

Training Resource Material

## Coastal and Marine Biodiversity and Protected Area Management

Module 12

# Effective management planning of coastal and marine protected areas

For MPA Managers



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India

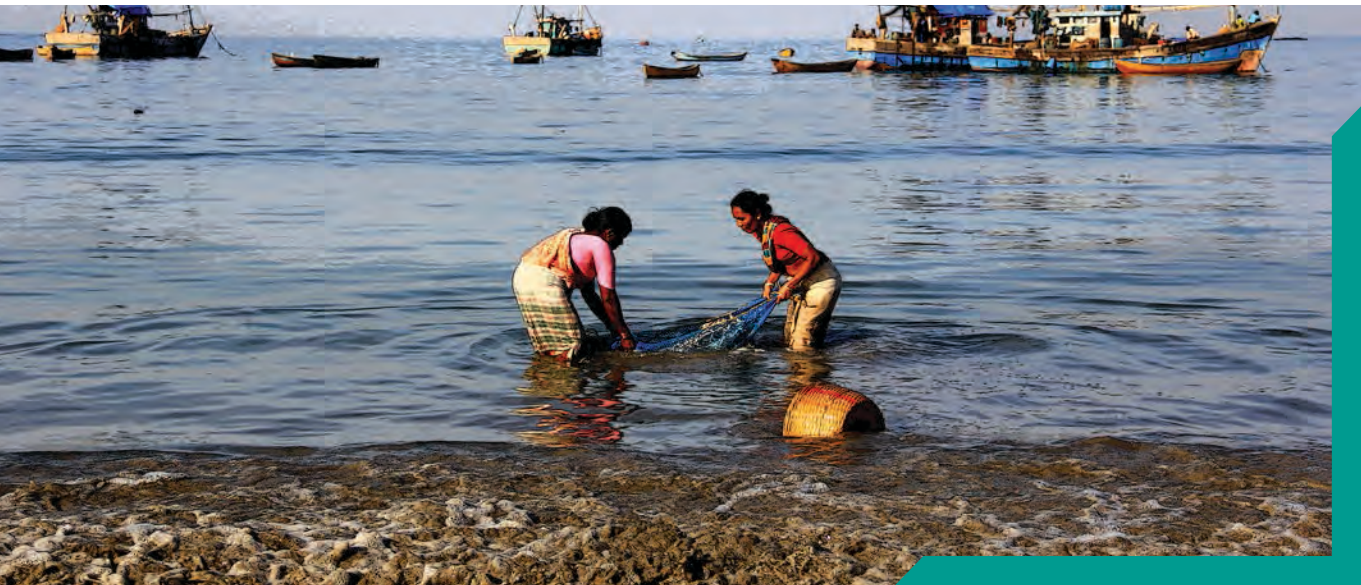
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Training Resource Material

## **Coastal and Marine Biodiversity and Protected Area Management**

### Module 12

# **Effective management planning of coastal and marine protected areas**

**For MPA Managers**

## Summary

This module provides an overview of the management experiences in both terrestrial and marine environments. A description of the elements of management plans, guidelines for effective protected area management and key indicators form the major part of the learning from this module. Case studies on management effectiveness evaluation (MEE) help participants in applying concepts and guidelines in real life cases.

## Imprint

Training Resource Material:  
**Coastal and Marine Biodiversity and Protected Area Management**  
for MPA Managers

- Module 1: An Introduction to Coastal and Marine Biodiversity
- Module 2: Coastal and marine Ecosystem Services and their Value
- Module 3: From Landscape to seascape
- Module 4: Assessment and monitoring of coastal and marine biodiversity and relevant issues
- Module 5: Sustainable Fisheries Management
- Module 6: Marine and Coastal Protected Areas
- Module 7: Governance, law and policies for managing coastal and marine ecosystems, biodiversity and protected areas
- Module 8: Coasts, climate change, natural disasters and coastal livelihoods
- Module 9: Tools for mainstreaming: impact assessment and spatial planning
- Module 10: Change Management and connectedness to nature
- Module 11: Communicating Coastal and Marine Biodiversity Conservation issues
- Module 12: Effective management Planning of coastal and marine protected areas

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# Key messages

- An MPA must have clearly defined objectives against which its performance is regularly checked, and as well as monitoring programme to assess management effectiveness. Management should be adaptive, meaning that it is periodically reviewed and revised as dictated by the results of monitoring.
- Effective management of MPAs requires continuous feedback of information to achieve objectives. The management process involves planning, design, implementation, monitoring, evaluation, communication and adaptation.
- Evaluation consists of reviewing the results of actions taken and assessing whether these actions are producing the desired outcomes. Evaluation is a routine part of the management process and is something that most managers already do. The evaluation of management effectiveness builds on this existing routine.
- Six elements are important in developing an understanding of how effectively protected areas are being managed: context, planning (reflecting the design), inputs, processes (reflecting the appropriateness and adequacy), outputs and outcomes (reflecting the delivery).
- Evaluation is a routine part of the management process and is something most managers already do. The evaluation of management effectiveness builds on this existing routine.
- Management effectiveness can be measured in three distinct ways: - biophysical indicators, social indicators and governance indicators.
- Involving local communities (and other stakeholders) is essential in MPA management. It is particularly important in the marine environment to collaborate with those using the neighbouring sea areas because of the inter-connected nature of the sea, in which actions in one area impinge on another.





# 12.1 Guidelines and framework for preparing management plans for coastal and marine protected areas

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A Marine Protected Area is “Any area of intertidal or subtidal terrain, together with its overlying waters and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.” (Kelleher, 1999)

### 12.1.1 Lessons from wildlife management

One of the problems of attempting to manage the complex and diverse set of resources and resource relationships that are so typical of protected areas and the surrounding landscape is that the parameters change. Components change in number and distribution and people change the values of components and their utilization.

Protected area managers need to consider the dynamics of resources, their relationships and the perception of public and professionals. Broadly, the manager has to contend with two types of major changes, the ecological change and the change in human opinion on nature based resource values.

The PA manager needs to have an open mind and sensitivity to the perceptions of various categories of stakeholders. The local values are often critically important in the interest of conservation. Identification of stakeholders, providing adequate opportunities for dialogue, analysis of outputs and integrating these within the management strategies are critically important.

Undertaking surveys, conducting inventories in line with the management objectives, collecting and analyzing data are activities that contribute to making informed decisions is important not only in the preparatory phase of the plan but the process must continue through the phase of implementation to update the knowledge on facts, values and resources, resources and people relationships and the dynamics of the system. The plan to that end must establish procedures of monitoring and evaluation.

## 12.1.2 Existing Lessons from Marine Protected Areas Management

(Source: PARKS 8(2), 1998 in Kelleher 1999)

- MPAs contribute to the maintenance of both biological diversity and abundance, both of which are relevant to sustainable fisheries;
- It is not feasible in today's marine environment to separate the questions of resource use and conservation, because marine natural resources and their living space are all sought now by many different users for many different purposes;
- There has been a long history of conflict and lack of cooperation between environmental and fisheries management agencies, in almost all areas of the world. This lack of joint action inhibits progress in establishing and managing MPAs. Individual MPAs and system plans should be designed to serve both sustainable use and environmental protection objectives, and relevant agencies should work together in planning and management;
- Socio-economic considerations usually determine the success or failure of MPAs. In addition to biophysical factors, these considerations should be addressed from the outset in identifying sites for MPAs, and in selecting and managing them local people must be involved from the earliest possible stage in any MPA.;
- It is usually a mistake to postpone action on the establishment of an MPA because biophysical information is incomplete. There will usually be sufficient information to indicate whether the MPA is justified ecologically and to set reasonable boundaries;
- Design and management of MPAs must be decided in participatory manner- both top-down and bottom-up;
- An MPA must have clearly defined objectives against which its performance is regularly checked, and a monitoring programme to assess management effectiveness. Management should be adaptive, meaning that it is periodically reviewed and revised as dictated by the results of monitoring;
- There is a global debate about the merits of small, highly protected MPAs and large, multiple use MPAs. Much of this debate arises from the misconception that it must be one or the other. In fact, nearly all large, multiple use MPAs encapsulate highly protected zones, which can function in the same way as individual highly protected MPAs. Conversely, a small, highly protected MPA in a larger area subject to integrated management can be as effective as a large, multiple use MPA



# 12.2 Contents of an MPA management plan

(Source: Kelleher, 1999)

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During the development of plans and associated reports, it is necessary to consider the available information and to determine how far it is appropriate to cover the following items:

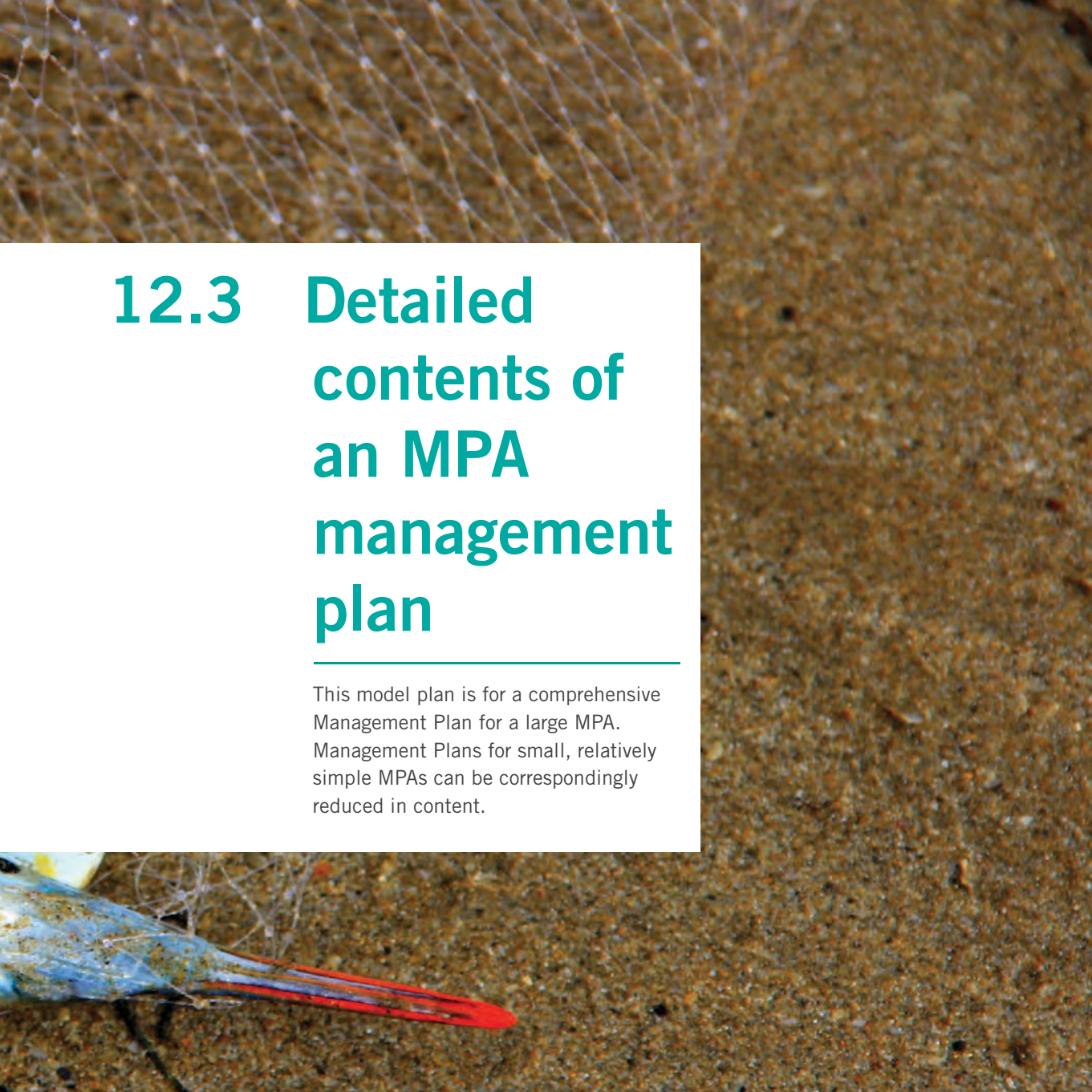
1. Executive summary: Covers the essential issues and necessary decisions. Many of the final decision-makers will not have time to read and digest supporting detail.

2. Introduction: Defines the purpose and scope of the plan and explains the legislative basis and authority for plan development.
3. Statement of the goal and objectives of the planned MPA as a whole.
4. Definition of the area: A formal statement on the boundaries of the planned MPA and a geographic description of its setting and accessibility.
5. Description of the resources of the area: A summary of information directly relevant to decisions (details should be restricted to an annexe or separate document).
6. Description of uses of the area: Concentrates on present uses but should place these in the context of past types and levels of use. This includes social and economic analyses of use.
7. Description of the existing legal and management framework, such as coastal fisheries and marine transportation and other relevant legal controls on present use of the area. Where they still exist or can be recalled, traditional practices of management, ownership or rights to the use of marine resources should be described.
8. Analysis of constraints and opportunities for activities possible within the area.
9. Statement of the principal threats to the conservation, management and maintenance of the area;
10. Statement of policies, plans, actions, inter-agency agreements and responsibilities of individual agencies relevant to meeting the objectives of the MPA and to dealing with threats and conflicts. This may include a summary of the consultative processes followed in the development of the plan.
11. Statement of the boundaries, objectives and conditions of use and entry of any component zones of the planned area.
12. Provision for regulations required to achieve and implement boundaries and conditions of use and entry.

13. An assessment of the financial, human and physical resources required to establish and manage the MPA including

- staffing
- equipment and facilities
- training
- budget
- interpretation and education
- monitoring and research
- restoration
- surveillance
- enforcement
- contingency/emergency planning
- evaluation and review of effectiveness.





## 12.3 Detailed contents of an MPA management plan

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This model plan is for a comprehensive Management Plan for a large MPA. Management Plans for small, relatively simple MPAs can be correspondingly reduced in content.

In a large multiple-use MPA, a zoning plan establishes the framework from which the management plan is derived. This means that the zoning plan, rather than the management plan, is the primary document for a large multipurpose MPA. On the other hand, in a small MPA, the management plan is self-contained and complete.

*This example of the content of an MPA Management Plan is provided to assist those involved in the preparation of plans and submissions in government agencies and NGOs.*

*It should be viewed as an ideal model, since it implies a planning situation where there is a high level of description and understanding of the area under investigation.*

*The precise format adopted will depend upon the provisions of the legislation establishing the MPA and the government processes required for putting a management plan into effect.*

The example that follows is where the management plan is the primary policy-setting document and the zoning plan is subordinate to it. In many cases the items 1– 4.1 may form a preliminary document which establishes the initial case for protection of the area in question.

## **Title page**

This includes:

- The name of the area subject to the plan and its status;
- The words MANAGEMENT PLAN;
- The name of the agency/agencies responsible for implementing the plan;
- The date when the plan was prepared and the expected date for review.

## **Executive Summary Page**

On this page are summarized:

- The reasons why the plan was prepared;

- The period of time to which it applies;
- Any special conditions which controlled its preparation including the legislative basis and authority for plan development;
- The principal provisions of the plan;
- The estimated budget; and
- Acknowledgements.

## Contents page

The headings of the body of the plan are listed here against the appropriate page numbers. It may be preferable to list only the main headings, but sub-headings are usually included.

## Body of the plan

### OBJECTIVES OF MANAGEMENT

The goal and objectives for management are stated in this section. They will reflect the purpose(s) for which the area is protected and the use(s) which will be permitted.

### RESOURCE DESCRIPTION

This section provides information on the following categories for the areas to be protected. Maps will be an important feature of this section.

**Name of area and location:** To include the geographic location (State, district, etc.); latitudes and longitudes (preferably on a map); surface area (square kilometres, hectares or other units of area).

**Geographic zone and classification of habitat :** The area should be categorised according to a habitat classification scheme to identify its geographic zone, sub- strate type(s) and major biological feature(s).

**Conservation status :** This should indicate the area's degree of naturalness, aesthetic values, degree and nature of threats (if any), jurisdiction(s) and present ownership. The degree of habitat representativeness should also be indicated.

**Access and regional context:** The regional land and sea surroundings and access routes to the area are described, in addition to the character and use of contiguous areas, emphasising their effectiveness as buffer zones.

**History and development:** This section contains a summary account of direct and peripheral human involvement in the area. This section may be divided into several sub-sections e.g.:

**Archaeology:** A summary description of the people who used the area before historical times, including any known areas of religious significance, species taken and if closed seasons or closed areas were ever used as management techniques. Archaeological information could also provide clues to species that were found in the area.

**Historical relics:** This sub-section should identify submerged wrecks and any other submerged structures of historic interest.

### **Written and oral history**

**Recent developments:** Give a brief history of fishing and other human use of the area and developments on the land that may have had a major influence on the area.

**Current human use and development:** In this section the current use of the area by subsistence, artisanal, commercial and recreational fishermen, tourists and others is discussed. It is most important to establish who the users are, where they conduct their activities, at what times of the year, and for how long, and the social and economic importance of their use.

A user survey may be helpful. This information is just as important as biophysical data.

**Physical features:** In this section the non-living features of the area are described. Maps in addition to descriptions should be included.

**Coastal landforms:** Nearby landforms should be described, together with islands and underwater formations.

The depth of water can provide an important insight into the dynamics of the system. Major trenches, canyons and shallows should be described.

**Tides:** A description of the tidal regime and resultant currents and water movements associated with phases of the tidal cycle.

**Water:** Water quality, including salinity, turbidity and other important parameters. Measurements of salinity, turbidity and any major pollutant levels in all seasons are desirable.

**Geology:** A description in geological terms about how the area was formed and how that process is continuing with the deposition of present day substrates and by erosion processes observable in the area.

**Dominant currents:** A description of wind-driven, tidal and residual currents, on a seasonal basis.

**Freshwater inputs:** Major rivers and estuarine areas.

## Climate

**Precipitation:** Annual precipitation figures and a chart to indicate the average precipitation on a monthly basis.

**Temperature:** Monthly charts for both air and average sea temperatures (at the surface and at a given). If possible, include a monthly chart of the solar radiation received.

**Winds:** Monthly charts of rose diagrams plus a description of any unusual feature of the local winds.

**Plant life:** This section should contain at least a description of the dominant marine plant life and, wherever possible, a comprehensive summary of the plant community and related environmental factors, such as the depth of occurrence, together with any botanical features that may have special scientific, recreational or other interest. Phytoplankton could be included if information is available. Plant species identified in the area should be listed in an appendix.

**Marine fauna:** As a minimum, a description of the dominant marine or estuarine animal species is required, with an account of their ecological relationships if known. Include sections on mammals, reptiles, amphibians, fish, birds, invertebrates and zooplankton as appropriate. A separate appendix should list the species.

**Miscellaneous:** This can be a varied section that includes those matters which do not fit under any of the other descriptions of the plan. Each plan will be site specific and could therefore have features or problems which are not encountered in other plans.

## DESCRIPTION OF MANAGEMENT ISSUES

A summary of past, present and possible future threats and management conflicts should follow.

**Historic and current conflicts:** A brief statement of any historic or current conflicts between uses or user groups.

**Pollution:** Include point and non-point sources of external pollution within the area and in nearby areas, e.g., runoff, sewage inputs, fish processing, industrial pollution and pollution from tourism and shipping.

**Future demand:** Estimate future demand for recreational and other uses and, if applicable, future pollution loading and proposed developments.

**Potential conflicts:** Potential conflicts specific to the area within and close to the boundary of the MPA should be described. Any potential conflicts due to more distant regional influences should also be identified. This should include a review of sectoral development plans and proposed projects that could affect the area.

## MANAGEMENT POLICIES

In this section the management plan comes to grips with the threats and conflicts and prescribes solutions.

**Objectives:** The goal of protecting the area is briefly reiterated. The objectives of management are stated clearly. If the area is to be subdivided, sub-objectives should be stated for each zone or subdivision of the managed area.

**Resource units:** It could be useful to divide the area into resource units.

**Natural:** Each MPA will have unique characteristics, and the resource units will be site specific. An area could be divided into resource units such as mangroves, tidal mudflats, beaches, islands, deep water trenches and turtle or seal rookeries.

**Development areas:** Another category could be areas that are either developed or are proposed to be developed.

**Areas of impact:** Areas showing marked impacts from human activity could be identified.

**Zoning:** The resource units defined above may provide a basis for zoning. Zoning must be easy to understand both from the points of view of both the manager and the managed. This section should explain why a particular area has been given a zone classification and what activities are permitted and prohibited within each zone. The aim should be to keep the zoning arrangements as simple as possible, consistent with avoiding unnecessary restrictions on human activities. Special habitats or wildlife areas, such as a seagrass bed or a turtle rookery, may require additional management provisions, such as seasonal closures or permanent restrictions over access. Unusual prescriptions may be needed in the short term, and these should be described in this section.

**Management policies of resource units:** In the draft management plan, a list of management options can be presented and a choice made between them in the final version of the plan.

## SURVEILLANCE

This section should describe any programmes proposed to assess the movement of people, vessels and aircraft within and through the area and the use made of the area.

## MONITORING

This section should describe any biological, environmental and usage monitoring programmes proposed for the area, when these programmes will be completed and how they are to be used in reviewing the management plan. It may also identify other monitoring programmes to be initiated during the first stage of the plan and who could carry them out. Some of the results from monitoring may eventually be included in the appendices.

## EDUCATION AND INTERPRETATION

This section should describe programmes with educational institutions, public associations and community groups to promote protection, wise use, public understanding and enjoyment of the MPA.

## ENFORCEMENT

This section should outline the arrangements that will need to be made to detect apparent offences and to apprehend and prosecute offenders in order to achieve an acceptable level of adherence to MPA regulations.

## MAINTENANCE AND ADMINISTRATION

A section will be required to address the subjects of budget, staffing, etc.

**Budget:** Anticipated costs and possible sources of funds should be identified with the aim of achieving a high level of self-financing.

**Staffing:** The management plan should indicate staffing needs and identify major functions. Volunteers, consultants and head office staff involved in the planning process should also be identified as this will provide a more accurate indication of staffing levels. Staffing deficiencies can be predicted and recommendations suggested. Section 9 should be updated and released as part of an annual report.

## **INFORMATION SOURCES**

Information regarding the area will come from sources outside the manager's regular information base. These should be identified and listed wherever possible and include those other government agencies, non-government organisations, individuals, consultants, overseas sources, etc. that were consulted. A bibliography should be appended.

## **APPENDICES**

### **Appendix 1: Boundary and Description of Area**

This should provide the legal description of the area, including any outstanding legal tenure or matters of existing interest that might have become clear during the development of the management plan. In most federal systems of government, there are complex and sometimes unresolved questions of jurisdiction between levels of government especially in the intertidal environment. These problems should be highlighted and, if appropriate, solutions suggested. One solution is to have complementary legislative, planning and management provisions on each side of the jurisdictional boundary.

Examples of this include adjacent Federal and State Marine Protected Areas at Florida Keys and the Californian Channel Islands, in the USA, and the Great Barrier Reef Marine Park and adjacent Queensland Marine Parks, in Australia.

### **Appendix 2: Legislation**

All legislation and regulations relating to the area, and their interactions, should be noted and explained. Where feasible, the legislation that prevails in the event of conflict between the provisions of different enactments should be identified. Implications for the protective status of the area should be identified.

### **Appendix 3: Plant species**

A comprehensive list of plant species should be attempted for the first management plan. As the process continues over the years, it is quite possible that new plant species will be discovered in the area. Plant names should be listed in broad taxonomic groups, with botanical and common names where possible.

### **Appendix 4: Animal species**

Animal species should be listed in broad taxonomic groups, e.g., mammals, reptiles, amphibians, fish, birds and invertebrates, and common names provided where possible.

### **Appendix 5: Special features**

This section could describe unusual or outstanding features of the area and could range from whale strandings, waterspouts and oil slicks to spiritual revelations and cultural beliefs.

### **Appendix 6: Past, present and proposed use**

This section should attempt to provide more detail about the uses, identify key user groups and assess the social and economic significance of areas.

## **MAPS**

The following are suggested as the minimum number of maps required:

- Map 1** Location
- Map 2** Land/water tenure and jurisdiction
- Map 3** Land topography and seabed bathymetry
- Map 4** Geology
- Map 5/6** Dominant plant and animal communities
- Map 7/8** Major uses
- Map 9** Major use conflicts and threatened resources
- Map 10** Zoning

Where practicable, the use of overlay presentation is recommended in order to illustrate the associations between such factors as topography, biological communities and uses.





# 12.4 Guidelines and framework for evaluating management effectiveness of coastal and marine protected areas

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## 12.4.1 What is management effectiveness?

The degree to which management actions are achieving the goals and objectives of a marine protected area (Pomeroy et al. 2004)

Management effectiveness evaluation is defined as the assessment of how well the protected area is being managed – primarily the extent to which it is protecting values and achieving goals and objectives.

The term management effectiveness reflects three main themes:

1. design issues relating to both individual sites and protected area systems;
2. adequacy and appropriateness of management systems and processes; and
3. delivery of protected area objectives including conservation of values.

(Hockings et. al. 2006)

## 12.4.2 Why evaluate management effectiveness?

(source: Hockings et. al 2006)

There are many reasons why people want to assess management effectiveness. These different purposes may require different assessment systems and varying degrees of detail. Funding bodies, policy makers and conservation lobbyists may use the results to highlight problems and to set priorities or to promote better management policies and practices among management agencies. Managers may wish to use evaluation results to improve their performance or to report on achievements to senior managers, the government or external stakeholders.

### **Broadly speaking, management effectiveness:**

- facilitates and promotes adaptive management
- improves project planning
- enhances priority setting
- assists in effective resource allocation
- promotes accountability and transparency
- help involve the community, build constituency and promote protected area values.

Marine and coastal resource management has evolved into a professional practice.

There is recognition of the need for marine and coastal managers to be more systematic in using MPAs to improve marine conservation learning and create a set of best management practices.

To meet this need, there is general consensus among conservation practitioners that evaluation of management effectiveness will improve MPA practice. It is particularly relevant now given the focus on implementing MPAs and increasing their number.

Effective management of MPAs requires continuous feedback of information to achieve objectives. The management process involves planning, design, implementation, monitoring, evaluation, communication and adaptation. Evaluation consists of reviewing the results of actions taken and assessing whether these actions are producing the desired outcomes.

**Evaluation is a routine part of the management process and is something that most managers already do. The evaluation of management effectiveness builds on this existing routine.**

[Source: Pomeroy et.al 2004]

In addition to these substantive benefits, the process of assessing management effectiveness can also deliver a number of procedural benefits. Improved communication and cooperation between managers and other stakeholders is a common outcome of evaluation processes. Managers also have an opportunity to 'step back' from the day-to-day concerns of their jobs and consider the issues and challenges that they face in a new light.

Whatever purposes it may serve, evaluation should be seen primarily as a tool to assist managers in their work, not as a system for watching and punishing managers for inadequate performance. Evaluation must be used positively to support managers and be seen as a normal part of the process of management. In addition to these substantive benefits, the process of assessing management effectiveness can also deliver a number of procedural benefits. Improved communication and cooperation between managers and other stakeholders is a common outcome of evaluation processes. Managers also have an opportunity to 'step back' from the day-to-day concerns of their jobs and consider the issues and challenges that they face in a new light.

Whatever purposes it may serve, evaluation should be seen primarily as a tool to assist managers in their work, not as a system for watching and punishing managers for inadequate performance. Evaluation must be used positively to support managers and be seen as a normal part of the process of management.

### 12.4.3 Framework for evaluating management effectiveness

The framework is based on the principle that good protected area management should follow a cyclical process with six stages or elements.

#### THE MANAGEMENT CYCLE

- begins with understanding the context of the protected area, including its values, the threats that it faces and opportunities available, its stakeholders, the management and political environment;
- progresses through planning: establishing vision, goals, objectives and strategies to conserve values and reduce threats;
- allocates inputs (resources) of staff, money and equipment to work towards the objectives;
- implementation of management actions according to accepted processes; and
- eventually produces outputs (goods and services, which should usually be outlined in management plans and work plans) that result in impacts or outcomes, hopefully achieving defined goals and objectives.

All six elements are important in developing an understanding of how effectively protected areas are being managed. They reflect three large themes of management:

- design (context and planning),
- appropriateness/adequacy (inputs and processes) and
- delivery (outputs and outcomes).

Evaluation that assesses each of the elements and the links between them should provide a relatively comprehensive picture of the effectiveness of the management.



(Source: Hockings et. al. 2006)

## CONTEXT: STATUS AND THREATS — WHERE ARE WE NOW?

**What are the values and significance of the area? What are the threats and opportunities? What social, economic and political factors influence management? Who is involved?**

Major aspects to be considered under the heading of context include:

***values and significance*** of the protected area, from both biological and socio-cultural perspectives;

***threats*** to the protected area such as invasive species, inappropriate resource use and extraction and other external as well as internal threats;

***external influences***, ranging from national factors (economic position, policy environment, political stability) to local issues (neighbour and stakeholder relationships); and

***stakeholders and local communities***, including an understanding of who is involved in and who could be affected by management of the protected area.

Much of the information needed will often be available in a management plan, research papers, project proposals or similar documents, but for evaluation purposes the data might need to be updated, expanded or interpreted.

**Table 12.2** Some types of values to be considered in assessing protected area context

Ecological	Socio-economic and cultural
<p><b>Ecosystem services/ functions</b></p> <ul style="list-style-type: none"> <li>● Catchment management and water supply</li> <li>● Soil conservation</li> <li>● Climate and disaster mitigation</li> <li>● Clean air/pollution mitigation</li> </ul> <p><b>Biodiversity</b></p> <ul style="list-style-type: none"> <li>● Ecosystem level</li> <li>● Species level (rare and threatened, indicator species, popular species, economically or socially important species etc)</li> <li>● Local population level</li> <li>● Genetic level</li> </ul> <p><b>Landscape and geological</b></p> <ul style="list-style-type: none"> <li>● Evidence of formation and ongoing geological processes</li> <li>● Fossils</li> <li>● Special geological formations and landscape features</li> <li>● Water bodies and wetlands</li> </ul>	<p><b>Cultural</b></p> <ul style="list-style-type: none"> <li>● Spiritual – e.g. sacred sites</li> <li>● Indigenous heritage</li> <li>● Historical</li> <li>● Aesthetic/artistic</li> </ul> <p><b>Social</b></p> <ul style="list-style-type: none"> <li>● Recreation</li> <li>● Green space</li> <li>● Scenic</li> </ul> <p><b>Economic</b></p> <ul style="list-style-type: none"> <li>● Tourism</li> <li>● Adjacent land values</li> <li>● Sustainable resource harvesting</li> </ul> <p><b>Research and education</b></p> <ul style="list-style-type: none"> <li>● Benchmark sites</li> <li>● Research</li> <li>● Formal education</li> <li>● Interpretation</li> </ul>

## PLANNING: WHERE DO WE WANT TO BE AND HOW WILL WE GET THERE?

Are the legal status and tenure of the site clear? How adequate is the protected area system? Does the design of the site allow it to function effectively? Does the site have clear management planning?

A protected area that suffers from fundamental design flaws is unlikely to be effective, however efficiently the managing body operates, and regular assessment of the quality of planning therefore underpins much of what follows.

This element of evaluation considers the design features of a protected area or a protected area system –the physical, legal and institutional factors that determine whether its management will be relatively straightforward or complicated.

### **Foundation of planning assessment**

Key criteria to be covered in this section include:

- protected area legislation and policy;
- design of protected area systems;
- design of reserves; and
- management planning.

Protected areas and systems need sound, planned management even if they have been well designed. Clear and appropriate objectives for the protected area, supported by a management plan and adequate resources, are characteristics of effective management. A critical element is to see whether they have been translated into annual work plans that are implemented and assessed.

### **How does planning evaluation affect the overall effectiveness evaluation?**

\_ Feedback from other phases of the evaluation cycle may recommend changes to the design of the protected area or system and may highlight the need for better legislation, policies and planning. Improvements or adjustments to the management plan are most likely to be recommended, but long-term problems may also suggest the need to change the size or boundaries of a protected area.

\_ When evaluating other elements in the management cycle, the protected area plan, especially its objectives, target and stated outputs and tasks, will be the basis for establishing expectations and benchmarks that are used in the assessment process. Indeed, a good management plan will be the major source for identifying indicators and targets to be measured in the assessment.

## INPUTS: WHAT DO WE NEED?

**What resources are needed for effective management? Are sufficient resources being devoted to managing the protected area system/site? How are resources being applied across the various areas of management?**

- Input assessments investigate the adequacy of resources
- human capacity, facilities, information, operational money and equipment – for effective management.

This assessment needs to consider:

- the level of resources needed;
- the extent to which these resources are available; and
- whether resources are being used and applied in the best way.

Broad management categories to be used in assessing levels of input could include:

- natural resource management;
- cultural resource management;
- visitor management; and
- community liaison and development.

Understanding where staff time and resources are being directed can be critically important for interpreting other evaluation results. It also permits judgements to be made about the relative priority being afforded to different aspects of protected area management.



## **PROCESS: HOW DO WE GO ABOUT MANAGEMENT?**

**Are the best systems and standards of management being followed? Are agreed policies and procedures in place and being followed? How can the management practices be improved?**

The assessment of management processes focuses on the standard of management within a protected area system or site and requires:

- definition of what systems and standards are acceptable and which are 'best practice' (benchmarks);
- decisions about which of these will be required in particular systems and individual protected areas;
- investigation of whether systems are being implemented and standards are being met; and
- recommendations as to whether the systems and standards are appropriate or could be improved.

### **Developing standards for the MPA**

Standards for MPA management are descriptions of the best management practices that can be reasonably expected. For example, a standard for visitor management might be 'to ensure all visitor facilities are maintained and repaired regularly to ensure visitor safety and enjoyment'. Standards should be ambitious, defining the way management should be conducted in the absence of constraints arising from a lack of funding, staff numbers and staff skills to allow room for modification and improvement.

Standards for management can be developed from a number of sources including:

- management agency policies;
- provisions in MPA plans;
- best practice guidelines;
- MPA staff;
- local partners and stakeholder groups; and
- indigenous communities

IUCN's Ecosystem, Parks and People project has proposed a draft set of minimum standards for protected areas management in general, which may provide some guidance.

## **Proposed minimum standards for protected area management**

[Source: Wells and Mangubhai. 2004]

### **1. Legal Certainty and Management Plan**

#### Legal certainty

- In accordance with national legislation
- Geographical extent and boundaries clearly established
- A general zoning scheme in place
- Resource use and other activities clearly and authoritatively regulated
- Management category clearly stated in all relevant legislation.

#### Management plan

- Describes outstanding biological and other features of the area
- Contains detailed zoning
- Contains regulation of activities
- Contains description of programmes, actions and goals
- Has been analysed and discussed with primary stakeholders
- Approved by the relevant legal authorities
- Officially published
- Disseminated to all relevant stakeholders
- Provides procedures for inter-institutional coordination
- Inter-institutional mechanisms with clear regulatory framework which includes different government sectors from national and local levels
- Regional development plans are in place for the influence zone of the protected area.

## **2. Ecological Parameters**

Size is adequate to fulfil stated conservation objectives related to:

- Landscapes
- Species
- Environmental parameters
- Environmental services
- Ecosystem function
- Unique natural features and events (e.g., endemic species, migratory congregations)
- Ecosystems are maintained in good condition (with identified indicators):
- The landscapes, ecosystems, species and/or environmental services that are targets of protection are of significant value at the country or regional level

## **3. Human Resources**

- Responsible officer (director) in charge of coordinating all activities in place
- Necessary personnel for law enforcement
- Personnel are sufficiently trained to undertake their assigned tasks and duties, including interface with stakeholders and conflict resolution
- Salaries are adequate, within national standards, and scaled to responsibilities
- Staff are sufficiently high within the government hierarchy to be able to interact effectively with other government authorities
- A staff training programme is in place.

## **4. Infrastructure and Equipment**

- Administration offices
- Field stations
- Visitors' Centre with easy access, low maintenance requirements and use of modern museum display techniques

- Signage in place covering prohibitions, regulations, safety information, and general information about the protected area and its features
- Interpretative trails
- Sufficient equipment for personnel to fulfil objectives (e.g., computers, land and water vehicles, safety equipment, uniforms, communication links.)

## **5. Monitoring and Evaluation**

Monitoring program in place that:

- Establishes goals
- Sets time limits to accomplish activities
- Functions under an established scientific protocol in accordance with standardized methodologies using robust indicators
- Is integrated into corrective adaptive management decision-making processes
- Has follow-up and evaluation programme that establishes goals and sets time limits to accomplish activities

## **6. Participatory Processes**

Includes effective mechanisms for stakeholder and local institution participation:

- Internal by-laws
- Includes all sectors
- Representation mechanisms
- Includes a training programme for stakeholders to raise effectiveness of participation

## **7. Public Awareness**

- Activities to ensure that neighbouring communities are aware of the existence of the protected area and associated laws governing resource use
- Campaigns and activities to increase understanding of the values and benefits of the protected area and the rationale for actions taken to protect it

- Environmental education programmes for neighbouring communities that translate technical information for public use, promote dialogue, and build capacity for conservation decision-making

## **8. Public Use Facilities**

- Designated areas for recreational activities
- Carrying capacity has been determined and impact of use is monitored
- Specialised personnel dedicated to visitors
- Accessible information for visitors
- Waste management system
- Adequate restroom facilities
- Designated camping sites (if camping allowed)
- Concessions for specific services (e.g. restaurants, gift shop, transportation, guides – preferably local stakeholders)

## **9. Research**

Basic and applied research programmes to support protection and management, covering

- ecosystems and species;
- socio-economic dimensions;
- agreements with national and foreign academic institutions to carry out necessary research; and
- adequate regulation for sample collection and handling of natural resources to ensure no adverse impacts from research activities in the protected area

## **OUTPUTS: WHAT DID WE DO AND WHAT PRODUCTS OR SERVICES WERE PRODUCED?**

**Have the management plan and work programme been implemented? What are the results/outputs of management?**

Assessment of outputs looks at the number or level of products and services delivered and the extent to which stated actions, tasks and strategies were implemented.

### **POSSIBLE TYPES OF DESIRED OUTPUTS**

**Product and service delivery: The quantities of products and services derived from MPA can be measured in many ways, including the following:**

- Numbers of users (e.g., visitor numbers to the park, numbers of people using a service, numbers of inquiries answered, numbers of researchers)
- Measures of the volume of work output (e.g., numbers of meetings held with local communities, numbers of patrols undertaken, extent of area surveyed in a research programme, numbers of prosecutions instigated)
- Measures of physical outputs (e.g., length of park boundary delineated and marked, numbers of brochures produced or distributed, number and value of development projects completed)

#### **Achievement of planned work programme**

- Actual work programme versus planned work programme (e.g., numbers of patrols undertaken, extent to which planned capital works programme has been completed)
- Extent of implementation of management plan or other programme-planning document (usually relates to long-term activities rather than an annual work programme)

Output assessment does not address the question of whether the plans are appropriate or adequate but simply whether they are being implemented. The adequacy of planning systems and the plans themselves are better assessed by *process* and *outcome* approaches to evaluation, respectively.

## OUTCOMES: WHAT DID WE ACHIEVE?

**Has management resulted in the achievement of the objectives of, and desired outcomes for, the protected area or system?**

Evaluations of outcome need to be based upon a clear understanding of what management is aiming to accomplish and what specific values are to be conserved. Outcome assessment is most meaningful where concrete objectives for management have been specified in national legislation, community policies, site-specific management plans or project plans. In these cases the assessment can move quickly to data gathering and analysis.

To monitor the status of any value, it is usually necessary to decide:

- what attributes will be considered;
- what indicators of this attribute will be measured/assessed; and
- methods to be used in measuring the indicator.

Some examples of attributes, indicators and methods of measurements for three very different values are given in Table 12.3. Building monitoring systems will be a key part of many long-term attempts to measure outcomes.

**Table 12.3** Example of monitoring attributes, indicators and methods

Value	Attributes	Indicators	Method
Population of an endangered animal	Breeding success	Number of breeding females at sites x,y,z	Counting nests
	Mortality rate	Proportion of population dying each year	Tag and recapture
Integrity of an Indigenous art site	Visibility of artwork	Vibrancy and clarity compared with previous years	Photo-monitoring and analysis
	Disturbance level of site	Evidence of graffiti, trampling and soil compaction	Photo-monitoring and soil compaction measures
Level of cooperation with local community	Proportion of community supporting the protected area	Number of incursions by local people recorded	Patrol database
		Report of positive progress at meetings	Subjective quarterly reports reviewed

(Source: Hockings et. al. 2006)



## 12.4.4 The MPA Management Effectiveness Indicators: [Source: Pomeroy, et. al. 2004]

Management effectiveness can be measured using three distinct indicators:

- Biophysical indicators
- Social indicators
- Governance indicators

### THE BIOPHYSICAL INDICATORS

The link between the biological state of the marine environment and the livelihoods, income and food security of the coastal populations is explicit. Therefore, measurement of biophysical indicators can also be useful when viewed in the context of the socio-economic and governance conditions that operate in and around the MPA.

- Biophysical Indicator 1** Focal species abundance
- Biophysical Indicator 2** Focal species population structure
- Biophysical Indicator 3** Habitat distribution and complexity
- Biophysical Indicator 4** Composition and structure of the community
- Biophysical Indicator 5** Recruitment success within the community
- Biophysical Indicator 6** Food web integrity
- Biophysical Indicator 7** Type, level and return on fishing effort
- Biophysical Indicator 8** Water quality
- Biophysical Indicator 9** Area showing signs of recovery
- Biophysical Indicator 10** Area under no or reduced human impact

## THE SOCIO-ECONOMIC INDICATORS

Experience shows that social, cultural, economic and political factors, more than biological or physical factors, shape the development, management and performance of MPAs.

The use of socio-economic indicators allows MPA managers to:

- a. incorporate and monitor stakeholder group concerns and interests into the management process;
- b. determine the impacts of management decisions on the stakeholders; and
- c. demonstrate the value of the MPA to the public and decision-makers.

The following socio-economic indicators address the overall value of the MPA, in addition to being focused on the achievement of social and economic goals and objectives.

<b>Socio-economic Indicator 1</b>	Local marine resource use patterns
<b>Socio-economic Indicator 2</b>	Local values and beliefs about marine resources
<b>Socio-economic Indicator 3</b>	Level of understanding of human impacts on resources
<b>Socio-economic Indicator 4</b>	Perceptions of seafood availability
<b>Socio-economic Indicator 5</b>	Perceptions of local resource harvest
<b>Socio-economic Indicator 6</b>	Perceptions of non-market and non-use value
<b>Socio-economic Indicator 7</b>	Material style of life
<b>Socio-economic Indicator 8</b>	Quality of human health
<b>Socio-economic Indicator 9</b>	Household income distribution by source
<b>Socio-economic Indicator 10</b>	Household occupational structure
<b>Socio-economic Indicator 11</b>	Community infrastructure and business
<b>Socio-economic Indicator 12</b>	Number and nature of markets
<b>Socio-economic Indicator 13</b>	Stakeholder knowledge of natural history
<b>Socio-economic Indicator 14</b>	Distribution of formal knowledge to community
<b>Socio-economic Indicator 15</b>	Percentage of stakeholder groups in leadership positions
<b>Socio-economic Indicator 16</b>	Changes in conditions of ancestral and historical sites, features, and/or monuments

Indicators S2, S3, S13 and S14 are concerned with aspects of understanding people's values and understanding marine resources at the broader community level.

It should be noted that there is no one indicator that captures the total economic value of the MPA. However, several of the indicators can be used to measure components of total economic value such as use and non-use values of the MPA. These include indicators S6 (perceptions of non-market and non-use value), S7 (material style of life), S8 (quality of human health), S9 (household income distribution by source), S10 (occupational structure), S11 (community infrastructure and business) and S12 (number and nature of markets).

## THE GOVERNANCE INDICATORS

By definition, an MPA is a governance tool. It limits, forbids or otherwise controls use patterns and human activity through a structure of rights and rules. Resource governance is the way in which users and their intentions are managed through a set of rights, rules and shared social norms and strategies. This includes enforcement mechanisms, such as policing measures and punishments, as well as incentives to direct human behaviour and use.

Resource governance is defined by formal organizations and law, traditional bodies and/or accepted practice. Resource governance takes place at four related levels: local, provincial/state, national and international.

MPAs may be managed under a variety of arrangements. The differences between the three primarily relate to the degree of stakeholders participation in the process and the location of management authority and responsibility.

**Centralized management** tends to involve limited participation by stakeholders and management authority and responsibility are located in a central agency or office of government.

**Community-based management** tends to involve a great deal of local stakeholder participation, and management authority and responsibility are located at the community or local organization level.

**Co-management** is a sharing of authority and responsibility between government and local stakeholders, which may take many forms, and involves a high degree of stakeholder participation.

Experience has shown that establishment of an MPA located without broad stakeholder participation, consensus and acceptability can lead to failure. Where local stakeholders have a high degree of participation in MPA planning and management, there is greater sense of ownership by them of the MPA and this leads to stronger and longer-term conservation success.

<b>Governance Indicator 1</b>	Level of resource conflict
<b>Governance Indicator 2</b>	Existence of a decision-making and management body
<b>Governance Indicator 3</b>	Existence and adoption of a management plan
<b>Governance Indicator 4</b>	Local understanding of MPA rules and regulations
<b>Governance Indicator 5</b>	Existence and adequacy of enabling legislation
<b>Governance Indicator 6</b>	Availability and allocation of MPA administrative resources
<b>Governance Indicator 7</b>	Existence and application of scientific research and input
<b>Governance Indicator 8</b>	Existence and activity level of community organization(s)
<b>Governance Indicator 9</b>	Degree of interaction between managers and stakeholders
<b>Governance Indicator 10</b>	Proportion of stakeholders trained in sustainable use
<b>Governance Indicator 11</b>	Level of training provided to stakeholders in participation
<b>Governance Indicator 12</b>	Level of stakeholder participation and satisfaction in management processes and activities
<b>Governance Indicator 13</b>	Level of stakeholder involvement in surveillance, monitoring and enforcement
<b>Governance Indicator 14</b>	Clearly defined enforcement procedures
<b>Governance Indicator 15</b>	Enforcement coverage
<b>Governance Indicator 16</b>	Degree of information dissemination to encourage stakeholder compliance



# 12.5 Analysis of the results of evaluation

(Source: Hockings et.al. 2006)

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The evaluation data can be analysed and presented either as a simple comparative estimate, as SWOT (strengths, weaknesses, opportunities and threats) analyses, or can be presented as scores. Scores provide a quick and easy way for an audience to determine comparative conditions.



The recommendations from an evaluation will usually be more complex than a simple list of jobs to be done. They may include the need to fill gaps in knowledge, for instance by extra monitoring, through research projects or through reference to experience in other protected areas. If the assessment throws up serious gaps in our understanding that need to be filled by monitoring, actions may include adapting the assessment process itself.

Particularly in the case of long-established protected areas, management priorities may have changed over time or perhaps never have been set very clearly. In these cases, the assessment provides an insight into the management objectives and accompanying management plans and needs to adapt these.

Comparing individual protected areas over time is highly valuable. It is usually worth repeating assessments at intervals to check on progress and to identify trends.

Evaluation can help show the effectiveness of management and indicate trends in biodiversity. **A good evaluation system will provide information about context, planning, inputs, processes and outputs help interpret to what extent outcomes are due to particular interventions.** Evaluation will often turn up particular questions or problems that require dedicated studies of their own.

**Two key factors determine whether evaluation findings will make a practical difference to management:**

- (1) a high level of commitment to the evaluation by managers and owners of the protected areas and
- (2) adequate mechanisms, capacity and resources to address the findings and recommendations.


An important output from an evaluation process can be a capacity development plan, which can improve management effectiveness, by:

**Ensuring relevance:** The assessment ensures that actions to strengthen capacity focus directly on the most debilitating management weaknesses and urgent threats.

**Identifying priorities:** The evaluation may result in a prioritisation of the values, threats and most vulnerable and threatened habitats/ species in a system.

**Engendering support:** By engaging with key stakeholders throughout the process of assessing management effectiveness, prioritising relevant capacities, and developing a cross-stakeholder, this approach encourages broad-based support among multiple actors.

Evaluation of management effectiveness encourages us to learn from both our successes and our mistakes, to adapt and change good ideas to suit our local circumstances, to cooperate with all the partners in management, and to have an open, inquiring attitude so we can respond to any challenges which come our way ( Hockings et.al. 2006).

A scenic view of a beach with a wooden bench in the foreground, a signpost with a turtle illustration, and the ocean in the background. The scene is captured during the golden hour, with warm sunlight filtering through the trees on the left. A semi-transparent teal box is overlaid on the center of the image, containing white text.

Assessment of management effectiveness at regular intervals and bringing changes in the management strategies based on the assessment results is essentially the most evolved form of individual and institutional capacity development towards sustainable and participatory management of coastal and marine protected areas.





## 12.6 Case Studies

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The evaluation data can be analysed and presented either as a simple comparative estimate, as SWOT (strengths, weaknesses, opportunities and threats) analyses, or can be presented as scores. Scores provide a quick and easy way for an audience to determine comparative conditions.



## **Integrated Management Plan for the Gulf of Mannar Marine National Park and Biosphere Reserve (2007- 2016) – WWI & GOMBRT, 2007**

This is an example of an ideal management plan for an MPA. MPA management is complex because of the kind of issues it needs to look into, including the diverseness of marine habitats and the species they house.

This management plan shows what it takes to make such comprehensive document that will be the guiding force behind one to all activities for the conservation and management of marine habitats and ecosystem. This is a well researched and documented work covering environmental, ecological and geographical aspects, the community angle, tourism perspectives, disaster preparedness, etc.

The Gulf of Mannar Marine National Park (GOMMNP) encompasses 21 offshore islands and their surrounding coral reef system in the Bay of Bengal, along the coastal districts of Ramanathapuram and Tuticorin. Advised by the Ministry of Environment & Forests, Government of India, the Tamil Nadu Government has also ratified the formation of a 10500 sq. km. of surrounding seascape and landscape around the GOMMNP as India's and that of South Asia's first Marine Biosphere Reserve – the Gulf of Mannar Biosphere Reserve (GOMBR).

This management plan has been developed through a consultative process. The Wildlife Institute of India has followed the IUCN-WCPA Marine Protected Area Planning Process and Planning Guidelines as the general principles for developing the Marine Protected Area Management Plan. The Management Plan Development Guidelines for Protected Areas (Swarkar, 2005) developed by the Wildlife Institute of India served as the general guideline. Provisions of the Wildlife (Protection) Act, 1972 were used in developing the GOMMNP.

The Biosphere Reserve Management Plan Development Guidelines of the Man and Biosphere Programme of the UNESCO and the new guidelines for regulatory regimes for the biosphere reserves of the Ministry of Environment and Forests, Government of India were also followed in developing the Integrated Management Plan for the Gulf of Mannar Biosphere Reserve and Marine National Park.

# Management Effectiveness Evaluation (MEE) of National Parks and Wildlife Sanctuaries in India: 2015-16 [Mathur et al. 2015]

India has made a beginning in evaluating the management effectiveness of its national parks, wildlife sanctuaries, tiger reserves (TRs) and world heritage sites (Mathur 2008). The MEE of national parks and wildlife sanctuaries was initiated in 2006 and till 2014, 126 sites have been evaluated. For assessment of each of the six elements of the MEE Framework, the following criteria have been developed for MEE process:

## ASSESSMENT FRAMEWORK AND CRITERIA

[for quantitative criteria: \*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10]

### 1. CONTEXT

#### 1.1 Are the values of the site well documented, assessed and monitored?

#### 1.2 Are the threats to site values well documented and assessed?

\* This assessment should be based on number, nature and extent of threats. Threats within and outside PA should both be considered. Impacts, if any on the population abundance of key species may be indicated in the remarks.

#### 1.3 Is the site free from human and biotic interference?

\*This assessment should be based on existence of human settlements/ villages; livestock grazing, cultivation, encroachments etc, resource extraction/ livelihood dependence of local communities and should reflect the overall interference due to all the above factors. Number and size of human settlements/ enclaved villages and their impacts on the site may be indicated in the Remarks.

## 2. PLANNING

### 2.1 Is the site properly identified (NP/WLS) and categorized (in terms of zonation) to achieve the objectives?

Management prescriptions for various zones (Core, Buffer, Tourism etc) may be carefully assessed.

### 2.2 Does the site have a comprehensive Management Plan?

Is the Management Plan consistent with WII Guidelines or not? The extent to which the concerns of the stakeholders, if any have been incorporated in the Management Plan may be commented upon.

### 2.3 Is the Management Plan routinely and systematically updated?

### 2.4 Does the site safeguards the threatened biodiversity values?

\* Remarks need to elaborate on the kind of safeguards and how they work or are intended to work

### 2.5 Are stakeholders given an opportunity to participate in planning?

\* The result of participation must show in the field and not merely reported as a routine exercise. Further, is there a system/scope of putting the draft Management Plan in Public Domain in place?

### 2.6 Are habitat restoration programmes systematically planned and monitored?

\* This assessment should be primarily based on habitat management programmes in relation to habitats for species that are threatened (IUCN categories), are habitat specialists, subjected to seasonal movements, wide ranging with emphasis on the breeding and rearing habitat and may include factors such as food, water, shelter (all connotations).Habitat structure, composition, unique patches of vegetation and sensitive sites, sources of water

and their distribution are integral. Corridors within buffer zone are critically important. For example, all riparian habitats. Have these been addressed? Is there a planning process in place? What is the extent of 'invasive species in the Site? Are there any measures to reduce/remove them? Have these been successful?

## **2.7 Does the site has an effective protection strategy?**

\* This assessment takes *inter-alia* into account the nature of threats, the number and location of patrolling camps and foot and mobile patrolling, needs that relate to available manpower, terrain difficulties, practicability of area coverage, readiness to contain specific threats with necessary support and facilities. Is there any coordination with other wings of the Forest Department/ Police/ Customs etc? Are these effective?

## **2.8 Has the site been effective in the mitigation of human-wildlife conflicts?**

\* Judgment needs to consider staff training, capabilities, equipment, logistics, local attitude and politics (negatively aided and/or abetted), assistance of relevant agencies (e.g. police. Local administration, Local people themselves) PR, follow-up actions and monitoring. Details of compensation paid for human injury/ death and property damage in the last 3 year may be collected.

## **2.9 Is the site integrated into a wider ecological network landscape following the principles of the ecosystem approach?**

\* Assessment needs to consider the scope of opportunities on the landscape scale that exist. Consider whether any attempts have been made and what are these? Have all the important corridors been identified? What actions are planned/implemented for their security? Have the Forest Working Plans and Forest Development Corporation Plans within the identified landscapes taken cognizance of such new requirement? What kind of relationship exists with the District Administration and other Line Departments? Does the Site get any funds from these agencies?

### 3. INPUTS

#### 3.1 Are personnel adequate, well organised and deployed with access to adequate resources in the site?

\* This assessment should *inter-alia* be based on number of personnel allocated for attainment of PA objectives at the Range , Round, Beat and Patrolling camps levels or as relevant to the needs (sanctioned posts *vis- a- vis* existing personnel and needs beyond the sanctioned strengths. It is possible that posts have last been sanctioned several years back that do not now account for the current needs)

#### 3.2 Are resources (vehicle, equipment, building etc.) adequate, well organised and managed with access to adequate resources?

\* These form a variety of resources. These may be segregated into immovable (structures) and movable categories and each further may be considered under the essential and desirable categories. It is best to start with what are the minimum needs to attain each objective, what is available and manner of use/deployment. The proportions of the 'essentials' and 'desirables' along the importance gradient of objectives would serve as pointers for score categories. Specific remarks would be vitally important.

#### 3.3 Are resources (human and financial) linked to priority actions and are funds released timely?

\*Obtain details of funds released by MoEF and their utilization by site in the last 3 years and indicate them under 'Remarks'. Also comment on the problems associated with funds and their mitigation.

#### 3.4 What level of resources is provided by NGOs?

Details of contributions(cash/kind) made by the NGOs in the last 3 years may be collected.

#### 3.5 Does PA manager considers resources (human and financial) to be sufficient?

## **4. PROCESS**

### **4.1 Does the site have trained manpower resources for effective PA management?**

\* Indicate % of trained staff in various categories. i.e. Higher Management: ACF/ DCF/ CF/ CCF; Frontline Staff: Range Officer; Beat Officer; Forest Guard; Casual Daily Labour (CDL); Others.

### **4.2 Is PA staff performance management linked to achievement of management objectives?**

\*Has the PA staff received award/ appreciation from any agency in the last 3 years?

### **4.3 Is there effective public participation in PA management?**

\* Participation would include Conservation & awareness programmes, Census operations, Intelligence gathering, Forest fire control etc.

### **4.4 Is there a responsive system for handling complaints and comments about PA management?**

\* Number of queries made and response thereof under the Right to Information (RTI), Act in the last 3 years may be compiled.

### **4.5 Does PA management addresses the livelihood issues of resource dependent communities especially of women?**

## **5. OUTPUT**

### **5.1 Is adequate information on PA management publicly available?**

\* Does the Site has a website? If yes, is it comprehensive, well-managed and periodically updated?

## **5.2 Are visitor services (tourism and interpretation) and facilities appropriate for the relevant protected area category?**

\* Include the existence and quality of visitor and interpretation centers, including skills and capabilities of personnel manning these, site related publications, films, videos; arrangements of stay (including places serving refreshments and food owned and managed by site), watch towers and hides including safety factors, vehicles assigned for visitors including riding elephants, if any and their deployment, drinking water, rest rooms, garbage disposal, attended and self guided services in the field, visitor feed back on the quality of wilderness experience. Details of numbers of visitors/ tourists( both domestic and overseas) coming in the last 3 years and the revenue earned may be compiled.

## **5.3 Are research/ monitoring related trends systematically evaluated and routinely reported and used to improve management?**

\* Not all site attract projects and researchers and with exceptions, little research takes place on the site own steam because of systemic limitations. However, monitoring of some critical issues is expected e.g. population of tiger, co-predators and prey with insights into their demography and distribution (some opportunistic sampling by sightings, signs and spatial distribution during assessment would be extremely useful in terms of expert impression and as a pulse), monitoring incidence of livestock grazing, fires, weeds, sources of water, a variety of illegal activities typically associated with the reserve, wildlife health (e.g. epidemics, immunization of livestock) regeneration and change in vegetation, visitors and their activities, offence cases, ex-gratia payments etc. Details of number of research projects in the last 3 years, institutions involved, salient outcomes may be collected and used in awarding scores.

## **5.4 Is there a systematic maintenance schedule and funds in place for management of infrastructure/assets?**

## 6. OUTCOMES

### 6.1 Are populations of threatened species especially key faunal species declining, stable or increasing?

\* This needs to practically relate to the natural ecosystem potential rather than being driven merely by numbers and visibility. The assessment score may be elaborated under remarks. Comments on the population trends may be made under Remarks.

### 6.2 Have the threats to the site being reduced/ minimized or is there an increase?

### 6.3 Are the expectations of visitors generally met or exceeded?

\* Is there any system of receiving/ analyzing visitor feedback?

### 6.4 Are local communities supportive of PA management?

\* There could be many reasons for disenchantment. It could be real because of managerial neglect or the managerial efforts could be appropriate but there could be local elements/ organizations who would like to keep the dis-affectation simmering for their own ulterior motives. Likewise success could be entirely because of the efforts of managers or they might be fortunate in striking partnerships with credible NGOs. Assessment may take the prevailing causes into account.

**Table 12.5 MEE Score Card**

Framework Element Number	Framework Element Name	Number of Questions (a)	Maximum Mark per question (b)	Total (a x b)	Marks obtained for the Element	Overall Score
1.	Context	03	10	30		%
2.	Planning	09	10	90		
3.	Inputs	05	10	50		
4.	Process	05	10	50		
5.	Outputs	04	10	40		
6.	Outcomes	04	10	40		
Total		30		300		



## Tools for MEE:

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WWF/CATIE methodology Cifuentes, M. and Izurieta Valery, A.A. (1999). Evaluation of Protected Area Management Effectiveness: Analysis of Procedures and Outline for a Manual. Available in English and Spanish versions. [http://www.iucn.org/themes/WCPA/pubs/mgteffectpdfs/PARKSfin\\_esp.pdf](http://www.iucn.org/themes/WCPA/pubs/mgteffectpdfs/PARKSfin_esp.pdf) [http://www.iucn.org/themes/WCPA/pubs/mgteffectpdfs/Art\\_Eng.pdf](http://www.iucn.org/themes/WCPA/pubs/mgteffectpdfs/Art_Eng.pdf)Cont.

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Western Indian Ocean Guidebook Wells, S. and Mangubhai, S. (2004). Available online at: <http://www.wiomsa.org/data/content/DOCUMENTS/2005112212511831IUCN%20BOOK%20part%201.pdf>

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A range of resources to learn more about MPAs and oceans

<http://www.protectplanetoocean.org/resources/publications>

[http://projecttiger.nic.in/WriteReadData/PublicationFile/mee\\_tiger\\_2011.pdf](http://projecttiger.nic.in/WriteReadData/PublicationFile/mee_tiger_2011.pdf)

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