative is to be taken or may be underway. It assumes that a careful documentation and analysis of the existing governance system provides important insights into how best to design a forward looking management and governance initiative. It provides a reference point against which future change in a given ecosystem can be measured and evaluated. When projects and programs invest in developing governance baselines with common conceptual frameworks and formats cross-program analysis and learning is made easier. This is a major asset to learning and the practice of adaptive management.

A governance baseline is a complement to, not a substitute for, an analysis of the other features of a coastal system including its socio-economic and biophysical characteristics. Threats assessments, log-frame analysis, the transboundary diagnostic analysis and strategic action program formats applied by the Global Environmental Facility are some of the many methods that serve as a basis for the design of initiatives that, to varying degrees, work to apply the ecosystem

approach. Readers are encouraged to peruse other handbooks and compilations. For example, the Global Environmental Facility requires that all its investments in Large Marine Ecosystems follow methods described as a Transboundary Diagnostic Analysis (TDA) and Strategic Action Program (SAP). These are set forth in Olsen et al. (2006) and a rigorous training program can be accessed through http://www.iwlearn.net/publications/courses/tdasap_course_2005.zip/view. The handbook "How Is Your MPA Doing?" (Pomeroy et al. 2004) offers an approach to evaluating the effectiveness of marine protected area management. Yet other methods are designed to guide the planning of conservation sites (TNC 2000).

The process of developing a governance baseline described in this guide does not contradict or compete with these other methods. The baselining methods we present are designed to build a shared understanding within an interdisciplinary team for how current issues have evolved in a specific locale. They are being successfully applied in a wide diversity of social, political and environmental contexts.

**The Leading Questions and Worksheets:** The leading questions posed for each element of a baseline are designed to prompt discussion and analysis. The worksheets are designed to provide a consistent structure for a full baseline. Not all the leading questions are addressed by the worksheets. A more complete analysis that may be a feature of a self-assessment or an evaluation may choose to address all the leading questions and pose others.

## 2.    Governance Baseline Part 1: Looking to the Past

### 2.1    Who Should Participate?

Since a governance baseline can serve many purposes, the essential question of "who should participate?" must be answered in light of the objectives for its preparation. If a baseline analysis of governance responses to ecosystem change is prepared in conjunction with the design of a new initiative then the involvement of the stakeholders that will be affected by the initiative will be important. The institutions funding the initiative may also benefit from close involvement in the baselining process since their understanding and support for the goals and strategies of a future investment will be critical to making the case for their financial support.

If a baseline is to be a starting point for an internal self-evaluation – or a sequence of periodic self-evaluations – it may be appropriate to limit the involvement of external stakeholders and make the exercise a feature of team building and strategic planning. In all instances a skilled facilitator is a major asset, if not essential.  Such a person concerns themselves with the sequence of topics to be addressed, how the discussion is managed, and that clear conclusions emerge. A competent facilitator works to assure that all views are heard and that conflicts and differing perceptions are handled in a responsible and honest manner.

Involving stakeholders at the scale of a municipality, an estuary or a watershed the process will often reveal that civil servants working in central government departments may not be aware of local issues and local perceptions of issues. Similarly, local leaders may be unaware of actions and concerns at the regional or national levels. Those working in the same organization often differ with their colleagues in assessing how successfully a particular policy or action is being implemented or on the impacts of a past decision. It is therefore important to consult with a diversity of organizations, agencies and interest groups to solicit their inputs and their reactions to the findings and conclusions that emerge from the baselining process. Noting differences of interpretation and perception of "the facts" is an important feature of a baseline.

Since it is often not possible to assemble all those who should participate in a baselining process it may be necessary to design a process whereby additional participants are added as the baseline unfolds. It may be useful to hold one or more public workshops and discussions with representatives of specific sectors (for example fisheries, tourism or agriculture).

*See worksheet 2.1  page 62.*

## 2.2 Defining the Area of Focus

The Area of Focus is the geographically defined area that an ecosystem-based project or program has decided to address and that therefore is the focal point for a governance baseline. The term 'area of focus' is a simplification of the far more complex concept of an 'action arena' put forward by Ostrom (1986) to model the choices of an individual and a situation when studying the behavior of institutions. In ideal circumstances the boundaries are defined to include ecosystems in their entirety – for example and estuary and its watershed.  In practice this is often not feasible and the boundaries of the area of focus are determined by administrative boundaries – such as those of a municipality or a protected area – and may contain portions of several ecosystems. There are two essential principles that should guide the definition of the Action Area. The first is that the spatial extent of the area to be addressed must be within the capacity of the initiative to analyze and in which it can hope to influence the trajectory of change. The second is that both the analysis and the subsequent plan of action must always consider forces and interdependencies at the next bigger spatial scale. The practice of the ecosystem approach must recognize that a web of forces and inter-relationships shapes what occurs in a given area of focus and the larger context must always be appreciated and factored into the analysis and the selection of the actions that may be taken.

A major purpose of these methods is to encourage and facilitate learning and collaboration across initiatives that are applying the ecosystem approach. We therefore begin by briefly noting the major characteristics of each area of focus. When a portfolio of governance baselines are organized as a searchable knowledge management system the specification of these fundamental features of each site will ease the process of identifying cases with similar characteristics – such as cases of defined spatial dimensions, cases with a given population density or with or without wetlands. When a set of baselines is being prepared the descriptors in Worksheet 1 should be revised and tailored to the features of the sites to be examined and the purposes of future cross portfolio analysis.

In many cases data will not be available on significant natural and human features of the Area of Focus. In such cases it is appropriate to simply note whether features are present or absent and, in the Notes column, state that the entries are initial estimates and comment on the quality of the data. The most salient variables identified in this brief characterization of the Area of Focus are examined in greater detail, and from the perspective of long term trends, in a later Section.

*See worksheet 2.2a page 63 and 2.2b page 64.*

## 2.3 Drivers and Responses to the Trajectory of Ecosystem Change

A central thesis of these methods is that the current features and conditions within the area of focus are usually the product of both long term patterns of change and recent events. Where patterns of change and use have a long history, the governance response will be different from a

place where change is recent and the governance system may be ill equipped to address new challenges.

The next step in the assembly of a governance baseline is to develop a timeline that identifies events and expressions of environmental and societal change over the past fifty to one hundred years. A shorter term analysis will not reveal the larger patterns of change that are shaping current conditions and will be less likely to reveal the traditions, the strengths and the weaknesses of the existing governance system in the area of focus. A long-term perspective will also shed light on how power and influence is allocated and how the relationships between institutions are evolving. Entries in a timeline should be segregated into three columns labeled, Pressures, State and Response. These may be defined as follows:

**Pressure Entries:** describe internal or external events or forces that are believed to have contributed to changes in the State of the system (a war, a flood, a change in the market price for a commodity, political change, greater access to the area and its resources).

**State Entries:** describe the magnitude, condition or change in natural, social and environmental variables (population size, annual fish catch, disease outbreak, estimated area of seagrass beds, increased income, reduced infant mortality).

**Response Entries:** include actions by the governance system that are related to a pressure or a change in the State of the system (a new law or regulation, creation or change in the structure or behavior of an institution, provision or removal of subsidies, new or intensified forms of resource exploitation).

A more sophisticated framework, known as the DPSIR (driving forces, pressures, state, impact, and response) (EEA 1998) adds other dimensions to the analysis. Our experience is that the simpler PSR (pressure, state, response) framework is adequate for an initial analysis and for framing productive discussion and analysis with a diversity of stakeholders. In workshop settings,

we have found that assigning entries into either the P, S or R column can be confusing and is best left to a small technical group working to organize and integrate the findings from such discussions and workshops.

A central theme in ecosystem governance is to assess the area of focus from the perspective of its resilience. Resilience is defined by the capacity of a system to absorb disturbance and still retain its basic function and structure. As authors Brian Walker and David Salt (2006) note, resilience thinking "explains why efficiency by itself cannot resolve our resource issues, and offers a constructive alternative that create options rather than limits them."

As shown in Figure 3, when applied to ecosystems, C. S. Holling, L.H. Gunderson & D. Ludwig (2002) used depictions of four caricatures of ecosystem conditions using a ball and bowl image to visualize different levels of resilience.

**Figure 3:** Four caricatures of ecosystem conditions
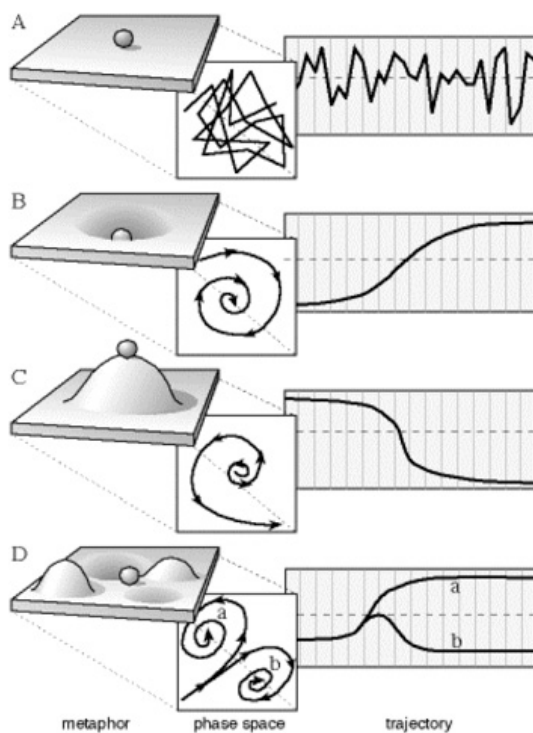


From: C. S. Holling, L.H. Gunderson, D. Ludwig (2002)

Image A represents an ecosystem in which no dominant forces are affecting its stability and with a long term trajectory that may evolve in any number of directions. Image B shows an ecosystem in an equilibrium condition. Image C represents a highly unstable ecosystem with a trajectory that is downward trending. Image D shows multiple stable states that vary between periods of exponential change, periods of stability and periods of readjustment or collapse. Changes from one state to another at the scale of a large watershed and its estuaries may play out over many decades or centuries. Changes can be the result of natural events, human exploitation or a combination of the two. Major losses in resilience may occur quickly – and the switch from one state to another can come as a surprise. The switch, however, is usually the result of the cumulative impacts of many variables that have interacted and combined over occurred over a long periods of time. The timeline of a century is a good starting point when considering changes in resilience and its implications.

A benefit of preparing a timeline is that it encourages those engaged in an application of the eco-system approach to listen to the people of the place and assemble their knowledge, their perceptions of what has changed, why it has changed and what the consequences of those changes have been – to livelihoods, to the abundance of fish and shellfish, to land use and to water quality. Building constituencies for a new initiative and credibility among those who will be directly affected by changes in the governance system will be advanced when the time is taken to honor and understand the history of "their" place. However, there are places where a major proportion of the human population have recently moved in from elsewhere. Their lack of understanding for how the ecosystem functions and has evolved will add other dimensions to an analysis of the current governance system.

The governance and management of human affairs and of ecosystems is shaped by the issues that are seen as important to the society at a given time. Issues are both problems and opportunities. Issues are at the core of political debate and their perceived importance, and the behavior of the interest groups seeking that they be addressed – or not be addressed – by government shapes the political and legislative agenda in a given period. The identification of the issues of concern to a specific group or a society as a whole is central to any examination of ecosystem change. Thus the assembly of the timeline and the discussions that it generates should be directed towards the identification and analysis of issues. As resource use, economies, and political power becomes more globalized, it is important to recognize that the pressures and the responses identified in the P and R columns of the timeline are likely to be expressed at scales far larger than the area of focus. These realities have a major influence on what an ecosystem based project or program can accomplish within its area of focus.

A governance baseline identifies both what has occurred (the facts of the matter) and how the people of the place (individuals, groups, institutions) perceive, and have responded, to social and environmental change. The emphasis upon perceptions is crucial because values influence perceptions and behavior as much – sometimes more – than objective facts. The perceptions of an individual or an institution are also shaped by their interests. Linking the two can provide insights into the functioning of the governance system. An obvious example is when a business or government agency argues that a set of facts are flawed or inadequate when they suggest a course of action that the business or the agency does not want to take.

Depending upon the geographic scale and complexity of the area of focus and the resources available, those preparing a governance baseline may apply a mix of the following techniques:

- Unstructured conversations with individuals and groups

- One-on-one interviews with pertinent authorities and stakeholder spokespeople

- One or more structured workshops with people selected for their knowledge and concern for the place

- A commissioned review and synthesis of available secondary information in the form of an "eco-history".

*See worksheet 2.3 page 65.*


## 2.4   Long-term Trends in the Condition and Use of Ecosystem Goods and Services

This step calls for assembling graphs that provide a visual depiction of long term trends in important variables in the area of focus. Since in many places the data needed to draw a graph does not exist or is present for only a few – usually recent – years, this section also calls for a brief description of what the shape of the trend is believed to be. Notes on the quality of data, and differences in perceptions of the shape of the trend line are important.

The graphics should complement the time scale of the timeline – typically 100 years. A brief verbal description of the trajectory of change that comments upon likely causes and conse-quences of the trend and the quality of the available data should be supported by a simple graphic. The graphic should differentiate between periods when reliable data are the source (such as a solid line) and when a trend line is drawn from "anecdotal" sources or a "best guess" (such as a dotted line). Since there are an almost infinite variety of variables that can be assembled and displayed, it is important to focus upon displaying and describing trends that are most relevant to a basic characterization of the place and the major issues that have emerged thus far from the preparation of the timeline. The complete baseline should, however, include at least one graphic and description from each of the following seven categories:

1. Trends in human population (total, urban and rural) in the system. Where seasonal migrants are important (for example tourists) this may deserve a trend line too.

2. Trends in quality of life (literacy, life expectancy, poverty rate, income)

3. Trends in condition of principle natural resources (abundance or annual harvests from fisher-ies, agriculture, mining, forest products)

4. Trends in the aerial extent and condition of important coastal habitats (such as beaches, wetlands, seagrass beds, oyster beds, coral reefs)

5. Trends in land use (woodland, cropland, pasture, desert, urbanized)

6. Trends in livelihoods (numbers of people engaged in agriculture, fisheries, industry, services)

7. Trends in water quality (size of area classified as polluted, incidence of toxic blooms, loadings or concentrations of pollutants).

Much quantitative data – both official and otherwise – may be of questionable quality. It may even have been generated to bolster a line of argument or to obscure the truth. The data gener-ated by governmental agencies or contained in technical reports often carries an authoritative

aura of objective truth that is undeserved. In some countries statistics on fish catches, for example, are particularly suspect. When examining ecosystem change through a governance lens, the various perceptions of trends can be as revealing for governance purposes as a graphic drawn from data of sound scientific validity.

A simple way to visualize the many concurrent expressions of change in the area of focus is to prepare a set of "stacked graphs" that display each trend over the same time period and provide an initial basis for correlating patterns of change across variables. This visual display also shows where the data gaps are and can be portrayed to distinguish between variables for which there is reliable data and variables for which a "best guess" is the only option. In a workshop setting it is often useful to form small groups and to direct each to assemble and identify the implications of, the long-term trends for one variables – such as trends in fisheries or agriculture. When the results are presented the facilitator should encourage discussion of linkages between trends in the different variables – particularly linkages between changes in the environment and changes in the well being of the associated human population.

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**Leading Questions**

- What is the shape of the curve and what does it imply about the changing condition of the ecosystem?

- How reliable (complete and accurate) are the sources of data?

- Is the "official" data seen as reliable by the stakeholders with a major interest in the resource?

</div>

## 2.5    Identification of Eras of Governance

The timeline is likely to suggest one or more eras in the history of the area of focus. An era is a period of time – typically extending over decades, or in the more distant past over centuries – when patterns of human activity and ecosystem condition were relatively stable and the rules governing the use of natural resources followed an established pattern. The governance system associated with an era is shaped by the values and goals of the society, by distribution of power within the society and by responses to the issues that command attention during that period.
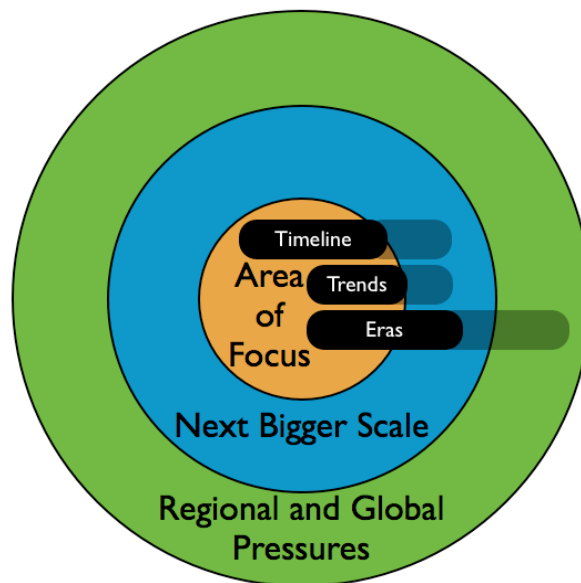
**Figure 4:** The geographic scales of timelines, trends and eras

As suggested by Figure 4, the timeline and trends should be developed for the area of focus. In some instances these events and information will extend into the next bigger scale. Eras may describe conditions prevailing at regional and even global scales.

# 3. Case Studies of Governance Response to Ecosystem Change

## 3.1 Selection of Case Studies for Detailed Analysis

The previous steps have set the stage for an analysis of governance. This section examines case studies to better understand the nature and dynamics of governance in the area of focus. Case studies help to understand responses to changes in the condition of the socio-environmental system – or the absence of responses – as revealed by the past and current behavior of the governance system. This element of a governance baseline draws upon the Response column of the timeline.

The timeline should be the source for a number of possible case studies. A good case study permits a well informed analysis of how planning and decision making on issues raised by ecosystem change have evolved. It is revealing to examine cases where despite widespread concern over an issue or issues in the area of focus the governance system was unable to achieve consensus and commitment to any actions. The purpose is not to pass judgment on past and current efforts to address issues of concern but rather to document how the processes of governance have played out in specific instances. It is advisable to include one or more case studies that examine how well or poorly the issue analysis and planning have been linked to the subsequent implementation of a course of action.

One must consider all three sources of governance (market, government, civil society) in the analysis. A case study should not be limited to responses by government (laws, policies, officially sanctioned projects and programs) but should explore how business and nongovernmental organizations have responded to a problem or opportunity.

In Sections 3.1 through 3.5 the case studies selected for analysis are referred tom in the text and the worksheets as "the program." This does not imply that case studies are conceived and implemented as "programs" or a given institution or organization. They can and should include initiatives instigated by business interests and informal groups.

A case study may trace the evolution of a resource based (for example, mining, timber extraction, fisheries, agriculture) or resource enhanced (for example, tourism) activity, or the response to a

disaster (for example, a flood, major storm or disease outbreak). It may be appropriate to select for case studies at the next larger scale but differences in the context should be noted. The writings of Jared Diamond, particularly the case studies presented in the 2005 book "Collapse: How Societies Choose to Fail or Succeed" are examples of richly documented case studies of how societies have ignored or responded to forces that that threatened their survival.

*See worksheet 3.1 page 68.*

## 3.2   Description of the Case: Issues, Goals and Objectives

One of the case studies examined may be the initiative in which those preparing a governance baseline are most directly involved. It is strongly recommended, however, that the analysis of the governance system extend beyond the limits of "my project" or "my program" and include past or current initiatives that have had an impact on the trajectory of change in the area of focus as well as at the next bigger scale as shown in Figure 5. It may be particularly useful to examine initiatives that have been driven by business interests since these often reveal the distribution of power in the governance system and the mechanisms by which government functions.
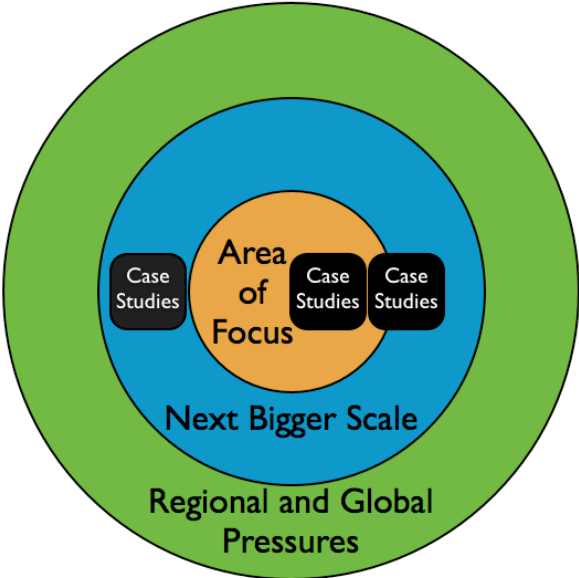


**Figure 5**:    Case studies of governance response to ecosystem change are selected from the area of focus and next bigger scale

Similarly, case studies that examine traditional rules over the use of natural resources and the how conflicts are resolved may provide clues for approaches that will prove effective in a future initiative. Since our interest in how the governance system has influenced long term processes of

ecosystem change it is important to select for case studies that illustrate the workings of the governance system over extended periods of time – as for example the evolution and growing dominance of a new activity like shrimp farming along a coastline where artisanal fisheries and agriculture were previously the dominant activity. In all instances it is important to base the analysis of a case study upon documents and recorded events and data and work to avoid presenting the case as a subjective critique. As in previous sections, the emphasis should be upon an objective analysis of "the facts of the matter".

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**Leading Questions**

- What issues prompted this expression of governance?

- Over what time period was the initiative active?

- How was the initiative funded and did the sources of financial support change over time?

- What elements of the governance system (government, markets, civil society) enabled, or resisted, this initiative?

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## 3.3   Process Analysis: The Management Cycle

This step begins by examining the processes of governance as these relate to the governance cycle. There are many descriptions of the process by which ICM and integrated water resources management programs are constructed and evolve (see for example, GESAMP 1996; Cicin-Sain & Knecht 1998; Davis & Hirji 2003a, 2003b; Dyson et al. 2003; Richter et al. 2003; Jønch-Clausen 2004).

A simplifying and widely used framework was offered by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP 1996). The GESAMP cycle begins with an analysis of problems and opportunities (Step 1). It then proceeds to the formulation of a course of action (Step 2). Next is a stage when stakeholders, managers, and political leaders commit to new behaviors and allocate the resources by which the necessary actions will be implemented (Step 3). This involves formalization of a commitment to a set of policies and a plan of action and the allocation of the necessary authority and funds to carry it forward. Implementation of the policies and actions is Step 4. Evaluation of successes, failures, learning and a re-examination of how the issues themselves have changed rounds out a "generation" of the management cycle as Step 5.

Ideally, ecosystem governance evolves as a process of sustained learning and adaptation that proceeds through cycles with recognizable steps. As shown in Figure 6, successive generations of a program repeat these five steps to address an expanding agenda of issues and/or a larger geographic area. This conceptually simple cycle (Figure 5) is useful because it draws attention to the interdependencies between the steps within each generation and between successive generations of management. The five steps may be completed in other sequences, as for example, when an initiative begins with enactment of a law (Step 3) that provides the mandate for analyzing issues and developing a detailed plan of action (Steps 1 and 2). Altering the sequence, however, often comes at the cost of efficiency, as when it becomes apparent that the authorities provided by the law prove to be inadequate for implementing the actions that are required. Progress and learning are greatest when there are many feedback loops within and between the steps (GESAMP 1996; Olsen et al. 1997, 1999).
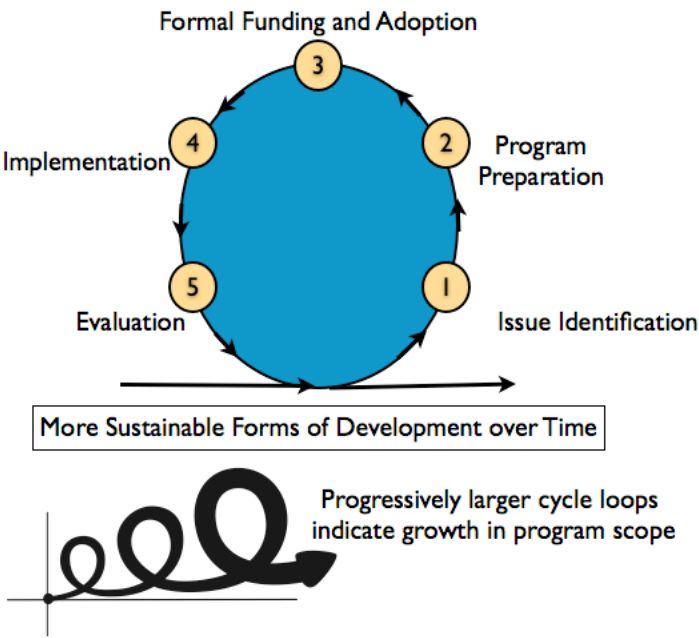
**Figure 6**: The management cycle

(adapted from the GESAMP Cycle 1996)

The reality for many coastal management programs of all varieties is that we often see only fragments of unconnected cycles. Particularly for integrating forms of management, a governance baseline will reveal a major gap between repeated efforts at issue analysis and planning (Steps 1 through 3) and implementation of a plan or program of action (Step 4). Too often, subsequent initiatives do not build strategically on a careful assessment of what can be learned by earlier attempts to address the same or similar issues (Step 5).

This element of the baseline graphically displays for each case study the degree to which a generation, or generations of governance completed the steps in the management cycle. The commentary should examine the success of a program in bridging between planning and implementation and look for linkages between generations of governance.

## 3.4   Outcome Analysis: The Four Orders

The policy cycle is a framework for examining the processes of ecosystem governance and for identifying repeated efforts to address an issue or a set of issues in a place. It can identify the presence or absence of learning as a society works to achieve its goals over time. Experience demonstrates repeatedly, however, that a sound processes, with appropriate participation, a technically competent program staff and sustained governmental support, may not deliver the desired outcomes. The Orders of Outcomes framework (Olsen 2003; UNEP/GPA 2006; National Research Council 2008) is designed to compliment the policy cycle by focusing on the sequence of outcomes that are must be achieved when working to realize desired societal and environmental conditions (Figure 7).

While the Orders of Outcome Framework is described in some detail here, the worksheets for summarizing the contributions of each initiative selected as a case study address each variable only in general terms. The more details graduated indicators are reserved for the program that is the subject of the baseline as a whole and are included as worksheets for sections 4.5b and 4.5c.

The 1st Order Outcomes define the four enabling conditions for the sustained practice of ecosystem-based management. It includes the formal commitments required to implement a plan of action directed at the achievement of defined ecosystem conditions. The outcomes that mark the full scale implementation of a formally approved and sustainably funded plan of action are addressed in the 2nd Order, as changes in the behavior of governmental institutions, the behavior of the relevant groups exploiting or otherwise affecting ecosystem conditions and the behavior of those making financial investments in the system. An important feature of this third category of 2nd Order change is success in generating the funds required to sustain the program over the long term. The 3rd Order marks the achievement of the specific societal and environmental quality goals that prompted the entire effort. In ecosystems that are much altered by human activities the achievement of a sequence of 3rd Order goals marks the path to more sustainable

forms of development that mark the culmination of sustained courses of action that mark achievement of the 4th Order. The following are detailed descriptions of the four enabling conditions. The text of this section and the worksheets of graduated variables are adapted from UNEP/GPA (2006). The worksheets enable a program to identify the degree to which each of the 1st and 2nd Order Outcomes are present in the area of focus.
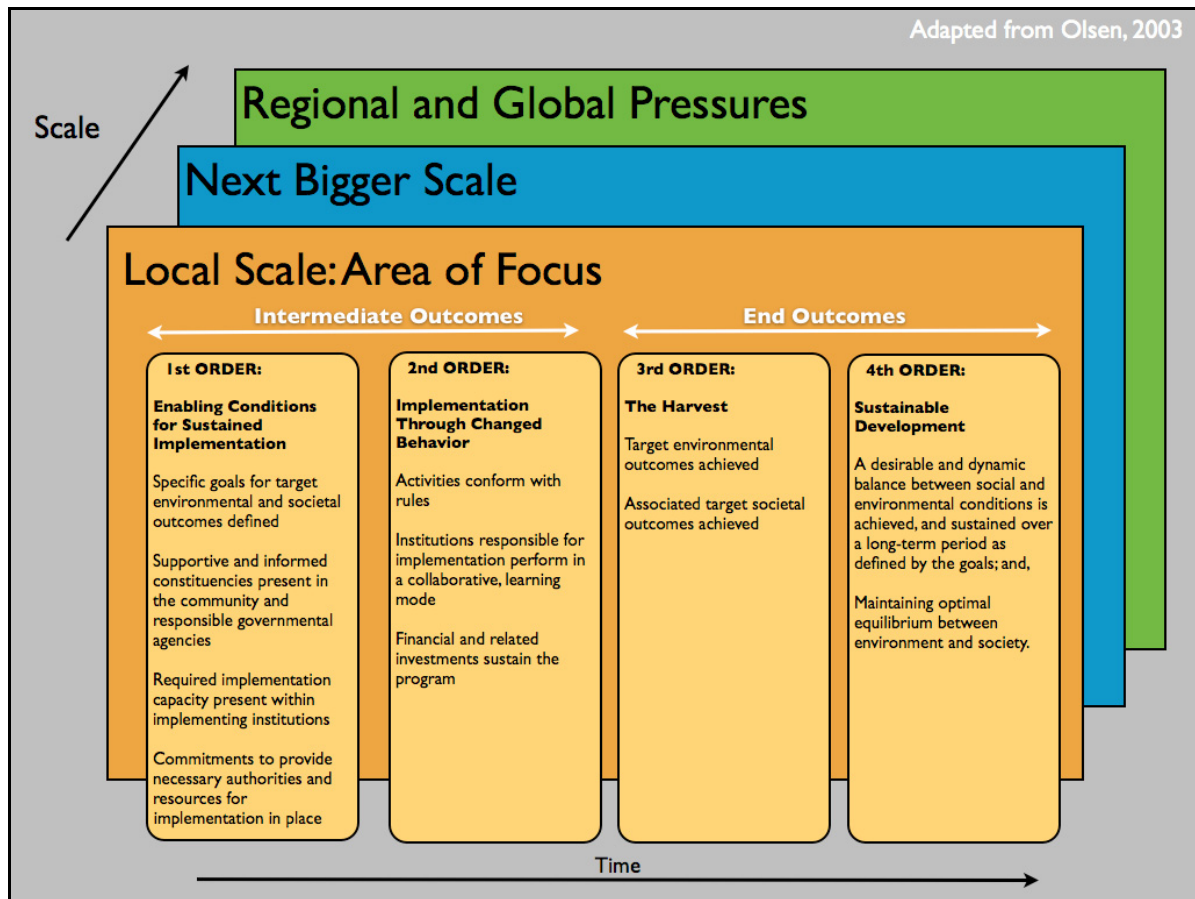


**Figure 7:** The orders of outcome

## The First Order: Assembling the Enabling Conditions for the Successful Implementation of a Plan of Action

The 1st Order constitutes the threshold of results that are present when an initiative has success-fully completed steps 1 through 3 of the policy cycle. Since the ecosystem approach in rooted in learning and experimentation, these three initial steps will have been nourished by the conduct of a number of actions designed to test new approaches to problem solving and build trust among the elements of government, society and markets civil that will need to work together to achieve desired goals. Thus learning by doing is the principle path to building the capacity and the constituencies required to practice the ecosystem approach. The 2nd Order is evidence of the

changes in behavior that signals the implementation of the policies, procedures and plan of action of a formally instituted program that is associated with step 4 of the policy cycle.

We begin by examining the degree to which the 1st Order preconditions for effective and sustained implementation were or are present in the case study. Experience in a wide diversity of settings suggests that the transition to implementation can be anticipated only when all four of the following conditions are present:

- A core group of well informed and supportive constituencies composed of stakeholders in both the private sector and government agencies actively support the program,

- Sufficient initial capacity is present within the institutions responsible for the program to implement its policies and plan of action,

- Governmental commitment to the policies of a program has been expressed by the delegation of the necessary authorities and the allocation of the financial resources required for long-term program implementation, and

- Unambiguous goals that address both societal and the environmental conditions have been adopted against which the efforts of the program can be measured.

For each case study examined by a governance baseline the degree to which the 1st Order enabling conditions were successfully assembled will give clues for the traditions and capabilities of governance in that locale as they apply to the issues that past initiatives have addressed. Where the focal point of a past or on-going initiative is the management of natural resources the application of the Orders framework may reveal that the weaknesses lie in lack of clarity, or disagreement over the fundamental goals of the program and weakness or important gaps in the constituencies for that program. In other cases local support may be strong and well informed but sustained governmental commitment has been lacking. Each case study should be examined in terms of its achievements – or absence of achievements – in 1st, 2nd, 3rd Order outcomes. Some case studies may only reveal 1st Orders results while others may have generated the impacts associated with the 3rd Order. These differences will reveal a wealth of insights into the strengths and weaknesses of the existing governance system as these apply to the practice the ecosystem approach.

**Supportive Constituencies**

The constituencies for a program are the individuals, groups and institutions that understand and actively support its goals. Constituencies are essential at the local level within the groups that will be most affected by the implementation of a program. If such support is absent the task of imposing the implementation of new policies, regulations and decision-making procedures on an unwilling or uninformed society may prove unworkable and will be costly in terms of enforcement. Constituencies are also essential at higher levels in the governance hierarchy – typically at the state (province) and/or national level. A new program must find its place within a pre-

existing institutional structure where power and "institutional turf", both real and perceived, is often jealously guarded. Depending upon the scope of the program and the significance of its actions, constituencies may also need to be built among the general public. Total agreement is impossible and success lies in constructing a program that is perceived to addressing issues that are important to the society in a manner that is seen to both fair and effective.

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**Leading Questions**

- Do those who benefit from the goods and services produced by the ecosystem and who will be affected by the program's actions understand and support its goals, objectives and actions?

- Do the institutions that will assist in implementing the program and/or will be affected by its actions understand and support its plan of action?

- Is there public support for the program?

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The worksheets for these questions probe a program's investments in public education, in involving those who will be affected by the program in identifying the issues that to be addressed and the analyzing the causes of those issues. It is equally important to be strategic in building positive relationships with the governmental institutions and the businesses interests by involving them, where practicable, in shaping the program's agenda.

Constituencies and stakeholders are not one and the same. Stakeholders are those individuals, groups and institutions affected by management decisions or responsible for making and implementing management decisions. Constituencies are those individuals, groups or institutions that support the program and voluntarily abide by its rules. Ideally, most stakeholders become constituencies for the program.

## Formal Commitment

The commitment by government of the necessary authorities and resources required to implement a program is the second pre-requisite to success. This may come initially in the form of a governmental mandate for a management initiative that defines its scope and characteristics. Once the policies and initial plan of action have been negotiated, government must formally provide the responsible institution or institutions with the necessary authority to allocate natural resources, regulate their use, mediate conflicts and provide the necessary human and financial resources to implement the program. Such commitment may take the form of a law, decree or other high-level administrative decision that establishes an ecosystem management program as a permanent feature of the governance structure. The creation of commissions, working groups, user organizations and non-governmental organizations (NGOs) dedicated to the advancement of a plan of action are other important expressions of commitment. This element of the pre-conditions for successful implementation is often referred to as 'political will'.

## Institutional Capacity

The institutional capacity necessary to implement the adaptive, ecosystem-based approaches to governance is typically the principle limiting factor to the program's ultimate success. A good practice is to balance the complexity of the agenda at a given stage in a program's evolution to the capacity of the institutions involved to practice ecosystem-based governance. Too often the scale and scope of internationally supported initiatives outstrips the capacity of the institutions charged with implementing and sustaining a program. This can be wasteful, counterproductive and may breed frustration and cynicism among partners and stakeholders. Capabilities are needed in conflict resolution, the ability to manage interdisciplinary teams, the design and implementation of public education programs, the oversight of discrete development projects, and the ability to evaluate the performance of contractors. The long time frames and complexities of ecosystem-based governance demand knowledge and skills to adapt to changing conditions and to the learning that emerges from the program's own experience.

It is important not to confuse experiments and pilot projects (associated with Step 2 of the policy cycle) with the full-scale implementation of a formally sanctioned program that is sustained over time.

**Unambiguous Goals**

Unambiguous goals define the qualities of the environment and the societal conditions (in 3rd Order terms) that the program is working to achieve. Where feasible, such goals should be time-bounded and quantitative – how much, by when. Such goals need to appeal to the values of the local community and society as a whole as well as reflect a solid understanding of the ecosystem and institutional process that must be orchestrated to achieve them Examples of 3rd Order outcomes could be measurable improvements in such biological parameters as healthy reefs or abundance of priority fish species. The complementary societal conditions might include: positive changes in local community income and social conditions; improved health care and education and greater security from violence.

Without clear goals it is difficult or impossible to assess the long-term impacts of a program. Such goals should define both the 3rd Order environmental and social conditions that, when achieved, would constitute success. Yet many past and current coastal governance initiatives, be they "integrated" or sectoral in their scope, have not defined their goals in clear and unequivocal terms. Very often the long term goal is expressed in generic terms and the focus has been on near term objectives whose relationship to the long term, but vaguely stated, goal is less than clear. Defining a goal of a program only as 'sustainable development', 'balance among competing activities' or 'ecosystem health' indicates the desired direction of change but little more. It is far easier to assess a program that has set specific targets that define 'how much, by when'.

> **Leading Questions**
>
> - Have major management issues been identified and prioritized?
>
> - Do the program's goals define both desired societal and environmental conditions?
>
> - Are the program goals expressed as time-bound and quantitative targets (how much, by when)?

**The 2nd Order: Behavioral Change**

2nd Order outcomes are evidence of the successful implementation of a formally endorsed and adequately funded ecosystem-based program. This includes evidence of new forms of collaborative action among governmental institutions and the actions of state-civil society partnerships, the behavioral changes of resource users and changes in patterns of investment. Unlike the 1st Order, success does not necessarily require results in all three categories. Depending upon the goals of a program, results in one or two of these categories may suffice.

Examples of evidence of new forms of collaborative action among institutions, the functioning of state-civil society partnerships, involvement of the tourism sector in monitoring and surveil-

lance, and the high compliance of resource users with rules governing rates and forms of natural resource exploitation. It is critically important to distinguish between 2nd Order changes in behavior that occur while assembling the enabling conditions from the changes that signal the full scale implementation of the program as a whole.

## Changes in the Behavior of Institutions

Since government agencies are usually organized along sectoral lines, a major challenge is to achieve more integrated forms of planning and decision making. The re-organization of institutions, the re-distribution of power and resources, the creation of commissions and task forces are 1st Order achievements that, when they produce changes in behavior, mark a transition to 2nd Order program implementation. For example, there are many examples of nations that have formally enacted a progressive Fisheries Program and proceeded to develop and adopt regulations, standards and enforcement procedures. Yet the years of effort that may be required to assemble these 1st Order achievements may have little impact on how fishery resources are being allocated and exploited. The progress is nearly all 'on paper'.

**Leading Questions**

- Are the implementing institutions collaborating effectively to implement the program?

- Are program policies, procedures and regulations being enforced?

- Are conflict mediation methods being effectively applied?

- Is an appropriate set of indicators being monitored to document progress towards the program's goals and targets?

## Changes in the Behavior of Individuals, Groups and Businesses

Changing the behavior of the groups and sectors that make direct use of the goods and services that coastal ecosystems generate should be the focal point of program implementation. The cessation of such destructive practices as dynamite fishing or halting the release of toxic wastes into the environment are examples of behavioral change in small groups whose actions threaten the condition of an entire ecosystem and its associated human population.

User groups tend to comply more with laws and regulations that they consider to be 'legitimate.' Coercion, the threat of sanction, usually is not the principal factor influencing compliance decisions. Research in several settings has shown that the basis for legitimacy and voluntary compliance is as follows:

- There must be a reasonably common understanding of the basic nature and extent of the problem, such as over-exploitation.

- The procedures for developing and implementing management measures must be perceived to be fair.

- The management measures must be perceived to be effective and make a significant contribution to achievement of the desired results.


**Changes in Investments**

Investments that strengthen the capacity of institutions to practice ecosystem-based governance, to educate the public and to construct the physical infrastructure required for achieving the policies and goals of a program is the third category of behavioral change. These may include decisions to invest in better enforcement of existing rules, decisions to invest in sewage treatment or the construction and maintenance of shoreline protection works. Investments in habitat protection and restoration including the purchase of protected areas and conservation easements, and restoration of wetlands may all be important expressions of program implementation.

Investments in infrastructure are the most readily quantifiable and may be the easiest to justify and monitor. On the face of it, there are fewer unknowns. If a sewage treatment plant or a water distribution system of a specific design has been shown to work elsewhere, competent firms can be contracted to build them. 'Good practices' for the administration of such projects are widely known and the implementation of these elements of a plan of action may appear to be relatively tractable. But such apparent simplicity can be deceiving. A poor institutional capacity assessment and insufficient attention to the human dimensions of successful use and adequate maintenance may mean that a few years later, the sewage treatment plant has broken down and the water system no longer delivers water to the people who still need it. Unfortunately examples of such failures abound in "developing" nations and re-enforce that the key feature of implementation is behavioral change in target institutions and groups.

**Leading Questions**

- Are taxes, fees and other revenue generating mechanisms contributing to the financial basis of the program?

- Are the market prices for ecosystem goods and services reflecting the costs of generating and sustaining these benefits?

- Are the necessary investments in infrastructure being made?

- Are the necessary investments being made to strengthen institutional capacity?

**3rd Order Outcomes: Achievement of Target Environmental and Societal Conditions**

3rd Order outcomes mark the achievement of the program's goals as these were defined during the issue selection and planning phase and may have been adjusted during implementation. These outcomes are the rewards for sustained behavioral change in the targeted institutions and groups. Water quality improves, there are more fish, income levels rise, and target communities' engagement in supplemental livelihoods stabilizes or improves.

Good governance practices may be expected to bring additional benefits of strengthened systems of participatory democracy that bring order, transparency, and equity to decision making and to the manner in which resources are allocated. By modeling standards of good governance, ecosystem management programs bring hope, a greater sense of security and belief that the political system can respond to societal needs. The induced changes in behavior can increase the standard of living of coastal residents by improving food security, and provide opportunities to generate income through supplemental employment. Properly managed, diversified income generating activities that improve economic welfare can be related to improvements in the condition of the environment. Examples of 3rd Order outcomes include:

- Measurable improvements in chemical, physical and biological parameters

- Improved recruitment of priority fish species

- Demonstrable reduction of persistent organic pollutants in the food chain

- Changes in local community income and social conditions as a result of improved environmental conditions

- Reductions in the loading of nutrients and the associated evidence of eutrophic conditions.

**Leading Questions**

- Did the condition of the human population in the area of focus improve during the period when the program was active?

- Did the condition of the environment improve during the period when the program was active?

- Can changes in the condition of the human population and environment be reasonably attributed in whole or in part to the actions of the program? Why?

- Did the program contribute to mitigation of negative forces affecting the condition of the ecosystem? Where such forces beyond the sphere of influence of the program?

**The 4th Order**

The difference between 3rd and 4th Order Outcomes is that sustainable development requires achieving a dynamic equilibrium among both social and environmental qualities. 3rd Order assessments examine the degree to which a program's societal and environmental goals have been achieved. These are usually limited in scope and can only address the issues upon which the program decided to focus. The 4th Order, on the other hand, surveys the ecosystem as a whole and asks whether the conditions achieved are sufficient to sustain a healthy, just and equitable human society that is sustaining the qualities of the ecosystem of which it is a part. Sustainable development will not have been achieved if, for example, the state of coral reefs of a place are sustained or improved while the people associated with them continue to live in unacceptable poverty. Similarly, sustainable development has not been achieved if some measures of quality of life are high but such achievements are eroding the resource base or require the exploitation of other social groups. The challenge is vastly complicated by the imperative of defining an acceptable balance in terms of both intergenerational equity and a planetary perspective on both societal and environmental conditions and trends. Recognizing that all living systems are in a constant process of change, sustainable forms of development will be dynamic, not static, and must be capable of responding to the surprises that Mother Nature delivers. This again raises the topic of resilience – the ability of an ecosystem to recover from a stress and to adapt to changing circumstances.

It is important to recognize that some expressions of 1st, 2nd, and 3rd Order outcomes will accumulate concurrently within a given time period. While there are causal relationships between the three orders they are not, and should not, be achieved in a strictly sequential progression. For example, many successful programs experiment at a small geographic scale before attempting to apply new management practices at the national scale. Thus the 1st Order threshold may only be achieved at the national scale when 2nd and 3rd Order outcomes have accumulated at one or more demonstration sites.

## 3.5    Summing Up: The Characteristics of the Existing Governance System

Review the three sources of governance and the means by which they express their power and influence. Reflect upon the time line, past and recent responses to changes in the condition of the environment and human well being within the area of focus. Consider the governance system as a whole, how it has responded historically to changes in the condition of the ecosystem. Consider the strengths and the weaknesses of the governance system in terms of its ability to control and mitigate destructive forces and thereby sustain the environmental goods and services that are generated within the area of focus. Consider how effective the governance system has been in encouraging outcomes that contribute positively to human well being.

# 4.    Governance Baseline Part 2: Looking to the Future

## 4.1    Design of a New Program or the Next Phase of an Ongoing Program

While Part I of a governance baseline is focused on a place – defined in section 2.2 as the "area of focus" – Part 4 outlines the steps for designing an ongoing or future program that intends to contribute to progress towards more sustainable forms of development in that place. For simplicity, we refer to the initiative to be considered as "the program" or "your program". A program may include a number of contributing, typically shorter term, projects. This process of analysis and strategic planning is applicable to initiatives of all sizes. In most cases the responses to the issues identified as important in the area of focus cannot be resolved by a three to five year project but will instead require the sustained effort of a long-term program. The first step is to assess the capacity, goals and objectives of an individual program that intends to apply the ecosystem approach to address the current and future issues in the area of focus.

## 4.2    How have the Ecosystems within the Area of Focus changed?

We begin by reflecting upon how the ecosystems within the area of focus have changed over time. It is always useful to place trends within the area of focus in larger context. Globally, coastal ecosystems are increasingly stressed by the effects of burgeoning human settlements and activities. Nearly 40% of the population lives within 100 km of coasts and this number is expected to increase to 50% by the year 2015 (Millennium Assessment 2005). Coastal ecosystems are extraordinary productive and a siting human activities in a coastal location provide many strategic benefits. The benefits of siting hubs for trade, defense facilities, industrial infrastructure, and food production on a coastline will continue to attract more people, expand coastal cities and the complex interactions, conflicts and impacts a further concentration of human population and activity and infrastructure entail. This burgeoning density of development and intensity of resource utilization is reducing and degrading the remaining natural habitats; modifying flows of freshwater, sediments, and pollutants to the sea; reducing biological diversity; and increasing the drainage of excess nutrients into coastal waters. These impacts have weakened the ability of ecosystems to generate the very services that attract people to the coast.

How are such pressures and expressions of ecosystem change being expressed in the area of focus? Review the trends portrayed in Section 2.4 and the relationships and interdependencies among them. Project the trend lines out ten and twenty years into the future. These projections should be made without consideration of the impacts and outcomes that your program hopes to generate.

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**Leading Questions**

- What pressures are local in origin and which ones are driven by forces operating at larger scales?

- What goods and services have been lost and which ones are at risk?

- Are the ecosystems within the area of focus becoming less resilient?

- Is the quality of life of the human population perceived to be improving or declining?

- Which segments of the human society have benefited and which have been the losers as the ecosystem has changed?

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*See worksheet 4.2 page 73.*

## 4.3    Anticipating the Impacts of Climate Change

Consider the likely and potential impacts of climate change in the area of focus over the next 10, 30 and 100 years.  These may be expressed as sea level rise, increased frequency of storm events, acidification of seawater, desertification of arable land and the associated declines in ecosystem function. The anticipated impacts of climate change over the current century may be extracted from such authoritative sources as the Intergovernmental Panel on Climate Change (IPCC) and a growing number of other responsible sources. For example, the handbook "Adapting to Coastal Climate Change: A Guidebook for Development Planners" (USAID 2009) offers a comprehensive overview of the impacts of climate change on coastlines and the tools that can be applied to the mitigation of its impacts.

There is an unequivocal scientific consensus that increases in greenhouse gases in the atmosphere – due primarily to carbon dioxide produced by the burning of such fossil fuels as petroleum and coal – are driving the warming temperatures of air and sea, and acidification of the world's oceans. Warming of air and sea induces shifts in precipitation patterns, sea level rise, and more frequent and extreme weather events. These effects are already apparent in the world's coastal regions and are projected to intensify. While the expressions of global change and their impacts can be anticipated with considerable confidence at the global scale it is as yet difficult or impossible to forecast how such changes will be expressed in sub-regions. This make it necessary to plan for ranges of impacts and to strategically monitor – and respond to – how ecosystem change

(both its societal and environmental elements) are unfolding at smaller scales and within the area of focus of a specific program.

Climate change will impact the health and welfare of coastal communities, the health and resilience of coastal ecosystems, and the billions of people that depend on these resources. The most significant and immediate consequences of these climate changes along coasts to consider for your program may include accelerated coastal erosion and loss of property, flooding, saltwater intrusion, shifts in the distribution and abundance of valuable marine species, accelerated spread of exotic and invasive species, more frequent coral bleaching and increased mortality, loss of coastal wetlands, and the expansion of marine dead zones.

In parallel with climate change, the ocean is becoming more acidic because of the absorption of atmospheric carbon dioxide ($CO_2$) by oceans and seas. Ocean acidification has potential wide-spread effects on marine ecosystems by inhibiting calcification, threatening the survival of coral-reef ecosystems, inhibiting the growth of calcareous algae at the base of the food web, as well as shell-forming marine organisms (such as clams), and stunting the growth of calcified skeletons in many other marine organisms, including those of commercial fish species.

**Leading Questions**

- What are the current high and low projections for sea level rise in the area of focus?

- What is the range of anticipated change in precipitation, freshwater supplies and flows to estuaries?

- What is the range of anticipated change in the temperature regime?

- What areas or features within the area of focus are particularly vulnerable to such changes in the climate, sea level and major storm events?

- How will these anticipated climatic changes affect the environment and human well being in the area of focus and at the next bigger scale?

*See worksheet 4.3 page 74.*

## 4.4   Visualizing a desirable Future

A program's vision is a statement that describes the ideal development-related changes that the program is working to achieve in its area of focus. It describes the societal, environmental and aesthetic conditions that the program hopes to bring about as well as broad behavioral changes that may be needed. Achieving the vision lies beyond the program's capability, but its activities should contribute to and encourage that end. It is an expression of a desired future fueled by passion and hope (Earle et al. 2001). The vision is best developed with involvement of multiple

stakeholders. It should describe the desired Third Order outcomes but may highlight features of the First and Second Order outcomes that are especially important to achieving those ends.

## 4.5    Documenting Baseline Conditions in Terms of Process and Outcomes

If a baseline is being prepared for an ongoing program it should be profiled following the same methods described for Case Studies in Sections 3.3 and 3.4 of Part I. The same worksheets should be used to describe:

- The defining features of the program

- The goals of the program

- The maturity of the program in terms of the policy cycle and generations of effort

- The 1st, 2nd and 3d Order outcomes that can be ascribed in whole or in part to the efforts of the program.

In terms of management cycle it is important to define what step in the policy process best describes the current status of your program. The future actions will be very different if the program is still working to understand the context within which it is working and select the issue that it will address (Step 1) or has completed such initial steps and negotiated a plan of action that must win governmental approval and funding if it is to proceed to full scale implementation (Step3). If Steps 1 through 4 have been completed the priority will be to assess what the program has accomplished, what it has learned and what it needs to sustain and do differently if it is to produce additional benefits. Whatever the program's maturity, carefully review the table of essential actions to identify instances where an action is only partially completed or undone – or where changing circumstances in the area of focus or at larger scales suggest that further analysis and/or actions may be needed.

Now review the status of the program in terms of the Order of Outcomes. As with the policy cycle, the answers to the questions posed in the Tables of worksheets are driven by the issues that the program selected to address and the goals that defined what the program worked to achieve. The enabling conditions necessary for making progress on one issue – such as overfishing in an estuary –  will likely be quite different from the enabling conditions that must be in place to make progress on a water quality problem in that same estuary and may be different again if the issue is reductions in freshwater inflows to the estuary brought by the construction of dams and extraction of freshwater for agriculture high in the watershed of the same estuary. Despite the differences associated with different issues the degree to which the program has succeeded in assembling First Order conditions with in the area of focus, and therefore the reputation of the program, the degree of trust that it has built with stakeholders in the govern-

ment, civil society and the business community will considerably influence its capacity to continue its operations and take on new challenges.

A critically important good practice is to balance the capacity of an institution (in this case your project or program) with the complexity and scope of the issues that it intends to address. It is better to do a few things well than many things poorly. The selection and definition of the goals, objectives and strategies will be the backbone of your program. The goals must be realistic and based upon assumptions of the financial resources, the abilities of the people involved and the time available as these relate to the context examined in Part one of a baseline. The needs will be quite different for an incipient program working to assemble the 1st Order preconditions than for an established program that has made the transition to achieving 2nd order changes in behavior through the implementation of formally approved policies and an associated plan of action. A mature program should be documenting advances towards the target conditions defined by its 3d Order goals.

**Leading Questions**

- What is the number of full time people working on the program?

- What are the primary knowledge and skills of the Program's staff?

- What is the annual budget of the program?

- For how many years is such financing assured?

- Under what time constraints will the program be operating (for example, pending major development/conservation decisions, elections and changes in government).

## 4.6 Selection of the Issues to be addressed by the Program in the Future

The core of all initiatives that embrace the ecosystem approach is to define the environmental and social conditions that it believes constitute the highest achievable future outcome for its area of focus (its vision) and the specific issues that it will address in order to contribute to that vision within a given period of time. The selection of the issues to be addressed by a new program or in the next phase of an existing program is a matter of strategy and different choices will have very different implications. It is essential to consider the sources and the scales at which the forces that are driving the various issues are operating.

For example, as depicted in Figure 8, a program that decides to address the issue of coral reef degradation in a given area must recognize that some of the causes of that degradation may be local, others are regional and still others are global. Overfishing and the impacts of unregulated

tourism may be local pressures that can be usefully addressed by a local program. But the degradation of reefs up-current from the area of focus may be reducing the flows of larvae that repopulated the area and these impacts may or may not be beyond the reach of a local program. The global impacts of climate change that may cause coral bleaching and eventually kill off much or all of the reefs in the area of focus will indeed be beyond the influence of a local initiative.

However, the careful documentation of the impacts of such global pressures, if skillfully presented might make a contribution to efforts to address the causes of global warming at the planetary scale.
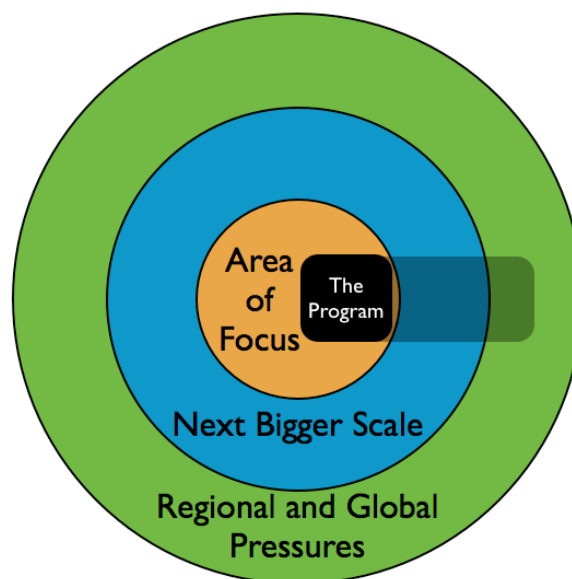


**Figure 8:** The Relationship between a Program and Geographic Scales

---

**Leading Questions**

- What issues does the program have the capacities to address?

- Which issues can the program reasonably hope to have an influence?

- Where might financial support be found?

- For what issues are the preconditions most favorable?

- For what issues can demonstrations of 2nd and even 3rd Order outcomes be achieved relatively quickly and thereby fuel the process?

- What issues compliment the interests and the abilities of the team?

---

*See worksheet 4.6 page 83.*

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### 4.7    Defining 3rd Order Goals

A program's goals define how the program intends to support the vision. It describes the areas and issues that the program intends to address and for which it assumes a degree of account-ability. The most successful long-term programs teach us the importance of setting unambiguous, time-bounded goals for the issues that the program chooses to select. Such goals are best when they specify in quantitative terms what will be achieved by a specified date. A program's goals should, like the program's vision, be expressed in terms of 3rd Order outcomes. Remember that the ecosystem approach requires 3rd Order goals that address both the human and the environmental dimensions of the desired conditions in the action arena. The goals should be related to the issues that the program has decided to address. This does not mean that there should be a goal for each issue –  or that a single issue may require achieving several distinct goals.

*See worksheet 4.7 page 84.*

### 4.8    Defining 1st and 2nd Order Objectives

By convention, we reserve the term "goal" for the program's desired 3rd Order outcomes and use the term "objectives" to define the 1st and 2nd Order outcomes that are believed to be necessary to reach such 3rd Order targets. We have found it instructive to articulate the logic of the program by working backwards from the 3rd Order to the 2nd and then from the 2nd Order to the 1st.

> **Leading Questions**
>
> By applying the graduated markers detailed in the worksheets for Section 3.4 to your program you can develop a baseline that answers the following crucial questions:
>
> - To what degree are the four categories of 1st Order preconditions present,?
>
> - To what degree are the three categories of 2nd Order changes in behavior required to achieve the program's goals underway?

In an incipient program the key task is to identify where the necessary changes need to be made in each source of governance (government, markets and civil society) and to think through carefully what this implies in terms of the constituencies that must be built and the capacities that the program will have to develop to appeal to those audiences. In a more advanced program there may be major challenges in 2nd Order compliance and enforcement and important shifts that must be made in the relationship among institutions that share responsibility for the resources or practices that need to be modified.
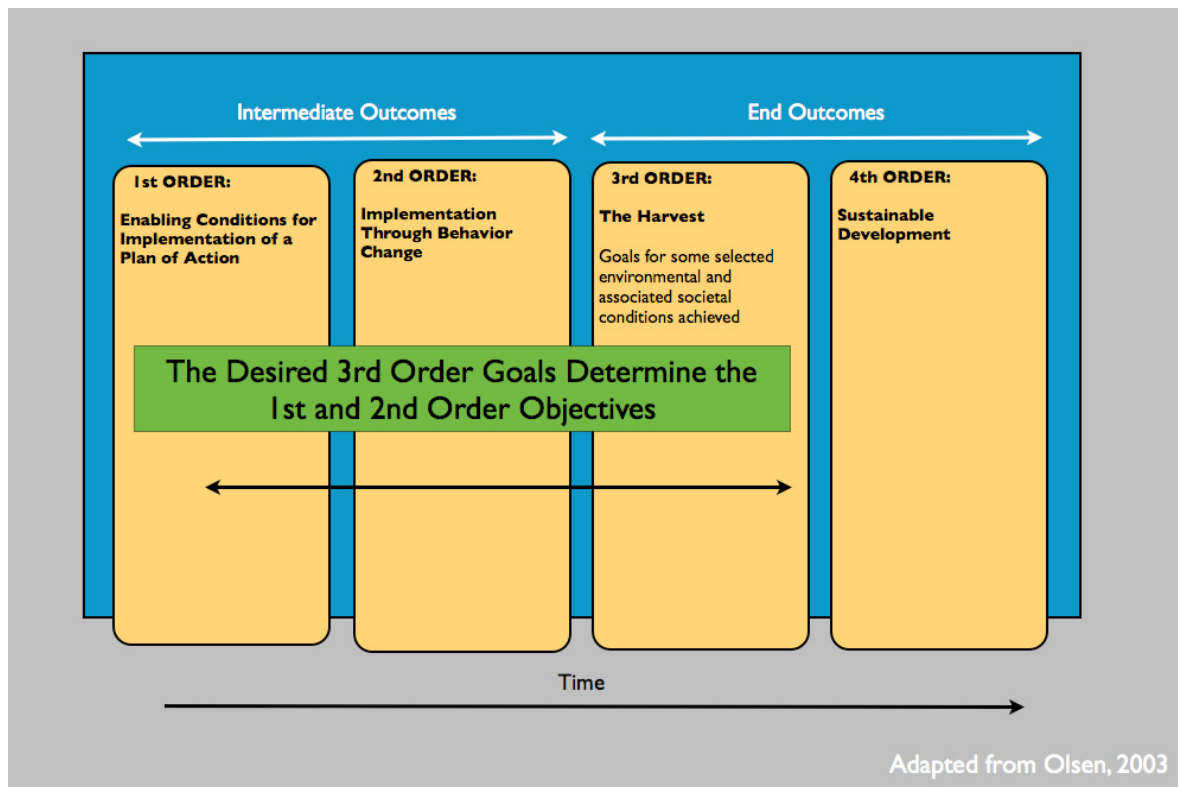
**Figure 9:** The Desired 3rd Order Goals Determine the 1st and 2nd Order Objectives

The baseline of 1st and 2nd Order conditions and the definition of the 1st and 2nd Order objectives for the next generation of your program, when put in the context of a thorough understanding of the traditions and characteristics of the existing governance system as revealed by Part I of the baseline, are the basis for a capacity building needs assessment. The 1st and 2nd Order objectives should therefore be sufficiently specific to suggest priority needs for such skills as fund raising, conflict resolution, and various forms of technical expertise.

*See worksheet 4.8 page 85.*

### 4.9    Defining the Contributions of the Program's Partners

A program can appropriately work to influence any number of stakeholders. The reality is that some are going to be more critical to the Program's success than others. The Outcome Mapping methods developed by the International Development Research Centre (IDRC) in Canada (Earl et al. 2001) offer detailed methods for designing programs that focus on 2nd Order behavioral change. These methods call for distinguishing between a program's boundary and strategic partners.

**Boundary Partners**

Boundary Partners are defined as the individuals, groups or organizations with whom the program interacts directly and with whom the program can anticipate some opportunities for influence. Local NGOs, community leaders, governmental officials and policy makers and businesses operating within the area of focus are all potential boundary partners. These are the groups, institutions or individuals that the program will work with in order to change their behavior and thereby make progress in achieving its 3d Order goals. For example, the local fishermen's association may be selected as the boundary partner with whom the program will work to change its position on closed seasons. The program works with its boundary partners to affect such changes but it does not control them.

The power of the program to influence the future of area of focus lies largely with its boundary partners. A boundary partner may include several organizations, groups or individuals if the change that is sought is similar for all of them. It is important to select no more than three to five boundary partners as the focal points for the Program's efforts as it works to make its goals a reality. Central to the selection of boundary partners is thinking through which of them has the greatest potential to influence other stakeholders (such individual fisherfolk operating in the area of focus) that the Program will not, or cannot, address directly.

**Strategic Partners**

The IDRC methods recognize that there are likely to be stakeholders with whom the program will work but whose behavior the program does not need to alter. These may include, for example, other donors operating in the action arena. The program may wish to form alliances with them, but it is not trying to change their behavior. These are termed strategic partners and are presented along with boundary partners in context to geographic distribution to the Program in Figure 10.
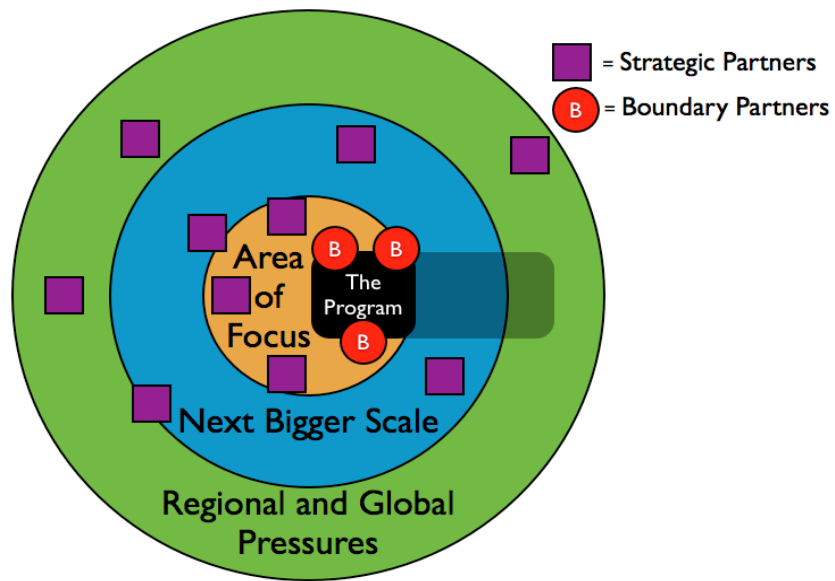
**Figure 10:** The Geographic Distribution of Strategic and Boundary Partners

*See worksheets 4.9a, page 86 and 4.9b, page 87.*

# 5. Monitoring and Evaluation

## 5.1 Monitoring the Program's Advance by the Management Cycle

As emphasized in Section 3.3 and shown again in Figure 6, it is useful to track the actions and accomplishments of the program as a whole by the Steps and Essential Actions of the management cycle. Typically, several essential actions associated with more than one Step are underway simultaneously. The worksheets for the management cycle should be applied to your program and used to periodically identify with the program team which step best characterizes the maturity of the program in a given year. This will help when setting priorities and considering the program's strategies in a given period. For young programs the culmination of several years of effort may be obtaining formal governmental endorsement and securing sustained funds for the implementation of a plan of action. More mature programs will be tracking the success of implementing actions that are changing how natural resources are being exploited and evaluating the impacts of their efforts. The essential task is to periodically scan across the table of essential actions to assess the condition of the program as a whole. Shifts within the ecosystem, including changes within government and markets may make it necessary to strengthen and re-invest in actions associated with Step 1 or 2 when the program is otherwise involved primarily in the implementation actions of Step 4.

## 5.2 Monitoring the 1st Order Outcome Enabling Conditions

Remember that the results of Steps 1 through 3 of the policy cycle should be expressed by the four categories of 1st Order outcomes. Completing the Essential Actions associated with these Steps may – or may not – produce the desired results. The graduated markers for 1st and 2nd Order outcomes should be applied to your program. The ratings awarded for each variable in the Orders tables are judgments on the degree to which the 1st Order preconditions are present. The shifts in the degree, for example, of governmental commitment to the program's enforcement program will sometimes be abrupt as when a national election brings major shifts in the policies and priorities of a new political administration. It is therefore the notes associated with the numerical ratings awarded to each indicator in the 1st Order outcomes table that are most useful and revealing of stability or change.

It may be difficult to choose variables that can be tracked over time that provide good information on such critically important, but often subtle conditions as the strength of the program's constituencies. Voluntary compliance with good practices, participation in program events and media (newspapers, radio, TV) reports are candidate sources. The preparation of a monitoring program is the time to fine tune the variables to be tracked for each of the four categories of preconditions. It may be useful to add other variables to the list provided in the worksheets. The rule, however, is to maintain some variables for each of the four 1st Order categories (goals, constituencies, capacity, commitment). In cases where the baselines and the monitoring are being designed to promote learning across a portfolio of programs it will be important to make sure that there are enough similarities in the variables that are monitored to make such cross program analysis feasible.

## 5.3   Assessing the Tipping Points between 1st and 2nd Order Outcomes

These methods are designed to assist ecosystem-based programs in successfully building the bridges between issue analysis, planning and the generation of political will on one side and effective and sustained implementation of an integrated plan of action on the other. Many projects and programs fail to build these bridges and this creates a wide "implementation gap". The integrating and holistic nature of the ecosystem approach requires that the goals of a program address both the societal and the environmental dimensions of desired outcomes at ecosystem scales. This requires addressing several issues simultaneously and preparing a plan of action with a number of components. Ideally the transition to 2nd Order signals the full scale implementation of a comprehensive plan of action that may include policies and actions directed at water quality, fisheries and land use while simultaneously making investments in sustained public education, further research and monitoring.

The successful practice of the ecosystem approach must be both pragmatic and strategic. The full scale implementation of a multi-facetted plan of action is most likely to succeed when individual elements of the plan are already underway and generating positive results. As with the Steps in the management cycle, an effective program will be strengthening its 1st Order preconditions as it generates some 2nd and 3d Order outcomes by addressing the more tractable issues. The key, therefore, is to build many bridges between the 1st and 2nd Orders and not to structure a program rigidly into distinct planning and implementation phases. It is nonetheless essential to make sound judgments on the presence and strength of the four 1st Order preconditions before launching into an expensive implementation phase for a component of the program or a comprehensive plan of action. The pressures to "do something real" can be intense. A well informed understanding or the existing governance system and careful consideration of the markers for the 1st Order preconditions will support making sound judgments on when elements of the program are ready for implementation.

### 5.4    Monitoring 2nd Order Outcomes as Changes in Behavior

A program's sustainability and resilience is depended upon the degree to which the results associated with the three Orders are present and working in synergy. The tables for tracking 2nd Order results detailed in the worksheets for Section 3.4 are designed to provide a basis for summing up on the overall impacts of a program's actions on human behavior. They should also be applied to your program as another element of the baseline against which the accomplishments of the program can be evaluated. The three categories – behaviors of resource users, behavior of government institutions and financial investments – suggest scanning across the three sources of governance and evaluating their contributions – or resistance – to the course of action being promoted by the program.

Additional methods for defining and monitoring 2nd Order changes in behavior have been developed by the IDRC (Earle et al. 2001). We strongly recommend reviewing these methods in detail. They are a powerful method for defining, monitoring and evaluating the 2nd Order changes in human behavior that are the central focus of ecosystem-based management. The selection of boundary partners in Section 4.7 enables a program to specify what 2nd Order changes in behavior is anticipated to generate progress towards your program's 3d Order goals. The IDRC methods suggest organizing such monitoring by identifying an "outcome challenge" for each boundary partner and then selecting graduated variables for gauging the degree to which those changes in behavior are achieved.

*Outcome Challenge:* The outcome challenge as a description of the ideal changes in the behavior, relationships, activities and/or actions of each boundary partner. It is the Program's challenge to help bring about these changes. Outcome challenges are phrased in terms of behavioral change. They should be idealistic, but not unrealistic. Remember that while the program contributes to the change, the ultimate responsibility and power for change lie with each boundary partner. For example, an outcome challenge for a local fisheries association might be phrased as "the program intends to see that the fisheries association endorse a closed season during the spawning season of white shrimp and to sanction any member who violates it."

*Progress markers:*  Since the outcome challenges are phrased as the ideal, it is important to next think through the specific changes, actions or events that would provide evidence that the boundary partner is indeed progressing towards its outcome challenge. The IDRC methods therefore call for identifying markers that segregate between what the program would expect to see, like to see and love to see as indicators of the changes that mark progress to the outcome challenge of each boundary partner. Relatively easy-to-achieve, reactive responses should be listed under "expect to see" while those that express more active participation and commitment to the Program's vision are listed under "like to see." Truly transformative changes are listed under "love to see." Thus, the "love to see" statements are likely to flow directly from the outcome change statement –  since it too is at the ideal end of the spectrum of possibilities.

Outcome challenges are developed for each of the program's boundary partners in Section 4.9 and are a source of ideas for adding to – or fine tuning – the indicators to be periodically assessed in the Orders tables. For example, in a situation where the shrimp farms are destroying wetlands, the generic "Are destructive forms of resource use being reduced?" may be replaced with a question that refers specifically to shrimp farms and mangrove wetlands. The IDRC progress markers are a valuable supplementary source of information on 2nd Order changes in behavior that can be recorded and analyzed by keeping journals.


## 5.5    Monitoring 3rd Order Outcomes as Changes in Ecosystem Condition

In many programs the bulk of monitoring is dedicated to the careful documentation of changes in the environmental conditions of concern to the program. Typically, much less attention is given to monitoring and assessing progress in the 1st and 2nd Order outcomes that are necessary to achieve those 3rd Order goals. We advocate a balanced approach, particularly in young programs that should be working to assemble the 1st Order preconditions for successful implementation of a plan of action. Both the changes in human well being and changes in environmental conditions must be addressed by a carefully targeted 3rd Order monitoring system. What will be monitored and how the monitoring will be done is, of course, to be determined by the specific 3rd Order targets.

For young programs, where the assembly of the 1st Order preconditions is the priority, 2nd Order achievements are the expression of a learning-by-doing approach. In this situation, it is often neither feasible nor strategically appropriate to invest heavily in the research and monitoring of the 3rd Order conditions at the ecosystem scale. It is important, however, to describe and where feasible quantify the environmental and social baselines conditions that are present at the beginning of an initiative to document just what it is that the initiative is working to change. Yet monitoring designed to track changes in the abundance of fish, water quality in an estuary, the income of target social groups can quickly become a technically challenging, complex, expensive and time consuming undertaking. In many cases such monitoring of 3rd Order variables is not feasible and the only option is to carefully select a very few indicators that will provide future comparison to the baseline conditions.

A program should position itself to be a good and thoughtful user of the data generated by institutions, researchers and observers external to the program. In many instances sophisticated data – for example changes in land use from remote sensing – may be accessible that, when combined with observations by members of local communities on why and by whom such changes are being made, produce a valuable record of this form of ecosystem change. Carefully designed methods for recording water quality and river inflows that make use of inexpensive tools are other methods that can be used to involve local people in tracking environmental and social conditions.

## 5.6    Building Capacity for periodic Self-Assessments and Evaluations

The performance of any plan or program can be assessed only if there is objective and verifiable data that are revealing of the dynamics within both the program and the ecosystem it is attempting to influence. The Orders method calls for the documentation of baselines that provide a reference point for assessing the progress and performance of a program that has adopted the ecosystem approach. These baseline or reference conditions have the following three dimensions:

- A baseline of the project's objectives, strategies and capacity

- A baseline of the characteristics and functioning of the governance system that the program is attempting to influence through 1st and 2nd Order achievements

- A baseline that specifies the desired 3rd Order societal and environmental conditions that constitute the long term targets of the program.

The purposes of such baselines and the subsequent monitoring of selected variables are three-fold: (1) to promote learning within the program, its partners and its constituency, (2) to provide a foundation for the practice of adaptive governance and (3) to make the program accountable to its funders and stakeholders. A well designed, strategic monitoring system is the foundation for adaptive governance and learning. The key challenge is to make such adaptation and learning a central feature of the culture of the program and all those who contribute to it. This requires making the time and creating the conditions for periodic stock taking and reflection. But a program cannot be always adjusting its investments and an over-emphasis on self examination can lead to indecision and inefficiency. Many programs find that it is best to organize the work in annual work plans and to anchor the preparation of each work plan in a thorough review and self assessment of the progress made and lessons learned over the previous year informed by an identification of changes in the context in which the program is operating that present new challenges and new opportunities. Such annual events should involve all program staff and its partners and may extend over several days. The objective is to make the presentations and discussion substantive, frank and conducted in a manner that encourages trust and transparency. In many cases the presence of trained facilitators is a good investment.

External evaluations are also important and need to make full use of the program's monitoring capacity and results. These bring in fresh perspectives and access to experience and ideas not otherwise easily available to the program. Typically external evaluations are concerned as much with performance as with outcomes. Process evaluations are required by the institutions that are funding a program to assess the internal workings of the program, whether, and how efficiently it is meeting the commitments made to the funder and to identify adjustments to the administration and fiscal management of the program. Process evaluation focuses upon a program's outputs, the number and quality of reports that have been generated, the number of people trained, the equipment and services that have been purchased and the degree to which stakeholders have been consulted. It is most useful when such process evaluation is complimented by

outcomes evaluation that assesses the impacts of the program on the environmental and social conditions that are addressed by its goals and fundamental purposes. Such outcome evaluation should seek to objectively the relative contributions of the program's policies and actions to observed social and environmental change.

Building capacity to make the principles of the ecosystem approach an operational reality and in applying methods, such as those presented in this Guide, will remain a major challenge for decades to come. Such capacity building will be encouraged by networks at local, national, regional and global scales and by sustained investments in education training and practitioner certifications. Capacity building in the methods described in this guide may be obtained from:

- The Coastal Resources Center at the University of Rhode Island (www.crc.uri.edu)

- EcoCostas (www.ecocostas.com)

- SustainaMetrix (www.sustainametrix.com)

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# Appendix: Worksheets

## #2.1 Purpose and contributors to the baseline

Identify the principle purpose for which this governance baseline is being prepared

| PURPOSE OF AND CONTRIBUTORS TO THE BASELINE | | |
|---|---|---|
| Date of this baseline:<br>Dates of anticipated periodic self assessments | | |
| | | A basis for the design of a new initiative?<br><br>YES ☐  NO ☐ |
| | | A self assessment of an ongoing project or program?<br><br>YES ☐  NO ☐ |
| | | An evaluation of the program?<br>YES ☐  NO ☐ |
| | | A training event?<br>YES ☐  NO ☐ |
| | | Other (Please specify? |
| Contributors to the baseline preparation | Names: | Affiliation: |
| | | |
| | | |
| | | |
| | | |
| | | |

**#2.2a Definition of the area of focus**

The area of focus is the geographically defined place that is the subject of this governance baseline. Boundaries should be determined principally by the issues that are to be addressed. In practice the boundaries of the area of focus are typically a compromise between administrative boundaries, ecosystem boundaries and the resources available to a project or program.

| DEFINE AREA OF FOCUS | |
|---|---|
| Name of Area of Focus | Name of the Eco-Region (if applicable) |
| | Province/State |
| | Municipality/Area of Focus (in Km$^2$) |
| Brief verbal description of the Area of Focus: | |
| Map of the Area of Focus | |

**#2.2b Features of the area of focus**

| FEATURES OF THE AREA OF FOCUS | |
|---|---|
| Area of the water body (in Km², %) | Area of the estuary |
| | Island perimeter (km) |
| Interior coastline length Km | Mangroves (in Km², %) |
| | Beaches (in Km²) |
| | Sea grasses (in Km²) |
| | Coral reef (in Km²) |
| | Mudflats  (in Km²) |
| Watershed Characteristics | Forests (in Km²) |
| | Annual rainfall |
| | Resident Population |
| | Transient Population |
| Include comments on the quality of the estimates for the Features section | |

## #2.3 Drivers and responses to the trajectory of ecosystem change

Describe the historical events that, in your group's judgment, have most directly shaped the issues of concern in the area of focus. Note these events as a timeline in the center column of the worksheet. Develop the timeline at a scale larger than the area of primary analysis. This usually means completing this section at the scale of the province (or state) or the nation. The timeline should extend 50 to 100 years and should list both the event and its date. Remember that the purpose of this exercise is to help the group recall together the historical roots of the issues that should be addressed in the next generation of governance. Once the center column timeline is complete, in the left hand column list the driving forces that contributed to these events in the center column. Driving forces are the major reasons underlying ecosystem change in a given period. They span prevailing societal (migration, war, economic trends) and environmental (coastal erosion, drought, climate change) conditions. Now consider the right column. Recall the governance actions – plans, decision points and examples of success or failure in implementation – and add these to the timeline.

| DATE | PRESSURES | CHANGES IN STATE | RESPONSE |
|------|-----------|------------------|----------|
|      |           |                  |          |
|      |           |                  |          |
|      |           |                  |          |
|      |           |                  |          |
|      |           |                  |          |

**#2.4 Long term trends in the condition and use of ecosystem goods and services**

Our purpose is to visualize the long-term trends in the area of focus. The trend lines should all be prepared for the same time period (50 - 100 years). Often data that is considered reliable is only available for the recent past. It is important however, to estimate change over the entire time period and to clearly differentiate between values that are supported by data that is considered reliable and estimates based on the perceptions of those participating in baseline preparation.

| THE ECOSYSTEM VARIABLE | COMMENTS |
|---|---|
| Trends in human population (total, urban and rural) in the system. Where seasonal migrants are important (for example tourists) this may deserve a trend line too. | Quality of the data |
| | Observations on the pressures and consequences of the change as portrayed by the trend |
| Trends in quality of life (literacy, life expectancy, poverty rate, income) | Quality of the data |
| | Observations on the pressures and consequences of the change as portrayed by the trend |
| Trends in condition of principle natural resources (abundance or annual harvests from fisheries, agriculture, mining, forest products) | Quality of the data |
| | Observations on the pressures and consequences of the change as portrayed by the trend |
| Trends in the aerial extent and condition of important coastal habitats (such as beaches, wetlands, seagrass beds, oyster beds, coral reefs) | Quality of the data |
| | Observations on the pressures and consequences of the change as portrayed by the trend |
| Trends in land use (woodland, cropland, pasture, desert, urbanized) | Quality of the data |
| | Observations on the pressures and consequences of the change as portrayed by the trend |
| Trends in livelihoods (numbers of people engaged in agriculture, fisheries, industry, services) | Quality of the data |
| | Observations on the pressures and consequences of the change as portrayed by the trend |
| Trends in water quality (size of area classified as polluted, incidence of toxic blooms, loadings or concentrations of pollutants) | Quality of the data |
| | Observations on the pressures and consequences of the change as portrayed by the trend |

## #2.5 Identification of eras of governance

Examine the timeline from the perspective of periods – or eras – and identify the priority issues associated with each. An era is a period of time – typically extending over decades, or in the more distant past centuries – when human activity and ecosystem condition were relatively stable and the rules governing the use of natural resources followed an established pattern.

| TIME PERIOD | NAME THE ERA | MAJOR ISSUES OF CONCERN TO THE GOVERNANCE SYSTEM | FACTORS THAT CONTRIBUTED TO THE ERA'S END |
|---|---|---|---|
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## #3.1 Selection of case studies for detailed analysis

List the case studies selected, noting if they are in the area of focus or at the next higher scale and noting the selection criteria that apply. One example is provided below; please complete this analysis for at least 2 case studies. A good case study permits a well informed analysis of how planning and decision making on issues raised by ecosystem change has evolved. It is revealing to examine cases where, despite widespread concern over an issue or issues, the governance system was unable to achieve consensus and commitment to any actions. It is advisable to include one or more case studies that examine how well or poorly the issue analysis and planning have been linked to the subsequent implementation of a course of action. One must consider all three sources of governance (market, government, civil society) in the analysis. A case study should not be limited to responses by government (laws, policies, officially sanctioned projects and programs) but should explore how business and nongovernmental organizations have responded to a problem or opportunity. A case study may trace the evolution of a resource based (mining, timber extraction, fisheries, agriculture) or resource enhanced (tourism) activity, or the response to a disaster (a flood, major storm or disease outbreak). It may be appropriate to select for case studies at the next larger scale but differences in the context should be noted.

| CASE STUDIES SELECTED | DESCRIPTION OF CASE STUDY |
|---|---|
| Case Study #1 | Includes transition to implementation |
| Selection Criteria: | |
| Case Study # 2 | |
| Selection Criteria: | |
| Case Study #3 | |
| Selection Criteria: | |

**#3.2 Description of each case study: issues, goals and objectives**

| FEATURES OF THE CASE STUDY | |
|---|---|
| Insert Map of the case study area | |
| Year of initiation | Ending date |
| The big picture - total investment and % contribution by different funding sources | For example:<br>• Public Funds (define):<br>• Private Funds (define):<br>• Philanthropies (define):<br>• International donors (define): |

**#3.3 What step in the management cycle best characterizes the maturity of the case study?**

Is the program associated with the case example still working to understand the context within which it is working and selecting the issues that it will address (Step 1)? If completed, shade in the circle for Step 1, if underway, draw a line through the circle or if uninitiated leave the circle empty. If Steps 1 through 4 have been completed the priority will be to assess what the program has accomplished, what it has learned and what it needs to sustain and do differently if it is to produce additional benefits. Whatever the program's maturity, carefully review the table of essential actions to identify instances where an action is only partially completed or undone – or where changing circumstances in the action arena or at larger scales suggest that further analysis and/or actions may be needed. This worksheet should be completed for each case study examined.

| DRAW THE LOOPS THAT PORTRAY THE GENERATION(S) OF THE INITIATIVE AND IDENTIFY THE DEGREE TO WHICH THE FIVE STEPS IN EACH GENERATION HAVE BEEN COMPLETED | |
|---|---|
| | |
| If there has been more than one generation, have more recent generations built upon the experience of earlier generations? | |
| What step in the current management cycle best characterizes the maturity of the initiative? | |

## #3.4 Outcome analysis

The following worksheet identifies the degree to which each of the 1st and 2nd Order Outcomes may be attributed to a case study. This worksheet should be completed for each case study examined.

| FIRST ORDER OUTCOMES | SECOND ORDER OUTCOMES | THIRD ORDER OUTCOMES |
| --- | --- | --- |
| Goals as stated by the initiative | Contributions to the changes in behavior of users | Contributions to desired environmental conditions |
| | | |
| Constituencies of the initiative | Contributions to changes in the behavior of institutions | |
| | | |
| Commitment: governmental support and funding to the initiative | Contributions to changes in investment | Contributions to desired societal conditions |
| | | |
| Major capacities within the initiative | | |
| | | |

**#3.5 Summing up the characteristics of the existing governance system**

Looking across the case studies that have been examined, characterize the features of the existing governance system in the area of focus. Consider the sources of governance and the means by which they express their power and influence, reflect upon the time line, past and recent responses to changes in the condition of the environment and human well being within the area of focus. Consider the governance system as a whole, how it has responded historically to changes in the condition of the ecosystem.

| CHARACTERISTICS OF GOVERNANCE RESPONSES TO ECOSYSTEM CHANGE IN THE AREA OF FOCUS | | | |
|---|---|---|---|
| Which of the three sources of governance currently dominates in shaping responses to ecosystem change in the area of focus? | | | |
| What mechanisms of governance are being favored by each source of governance in the area of focus? | By Government | By Civil Society | By the Marketplace |
| | | | |
| What is the evidence of the capacity of the existing governance system to learn and adapt to changes in the condition of the ecosystem? | | | |
| What are the current 1st Order barriers to the practice of ecosystem-based governance in the area of focus? | | | |
| What features of the current governance system in the area of focus enable the practice of ecosystem-governance? | | | |

## #4.1 Baselining your program's capacity

It is important to define what step in the policy process best describes the current status of your program. Carefully review the table of essential actions in an application of the worksheet for Section 3.3 to your program. Identify instances where an action is only partially completed or undone – or where changing circumstances in the area of focus or at larger scales suggest that further analysis and/or actions may be needed.

| CAPACITY | |
|---|---|
| What is the number of full time people working on the program? | |
| What are the primary knowledge and skills of the Program's staff? | |
| What is the annual budget of the program? | |
| For how many years is such financing assured? | |
| Under what time constraints will the program be operating ( pending major development/conservation decisions, elections and changes in government, changes in external forces) | |

### #4.2 How have the ecosystems within the area of focus changed?

Consider the timeline, the long-term trends in the condition of the ecosystem as identified in section 2.4 and the eras identified in 2.5. What do you see as shifts in the flows of ecosystem goods and benefits and changes in the condition and activities of the human population in the area of focus. Characterize the changes in the ecosystem as a whole and their consequences for people. Consider whether the changes constitute progress towards more or less sustainable and equitable forms of development. Has the ecosystem become more, or less resilient?

| HOW THE ECOSYSTEM HAS CHANGED? |
|---|
| What have been the shifts in the flow of ecosystem goods and services? |
| What changes inn the condition and activities of the human population the area of focus? |
| Characterize the the changes in the ecosystem as a whole and its consequences for people? |
| Do the changes constitute progress toward more or less sustainable and equitable forms of development? |
| Has the ecosystem become more or less resilient? |

### #4.3 Anticipating the impacts of climate change

Consider the likely and potential impacts of climate change in the area of focus over the next 10, 30 and 100 years. Consider also that in parallel with climate change, habitats and the goods and services flowing from ecosystems are changing rapidly. For example, the oceans are becoming more acidic and in large areas long established patterns of precipitation are changing.

| CLIMATE CHANGE QUESTIONS | PROJECTIONS IN THE AREA OF FOCUS | | |
|---|---|---|---|
| | 10 YEARS | 20 YEARS | 30 YEARS |
| What are the current high and low projections for sea level rise in the area of focus? | | | |
| What is the range of anticipated change in precipitation, freshwater supplies and flows to estuaries? | | | |
| What is the range of anticipated change in the temperature regime? | | | |
| What areas or features within the area of focus are particularly vulnerable to such changes in the climate, sea level and major storm events? | | | |
| How will these anticipated climatic changes affect the environment and human well being in the area of focus and at the next bigger scale? | | | |
| What are the potential impacts of climate change and ocean acidification of estuarine and marine ecosystem quality and fisheries in the area of focus? | | | |

## #4.4 Visualizing a desirable future

A program's vision is a statement that describes the large scale, ideal development-related changes that the program is working to encourage and achieve in the area of focus. Achieving the vision lies beyond the program's capability, but its activities should contribute to and encourage that end.

| VISION STATEMENT |
| --- |
| Provide the Vision Statement for the Program |

**#4.5a Baselining the progress of your program in the management cycle**

| STEP | INDICATORS<br>NOTE: FOR RANKING PROGRESS:<br>0 = not initiated  1 = underway  2 = completed | PROGRESS | | |
|---|---|---|---|---|
| | | 0 | 1 | 2 |
| Step 1:<br>Issue identi-fication and assessment | • Principal environmental, social and institutional issues and their implications assessed<br>• Major stakeholders and their interests identified<br>• Issues upon which the ICM initiative will focus its efforts are selected<br>• Goals of the ICM initiative defined<br>• Stakeholders actively involved in the assessment and goal setting process | | | |
| Step 2:<br>Preparation of the plan | • Scientific research on selected management questions conducted<br>• Boundaries of the areas to be managed defined<br>• Baseline conditions documented<br>• Action plan and the institutional framework by which it will be implemented defined<br>• Institutional capacity for implementation developed<br>• Behavioral change strategies at pilot scales tested<br>• Stakeholders actively involved in planning and pilot project activities | | | |
| Step 3:<br>Formal adoption and funding | • Policies/plan formally endorsed and authorities necessary for their implementation provided<br>• Funding required for program implementation obtained | | | |
| Step 4:<br>Implemen-tation | • Behaviors of strategic partners monitored, strategies adjusted<br>• Societal/ecosystem trends monitored and interpreted<br>• Investments in necessary physical infrastructure made<br>• Progress and attainment of goals documented<br>• Major stakeholder groups sustain participation<br>• Constituencies, funding and authorities sustained<br>• Program learning and adaptations documented | | | |
| Step 5:<br>Self assess-ment and external evaluation | • Program outcomes documented<br>• Management issues reassessed<br>• Priorities and policies adjusted to reflect experience and changing social/environmental conditions<br>• External evaluations conducted at junctures in the program's evolution<br>• New issues or areas identified for inclusion in the program<br><br>*Source: Adapted from GESAMP (1996) and Olsen et al. (1999)* | | | |

**#4.5b Baselining progress of your program as 1st order outcomes**

The following worksheets have been developed (adapted from UNEP/GPA 2006) that provide graduated variables that enable a program to identify the degree to which each of the 1st and 2nd Order Outcomes are present in the area of focus. Remember that the notes that justify the rating for each variable will likely be more revealing of changing conditions and learning than the rating itself. Tracking the progress of the program should rely in part in periodic assessments of each variable in the tables that follow.

| KEY QUESTIONS | 0 | 1 | 2 | 3 | RANK |
|---|---|---|---|---|---|
| *Unambiguous Goals (3 Indicators)* | | | | | |
| *Have management issues been identified and prioritized?* | no action to date | broad issues identified by project team; some stakeholder involvement | specific issues identified with stakeholders; prioritization underway | issues have been identified and prioritized with stakeholders | |
| *Justification for the ranking:* | | | | | |
| *Do the program's goals define both desired societal and environmental conditions?* | no goals defined | goals are being negotiated with stakeholders but have not been formalized | desired long-term goals address either societal or environmental outcomes | goals define both desired societal and environmental outcomes | |
| *Justification for the ranking:* | | | | | |
| *Are such program goals detailed through time bound and quantitative targets (how much, by when)?* | no targets defined | targets are expressed in non-quantitative terms | targets specify either a date or a quantitative measure, but not both | targets have been defined in quantitative terms (how much, by when) | |
| *Justification for the ranking:* | | | | | |
| *Constituencies (3 Indicators)* | | | | | |
| *Do the user groups who will be affected by the program's actions understand and support its goals, strategies and targets?* | many important user groups are unaware of the program's goals, strategies and targets | user groups are aware of pro-gram's goals and targets but the degree of support varies | with a few im-portant excep-tions, user groups understand and support the program | relevant user groups under-stand program goals and targets and actively support them | |
| *Justification for the ranking:* | | | | | |
| *Is there public support for the program?* | there is little public awareness of the program | public awareness is incipient | public support is building up due to public education efforts, positive press coverage, endorsements from community leaders | surveys reveal that there is wide public support for the program and its goals and targets | |
| *Justification for the ranking:* | | | | | |

| KEY QUESTIONS | 0 | 1 | 2 | 3 | RANK |
|---|---|---|---|---|---|
| *Do the institutions that will assist in implementing the program and/or will be affected by its actions understand and support its agenda?* | there is little awareness of the program within institutions that will be important partners during implementation | while pertinent institutions are aware of the program their degree of support is unclear | with few exceptions pertinent institutions understand and support the program and have publicly endorsed it | program recognized as important and legitimate by institutions that will be involved in implementing plan of action | |
| *Justification for the ranking:* | | | | | |
| *Formal Commitment (3 Indicators)* | | | | | |
| *Have the program's policies and plan of action been formally approved by the appropriate level of government?* | formal approval process has not been initiated | there is a governmental mandate for the initiative | policies and actions are being negotiated with approving authorities | plan of action and policies have obtained approval required for implementation | |
| *Justification for the ranking:* | | | | | |
| *Has the government provided the program with the authorities it needs to successfully implement its plan of action?* | no government support | acknowledgement by some leaders of necessary authorities needed | commitments negotiated between government representatives and responsible institution(s) | formal commitment (law, decree, or decision) cements legitimacy of program | |
| *Justification for the ranking:* | | | | | |
| *Have sufficient financial resources been committed to fully implement the program over the long term?* | no financial resources committed for implementation of plan of action | some pledges and commitments, but significant funding gap remains | adequate short term funding (3-5 years) secured for implementation | sufficient financial resources in place to fully implement program over long term | |
| *Justification for the ranking:* | | | | | |
| *Institutional Capacity (5 Indicators)* | | | | | |
| *Does the program possess the human resources to implement its plan of action?* | no personnel have been assigned responsibility for program implementation | staffing for program implementation is inadequate | staffing is adequate in some institutions but not in others | sufficient human resources are in place to fully implement the program | |
| *Justification for the ranking:* | | | | | |
| *Have the institutions responsible for program implementation demonstrated their capacity to implement its plan of action?* | institutional capacity necessary to implement program is not present | institutional capacity to implement program is marginal | in some key institutions institutional capacity is adequate but there are important weaknesses in others | sufficient institutional capacity is present in institutions with responsibilities for implementing program | |
| *Justification for the ranking:* | | | | | |

| KEY QUESTIONS | 0 | 1 | 2 | 3 | RANK |
|---|---|---|---|---|---|
| *Have the institutions responsible for program implementation demonstrated the ability to practice adaptive management?* | no evidence of adaptive management | practice of adaptive management is incipient and is being expressed as minor adjustments to operational procedures | important institutions engage in periodic self assessments and have modified their behavior based on experience and learning | program as a whole has demonstrated its ability to learn and adapt by modifying important targets and/or policies | |
| *Justification for the ranking:* | | | | | |
| *Is the program structured as a decentralized planning and decision making system?* | power and responsibility are concentrated at one level in governance system | program provides for some responsibility and initiative at various levels | decision making and responsibility is decentralized but there are significant coordination issues | program successfully integrates top-down and bottom-up initiative; it is structured as a decentralized system without sacrificing efficiency | |
| *Justification for the ranking:* | | | | | |
| *Have important actions and policies been successfully tested at the pilot scale?* | No pilot programs have been initiated | Pilot programs are underway to assess viability of actions and policies | Pilot programs are completed and outcomes have shaped actions and policies | Action plans and policies have been successfully tested at pilot level | |
| *Justification for the ranking:* | | | | | |

## #4.5c Baselining progress of your program as 2nd order outcomes

The following worksheets have been developed (adapted from UNEP/GPA 2006) that provide graduated variables that enable a program to identify the degree to which each of the 1st and 2nd Order Outcomes are present in the area of focus. Remember that the notes that justify the rating for each variable will likely be more revealing of changing conditions and learning than the rating itself. Tracking the progress of the program should rely in part in periodic assessments of each variable in the tables that follow.

| KEY QUESTIONS | 0 | 1 | 2 | 3 | RANK |
|---|---|---|---|---|---|
| *Changes in the Behavior of Institutions (7 Indicators)* | | | | | |
| *Are the implementing institutions collaborating effectively to implement the program?* | no action to date | broad issues identified by project team; some stakeholder involvement | specific issues identified with stakeholders; prioritization underway | issues have been identified and prioritized with stakeholders | |
| *Justification for the ranking:* | | | | | |
| *Are program policies, procedures and regulations being enforced?* | no goals defined | goals are being negotiated with stakeholders but have not been formalized | desired long-term goals address either societal or environmental outcomes | goals define both desired societal and environmental outcomes | |
| *Justification for the ranking:* | | | | | |
| *Are conflict mediation methods being effectively applied?* | no investments in conflict resolution | attempts to practice conflict resolution; the results are uneven | methods in place, usually applied effectively | conflict media-tion skills are high and are consistently producing positive results | |
| *Justification for the ranking:* | | | | | |
| *Are private-public partnerships functional and generating desired results?* | no private-public partnerships | some partnerships exist, but not generating desired results | public and private sector partners work successfully, and often generate positive results | public-private relationships are robust and consistently generate positive results | |
| *Justification for the ranking:* | | | | | |
| *Is the program practicing adaptive management?* | adaptive management not practiced | minor attempts to practice adaptive management are being made, but with limited success | adaptive man-agement has brought some significant adjustments to program | adaptive management fully institu-tionalized at all program levels | |
| *Justification for the ranking:* | | | | | |
| *Is support within the political structure at a national level being maintained?* | political support is weak or non-existent | political leaders recognize program; public statements in support are rare | political leaders occasionally speak favorably of program in general terms | political support is strong, well informed and frequently expressed | |
| *Justification for the ranking:* | | | | | |

| KEY QUESTIONS | 0 | 1 | 2 | 3 | RANK |
|---|---|---|---|---|---|
| *Is an appropriate set of indicators being monitored to document progress toward the program's goals and targets?* | progress indicators have not been selected | few progress indicators identified, but monitoring is uneven | full suite of progress indicators have been selected, but monitoring is intermittent | full suite of social and environmental indicators have been selected and are being consistently monitored to asses progress | |
| *Justification for the ranking:* | | | | | |
| *Changes in Behavior of Individuals, Groups, and Businesses (6 Indicators)* | | | | | |
| *Have the good practices called for by the program been adopted by target groups?* | good practices not adopted by target groups | some good practices are sometimes followed | some good practices are consistently practices, but others are not | all program's good practices are being applied by target groups | |
| *Justification for the ranking:* | | | | | |
| *Are destructive forms of resource use being reduced?* | destructive uses of concern to the program continue unabated | resources users aware of destructive practices; effort to change behavior are incipient | with some important exceptions, user groups have ceased destructive practices of concern to program | destructive resource uses have been eliminated | |
| *Justification for the ranking:* | | | | | |
| *Are conflicts among user groups being reduced?* | user conflicts are widespread and have not diminished | number and severity of user conflicts appears to be declining | decline in important user conflicts has been documented | major user conflicts of concern to program have been resolved | |
| *Justification for the ranking:* | | | | | |
| *Are stakeholder and public participation shaping the implementation process?* | participation is negligible | stakeholders are generally supportive of program, but are not contributing directly to its implementation | some important stakeholder are contributing actively to program implementation | stakeholders and public are actively engaged in implementing program | |
| *Justification for the ranking:* | | | | | |
| *Is there public support for the implementation of the program?* | no awareness of the program and no public support | public is little aware of the program, and is not actively supporting it | civic leaders speak positively about program; public support is increasing | public is well informed and expresses its support for program | |
| *Justification for the ranking:* | | | | | |
| *Is the program's system of penalties and incentives proving to be effective?* | no program incentives or penalties | penalties and incentives exist, but they are not having a discernable effect on target groups | some penalties and incentives are proving effective, but others are not | system of penalties and incentives is working well and produces desired results | |

| KEY QUESTIONS | 0 | 1 | 2 | 3 | RANK |
|---|---|---|---|---|---|
| *Justification for the ranking:* | | | | | |
| *Changes in Investments (4 Indicators)* | | | | | |
| *Are taxes, fees and other revenue generating mechanisms contributing to the financial basis of the program?* | program does not have mechanisms for sustained funding in place | some sources of sustained funding are in place, but they cover a small proportion of program's recurring costs | significant sustained funding sources are in place, but long term program economic viability remains uncertain | program has secured adequate sustained long-term funding | |
| *Justification for the ranking:* | | | | | |
| *Are sufficient additional financial resources being committed by government to sustain the effective implementation of the program?* | no recurring governmental resources committed | some sustained financial investment by government has been secured but significant funding gaps remain | governmental funding for immediate needs is adequate, but program's long term economic viability remains uncertain | program receives adequate long term governmental funding | |
| *Justification for the ranking:* | | | | | |
| *Are the necessary investments in infrastructure being made?* | no investments in infrastructure made | investments minimal; necessary infrastructure missing or inadequate | infrastructure in place, but maintenance is inadequate | infrastructure required by program is in place and well maintained | |
| *Justification for the ranking:* | | | | | |
| *Are the necessary investments being made to strengthen institutional capacity?* | no investment in institutional capacity | investments are minimal; institutional capacity needs strengthening | institutional capacity is currently sufficient, but will need additional investments in near future | institutional capacity is strong and routinely strengthened as needs develop | |
| *Justification for the ranking:* | | | | | |

**#4.6 Selection of the issues to be addressed by the program in the future**

The selection of the issues to be addressed by a new program or in the next phase of an existing program is a matter of strategy and different choices will have very different implications. It is essential to consider the sources and the scales at which the forces that are driving the various issues identified. Identify and prioritize the issues to be addressed by the next generation of your program.

| ISSUES TO BE ADDRESSED BY THE PROGRAM | PRIORITY RATING |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |

### #4.7 Setting 3rd order outcome goals for your program

Draft the two to four 3rd Order goals of your program. These must be consistent with, but offer greater specificity to the programs vision and should define the environmental and human outcomes that will result from addressing the issues identified above.

| 3rd ORDER OUTCOME GOAL STATEMENT | |
|---|---|
| Describe the 3rd Order Outcomes (time bound and measurable to the extent practical) for desired **environmental condition** | Describe the 3rd Order Outcomes (time bound and measurable to the extent practical) for desired **societal condition** |
| | |
| | |
| | |
| | |

### #4.8 Defining 1st and 2nd order outcome objectives

The identification of the 1st and 2nd Order objectives of the program, when put in the context of a thorough understanding of the traditions and characteristics of the existing governance system as revealed by Part I of the baseline, are the basis for a capacity building needs assessment. The 1st and 2nd Order objectives should be sufficiently specific to suggest priority needs for such skills as fund raising, conflict resolution, and various forms of technical expertise that need to be built into the program and its partners.

| 1st ORDER OBJECTIVES |
|---|
| Goals directly related with third order of outcomes |
| |
| Constituencies: Alliances and support from stakeholders |
| |
| Commitment: Funding and governmental commitment |
| |
| Capacity: Institutional arrangements and technical capacity needed to achieve goals |
| |

| 2nd ORDER OBJECTIVES |
|---|
| Changes in the behavior of users |
| |
| Changes in the behaviors of institutions |
| |
| Changes in investment |
| |

## #4.9a Identifying the program's partners

Partners are defined as the individuals, groups or organizations with whom the program interacts directly and with whom the program can anticipate some opportunities for influence. The program works with them to affect change but it does not control them. Yet the power of the program to influence the future of area of focus lies largely with its partners. A partner may include several organizations, groups or individuals if the change that is sought is similar for all of them. It is important to select no more than three to five boundary partners as the focal points for the Program's efforts as it works to make its goals a reality. Central to the selection of partners is thinking through which of them has the greatest potential to influence other stakeholders in the "real world" – stakeholders that the Program will not, or cannot, address directly.

Name the program's partners, their institutional affiliation and involvement by step of the management cycle.

| PARTICIPATION | NAME | INSTITUTIONAL AFFILIATION | INVOLVEMENT BY STEP | | | | |
|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 |
| Markets | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Government | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Civil Society | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**#4.9b Identifying the program's boundary and strategic partners**

Partners are defined as the individuals, groups or organizations with whom the program interacts directly and with whom the program can anticipate some opportunities for influence. The program works with them to affect change but it does not control them. Yet the power of the program to influence the future of the area of focus lies largely with its partners. A partner may include several organizations, groups or individuals if the change that is sought is similar for all of them. It is important to select no more than three to five boundary partners as the focal points for the Program's efforts as it works to make its goals a reality. Central to the selection of partners is thinking through which of them has the greatest potential to influence other stakeholders in the "real world" – stakeholders that the Program will not, or cannot, address directly.

Name the program's three Boundary Partners and up to five Strategic partners. Remember that Boundary partners are the ones whose behavior the program anticipates changing in order to achieve its 2nd Order objectives and 3rd Order goals.

| BOUNDARY PARTNERS | |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| MAJOR STRATEGIC PARTNERS | |
| | |
| | |
| | |
| | |
| | |