Management effectiveness evaluation in protected areas – a global study

Overview of approaches and methodologies

Fiona Leverington, Marc Hockings, Helena Pavese,
Katia Lemos Costa and José Courrau

2008
SUPPLEMENTARY REPORT NO.1

The Nature Conservancy
Protecting nature. Preserving life.
WWF for a living planet
The University Of Queensland AUSTRALIA
IUCN The World Conservation Union
WCPA World Commission on Protected Areas
2010 Biodiversity Indicators Partnership

“The goal of parks and protected areas is to contribute as much as possible to the range of choices available to the children of the future. They cannot choose the impossible or dream the unimaginable’.”

(Hales, 1989)

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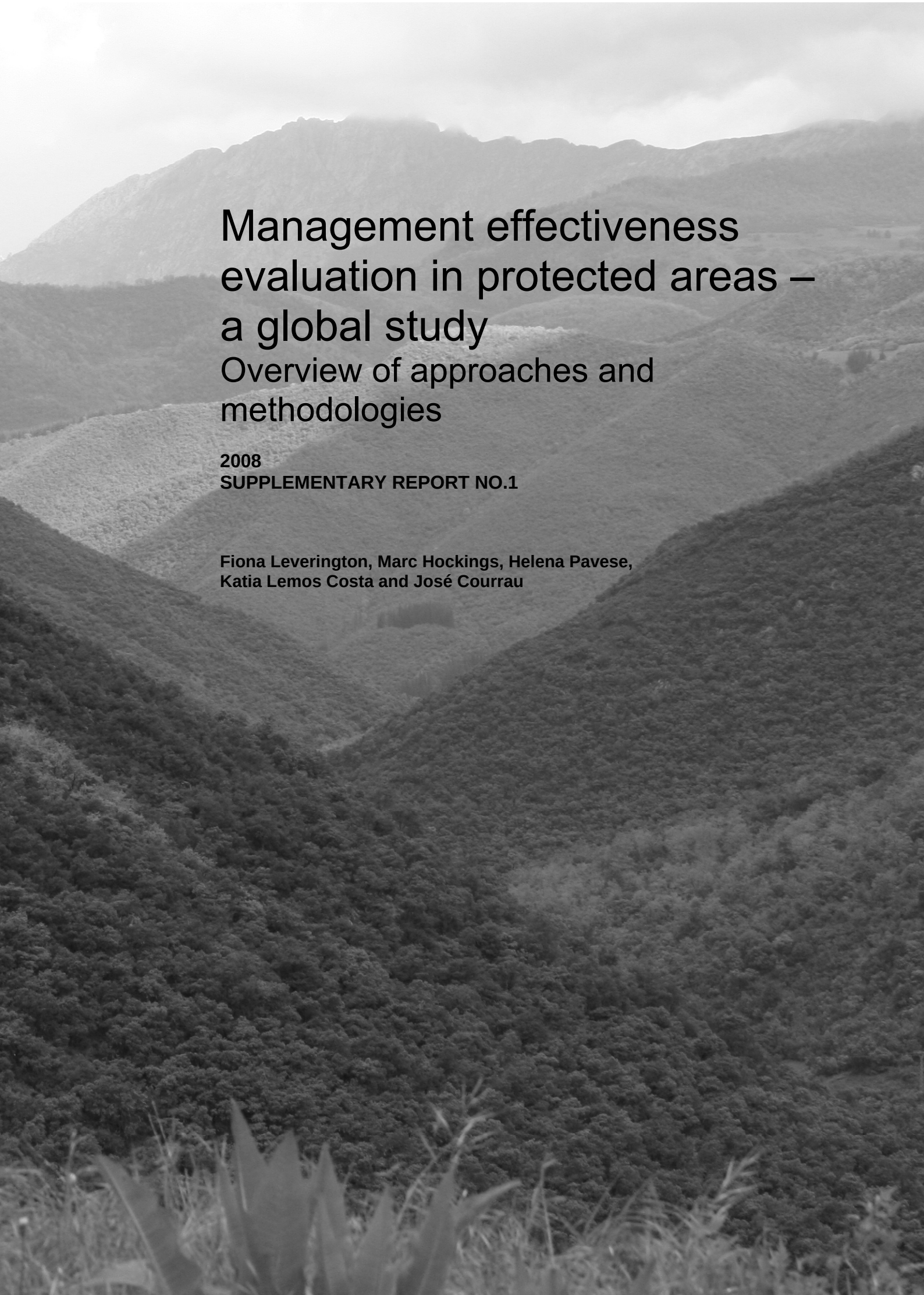

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Contents

Acknowledgements

Information sources
This report has been written with the assistance of many people and consists largely of direct quotes and compilation of material directly from a range of sources. This has been a deliberate approach to consolidate many sources of information into one reference. The original sources and authors are acknowledged and it is not intended to replace the purpose and originality of their work.

In addition to quoting freely from original source material from the websites, manuals and other reviews of each system, this report quotes from a number of other comparative studies, which have been undertaken at length and with considerable discussion and/ or field testing. In particular, we acknowledge the work of:

- Marc Stern – for his comparative study of marine management effectiveness evaluation systems (2006)
- Stéphane Pauquet – comparative analysis of three methodologies applied in Bolivia (Pauquet 2005)
- The 'Andes report', a comparison of the existing tools in the region (Cracco 2006b)
- Sue Stolton, for compiling a number of case studies presented in the revised version of the IUCN WCPA guidelines on management effectiveness (Hockings *et al.* 2006)
- PowerPoint presentations from the regional workshop on MEE in the Andes (Cracco 2006a), the Brazilian Congress of Protected Areas 2007 and the Latin American Congress on Protected Areas 2007
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The Global Study of Management Effectiveness has been supported by WWF[1], TNC[2], University of Queensland and ICUN WCPA[3]. The support of UNEP/WCMC[4] and IABIN[5] in compiling these methodologies is also appreciated.

Information for some methodologies has been difficult to obtain and the documentation is in a number of languages. Any comments, suggestions, corrections or additions are welcome. The authors apologise for any misinterpretations or omissions.

[1] Worldwide Fund for Nature
[2] The Nature Conservancy
[3] International Union for the Conservation of Nature, World Commission on Protected Areas
[4] United Nations Environment Program/ World Conservation Monitoring Centre
[5] Inter-American Biodiversity Information Network

Introduction

In the report "Management effectiveness evaluation in protected areas – a global study" (Leverington *et al.* 2008), we outline the purposes of management effectiveness evaluation and present the findings of an investigation into management effectiveness evaluations conducted across the world.

In this supplementary report, we present some principles and a checklist for choosing a methodology, and summarise a selection of methodologies that have been used in different regions of the world for different purposes. References are given wherever possible for the reader to find more details where desired. However, some of the methodologies are not published and information on them is difficult to obtain.

In general it is recommended that, wherever possible, the published and commonly applied methodologies should be adopted where agencies are just beginning management effectiveness evaluation. If desired, extra indicators and questions can be added to these to make them more locally applicable and useful, but it is very useful if the common set can be used as a basis, to allow for compilation of international data sets to help track progress and show improvement in the long term.

The summary of each methodology is divided into the headings below. Material in the summaries varies in depth and quality depending on the available information.

Organisation: the organisation/s primarily responsible for developing and/or applying the methodology
Primary methodology reference: Wherever possible, a published or otherwise available source is given, but some of the methodologies do not have any available reference
Brief description: This is designed to give a very brief introduction to what the methodology covers
Purposes: The methodology is rated on which of four primary purposes it tries to meet: to improve management; for prioritisation and resource allocation; to raise awareness and support; and for accountability. The most important purpose is in bold type.
Objectives and application: The specific objectives of the methodology are presented and the known applications of the methodology so far are included.
Origins: The development of the methodology and its links to others are outlined.
Strengths, constraints and weaknesses: These sections discuss what the methodology can and cannot achieve. In many cases the opinions about strengths and weaknesses of the evaluation methodology are those contained in the methodology documentation and are not derived from the authors' experiences. Wherever possible, a number of opinions are included.
How the methodology is implemented: Describes the actual process of obtaining the information.
Elements and indicators: Indicators are listed in most cases, and where applicable the hierarchy of indicators with different levels of organisation is shown.
Scoring and analysis: Some information is provided about the type of scoring or rating system used and about how the data is analysed and reported.
Further reading and reports: References are given where known.

These methodology summaries, useful web links and associated reports can be found on the management effectiveness website of UNEP/World Conservation Monitoring Centre at http://www.wdpa.org/ME/. This site also offers the capacity to upload information and we would love to hear about what you are doing with management effectiveness.

Checklist for good evaluation methodologies

The discussion below gives some guidance to anyone considering the applicability of any methodology for their own evaluation purposes or conducting a 'quality check' of a methodology before it is implemented. It is extracted from the Global Study on Management Effectiveness report (Leverington *et al.* 2008) More complete guidelines for conducting assessments are contained in the IUCN-WCPA Guidelines (Hockings *et al.* 2006). The TNC 'quick guide' to management effectiveness (Ervin 2007) may also be of help.

Principle 1: The methodology is useful and relevant in improving protected area management; yielding explanations and showing patterns; and improving communication, relationships and awareness

All protected area management assessments should in some way improve protected area management, either directly through on-the-ground adaptive management; or less directly through improvement of national or international conservation approaches and funding. Evaluations which do not appear to have any useful outcomes can be worse than useless, as those involved – especially at protected area level – are often less willing to be involved in other evaluations in the future.

☑	**'Checklist' of criteria**
	It is clear that using the methodology can achieve one or more of four types of purposes: a) It is a useful tool for improving management/ for adaptive management or to aid understanding; b) It assists in effective resource allocation and prioritisation; c) It promotes accountability and transparency; and/or d) It helps involve the community, build constituency and promote protected area values.
.	It helps understand whether protected area management is achieving its goals or making progress.
	The questions asked are relevant to the protected area and the management needs, or can be adapted or others added so they are relevant.
	It will allow useful comparisons across time to show progress and *if desired* will also allow comparison or priority setting across protected areas. *Note that this criteria might balance with the one above – for broad comparisons, at least some questions or the broader themes need to be the same*.
	Even simple analyses will show patterns and trends and allow for explanations and conclusions about protected area management and how it might be improved. [6]

Principle 2: The methodology is logical and systematic: working in a logical and accepted Framework with balanced approach.

A consistent and accepted approach such as the IUCN-WCPA Framework provides a solid theoretical and practical basis for assessment, and enhances the capacity to harmonise information across different systems. Evaluations that assess each of the six elements in the Framework and the links between them build up a relatively comprehensive picture of management effectiveness and have greater 'explanatory power'.

[6] *Protected area management is very complex and clear explanations are difficult, but evaluations should enable at least 'reasonable estimations of the likelihood that particular activities have contributed in concrete ways to observed effects' Patton, M.Q. (2007) 'Utilization-focused evaluation: The new Century Text. 3rd ed. . .' (Sage Publications: Thousand Oaks, London, New Delhi). .*

Many systems use a hierarchical structure which contains different layers of indicators or questions assessing a particular element or dimension. Layers of questions should proceed logically and link from very general level (e.g. biodiversity) to more specific and measurable level (e.g. the population of one animal species recorded at one time in one place; the opinions of stakeholders about a particular issue.

☑	**'Checklist' of criteria**
	The methodology is based on a systematic framework, preferably presented in a manual or other document which can be reviewed.
	All six elements of the IUCN MEE Framework are measured, balancing the need to assess the context, inputs, planning, process, outputs and outcomes of management.[7]
	There is also a balance between the different themes or dimensions of management –e.g.. governance and administration, natural integrity, cultural integrity, social, political and economic aspects.[8]
	It provides a hierarchical, nested structure so that information can be 'rolled up' or de-segregated easily to answer different needs and reporting requirements.
	Assumptions behind the indicators, and linking different levels of indicators, are clearly specified.
	The design supports analysis by providing a consistent and logical scoring and rating system (where scoring and rating is used) and clear directions for weightings and comparisons.

Principle 3: The methodology is based on good indicators, which are holistic, balanced, and useful.

☑	**'Checklist' of criteria**
	Indicators are relevant and appropriate (see principle 1) or more indicators can be added within the structure. There is clear guidance on how to measure and score the indicators.
	Indicators have some explanatory power, or able to link with other indicators to explain causes and effects.
	Characteristics of good indicators defined by (Margoluis and Salafsky 1998) are: • Measurable: able to be recorded and analysed in qualitative or quantitative terms; • Precise: defined in the same way by all people; • Consistent: not changing over time so that it always measures the same thing; and • Sensitive: Changing proportionately in response to actual changes in the condition or item being measured.

Principle 4: The methodology is accurate: providing true, objective, consistent and up-to-date information

Results of evaluations can have far-reaching implications and must be genuine and able to withstand careful examination.

Data gathered needs to be as accurate as possible, but in most protected areas there are significant constraints on the quality of certain kinds of information, particularly those that are useful for the measurement of *outcomes* and the status of park values. Often, evaluation must make the most of what information is available. However, evaluation of management effectiveness is enhanced if it is backed up by information obtained from robust, long-term monitoring of the status of key values and of trends in such indicators as natural resources use and visitor patterns. Such monitoring systems should

[7] This depends on the purpose – for a general/ overall evaluation, strive for balance, but some assessments might need a more specific emphasis

[8] As above

be designed to efficiently provide information for evaluation, so that information can be collected and processed without duplication of effort.

Both qualitative and quantitative information can be accurate, as long as it is collected with good techniques and preferably verified. We need to be sure that inferences drawn can be substantiated

For all except special-purpose single-event evaluations, it is desirable to repeat similar measures at intervals. Standardised reporting allows comparisons across sites (where appropriate) and to meet multiple reporting requirements. The system should be capable of showing changes through time.

☑	**'Checklist' of criteria**
	The methodology is structured and explained to be likely to yield accurate results.
	Techniques for implementing the methodology are clearly spelt out e.g. with guidance on how questionnaires should be filled out; how workshops should be conducted; or how the population status of a species should be estimated.
	Well-recognised and accepted – or other new but defensible – data collection techniques are used, so the assessment will be able to withstand scrutiny.
	It will be replicable – that is, easy to apply consistently across different protected areas or regions, and over time, so questions are answered in the same way and patterns are real.
	More detailed and accurate information can be added at a later iteration when available, and the methodology will help to develop a relevant monitoring program.
	Cultural issues are considered, so that people are likely to provide accurate answers without fear, bias or intimidation[9].
	Some 'triangulation', cross-checking or quality control is built in or can be added. The results will be honest, credible and non-corrupt.
	Opinions of a cross-section of people (stakeholders, landowners, protected area staff from different levels, technical experts) should be included wherever possible.
	The evaluation can be conducted quickly enough to provide up-to-date information.
	A record of data sources and levels of certainty is kept.

Qualitative evaluation systems are based on the exercise of expert judgement to assess management performance. Considerable attention needs to be paid to promoting consistency in assessment across sites and evaluators. Consistency can be enhanced by:

- carefully choosing language to minimise potential differences in interpretation;
- providing detailed guidance and examples in supporting documentation;
- training staff to prepare them for the assessment;
- requiring supporting information such as justification for the assessment rating given and sources of information used in making the assessment;
- checking across assessments to identify clear inconsistencies or application of different standards of assessment; and
- correcting information where clear inconsistencies are evident (while ensuring that bias is not introduced in this process).

Principle 5: The methodology is practical to implement, giving a good balance between measuring, reporting and managing

Evaluation is important but should not absorb too many of the resources needed for management. Methodologies which are too expensive and time-consuming will not be repeated, and are less acceptable to staff and stakeholders. Ability to make the most of

[9] This applies to protected area staff as well as to stakeholders

existing information (e.g. from pre-existing monitoring and research) is important. As monitoring systems become attuned to providing information for evaluation, data gathered will become richer and more accurate without increasing demands on financial resources and staffing time.

Cooperation of participants is vital to ensure an accurate and easily implemented assessment, so methodologies must be designed to appeal to people in the field.

☑	**'Checklist' of criteria**
	It is possible to implement the methodology with a reasonable allocation of resources.
	It allows the use of existing information and processes wherever possible.
	All steps in the process are clear and unambiguous.
	It is comprehensible and acceptable to staff and stakeholders Language in questionnaires or presentations is simple and relevant to the local situation, and carefully chosen not to give offence to any gender, ethnic or cultural group.
	The design encourages positive interaction and discussion and immediate improvements in management practices.
	Simple and useable tools for data entry, analysis and reporting are provided.
	The methodology allows for a level of cooperation, rather than competition, with other evaluation exercises in the same area.

Principle 6: The methodology is part of an effective management cycle: linked to defined values, objectives and policies.
Evaluations that are integrated into the managing agency's culture and processes are more successful and effective in improving management performance in the long term.

To link evaluations with other aspects of management, it is critical that the key values, management goals and objectives for the protected area have been spelt out clearly. Standards against which inputs, processes and outputs can be judged are also important. As monitoring programs develop and mature, monitoring, reporting and evaluation should become one integrated efficient process.

☑	**'Checklist' of criteria**
	It is possible to make a commitment to repeated evaluations using this methodology.
	It will meet and be part of the core business cycle and reporting requirements of the agency.
	It ties in with protected area planning, monitoring, research and annual work programs.
	It relates to expressed values, goals and objectives of the protected area or agency and measures the extent to which these are met and policies implemented.
	Senior executives or politicians will be likely to accept the results, act on recommendations and disseminate the reports.

Principle 7: The methodology is cooperative: with good communication, teamwork and participation of protected area managers and stakeholders throughout all stages of the project wherever possible;

Gaining approval, trust and cooperation of stakeholders, especially the managers of the protected areas to be evaluated, is critical and must be ensured throughout the assessment. A wide survey of protected area assessments has found that broad participation improves accuracy, completeness, acceptance and usefulness of evaluation results (Paleczny and Russell 2005). Assessment systems should be established with a non-threatening stance to overcome mutual suspicion. Evaluation

findings, wherever possible, should be positive, identifying challenges rather than apportioning blame. If the evaluation is perceived to be likely to 'punish' participants or to reduce their resources, they are unlikely to be helpful to the process.

However, as discussed earlier, there are occasions when negative repercussions may be inevitable and these cases need careful handling.

☑	**Checklist' of criteria**
	Different viewpoints are actively sought, including perspectives of community and field staff.
	The methodology encourages or allows good cooperation and communication between all the evaluation partners.
	An adequate but serviceable level of participation by staff and community is included in both the design and implementation.
	The implementation of this methodology will contribute to a higher level of trust, better relationships and cooperation between protected area staff at all levels and community.

Principle 8: The methodology promotes positive and timely communication and use of results. Short-term benefits of evaluation should be demonstrated clearly wherever possible.

Findings and recommendations of evaluation need to feed back into management systems to influence future plans, resource allocations and management actions.

☑	**Checklist' of criteria**
	The methodology includes discussion of how results should be communicated and used.
	Reports are clear and specific enough to improve conservation practices realistic, addressing priority topics and feasible solutions.
	Benefits and results from the evaluation will be clearly visible in the short term.
	Feedback to evaluation participants can be given quickly.
	Results will influence future plans and actions in protected area management.

1 Rapid Assessment and prioritization of protected area management (RAPPAM)

Written with assistance and comments from: Alexander Belokurov (WWF) and Jamison Ervin (TNC)

1.1 Organisation

WWF

1.2 Primary methodology reference

Ervin, J. (2003b) WWF: Rapid Assessment and prioritization of Protected Area Management (RAPPAM) Methodology. WWF Gland, Switzerland

WWF (no date) 'Metodología para la evaluación y priorización rápidas del manejo de áreas protegidas (RAPPAM).' WWF.

http://www.panda.org/parkassessment; www.conserveonline/workspaces/patools

1.3 Brief description of methodology

The RAPPAM methodology is designed for broad-level comparisons among many protected areas which together make a protected areas network or system. It can:

- Identify management strengths, constraints and weaknesses.
- Analyse the scope, severity, prevalence and distribution of threats and pressures.
- Identify areas of high ecological and social importance and vulnerability.
- Indicate the urgency and conservation priority for individual protected areas.
- Help to develop and prioritise appropriate policy interventions and follow-up steps to improve protected area management effectiveness.

It can also answer a number of important questions:

- What are the main threats affecting the protected areas system, and how serious are they?
- How do protected areas compare with one another in terms of infrastructure and management capacity? And how do they compare in effectively producing outputs and conservation outcomes as a result of their management?
- What is the urgency for taking actions in each protected area?
- What are the important management gaps in the PA system?
- How well do national and local policies support effective management of protected areas? Are there gaps in legislation or governance improvements that are needed?
- What are the most strategic interventions to improve the entire system?

Higgins-Zogib and Lacerda (2006)

1.4 Purposes

- ✓ **for prioritisation and resource allocation**
- ✓ to raise awareness and support
- ✓ to improve management (adaptive management) – at system level

1.5 Objectives and application

RAPPAM provides policy makers and protected area authorities with a relatively quick and easy method to identify major trends and issues that need to be addressed for improving management effectiveness in any given *system* or group of protected areas. Through conducting RAPPAM assessments, authorities responsible for managing systems of protected areas have been able to:

- analyse the range of major threats facing their protected areas system and to get a broad overview of the most pressing management issues they face;
- look at how the system or group as a whole is functioning and performing; and
- to agree on needed corrective steps that will lead to improved system-level management effectiveness.

RAPPAM has been implemented in some 40 countries and over 1000 protected areas in Europe, Asia, Africa and Latin America and the Caribbean. Useful reports of the status of protected area systems or groups are produced (see list of references at the end of this section), suggesting priority protected areas in terms of the values and vulnerabilities and analysing the trends in protected area management issues.

1.6 Origins

The system was designed originally to assess networks of protected areas. It is based on the IUCN-WCPA Framework. It was developed by WWF between 1999 and 2002, with field testing in China, France, Cameroon, Algeria and Gabon.

1.7 Strengths

It has been used widely in different regions of the world and covers network of protected areas in one assessment. It allows identification of threats and management issues across groups of protected areas. In contrast to many other systems, it includes indicators measuring the state of protected area system as a whole, as well as collecting details about individual protected areas.

'A broad-level assessment such as WWF's Rapid Assessment can be complementary to more detailed site-level assessments. It can serve as an early warning for serious management problems, and help identify individual protected areas that may warrant more in-depth study. It can also help identify broad program areas, such as training, PA site design, or law enforcement that may warrant a more thorough analysis and review. Furthermore, a broad-level assessment can be viewed as a type of macro assessment; it can enhance, but is not a substitute for, the routine reviews and evaluations that are part of program planning, implementation and assessment cycles' (WWF 2001).

The workshop looking at MEE in the Andean countries (Cracco et al. 2006)also noted:

- It allows general and comparative evaluations, identifies management strengths and weaknesses, points out the urgency/priority of conservation and provides effective and transparent information for the distribution of resources and the development of policies in the levels of the PA and the country.
- Covers the six elements of the IUCN-WCPA Framework.
- It is easy to adapt.

1.8 Constraints and weaknesses

The system is not designed to measure outcomes of management in depth. It is primarily designed to assist in setting priorities across a system of protected areas and although it can be applied to a single protected area, the RAPPAM Methodology is not designed to provide detailed, site-level adaptive management guidance to protected area managers.

1.9 How the methodology is implemented

The following material has been extracted from Higgins-Zogib and Lacerda (2006)

'There are five steps in the RAPPAM process:

- Determine the scope of the assessment;
- Assess existing information for each protected area;
- Administer the RAPPAM questionnaire;
- Analyse the findings; and
- Identify next steps and recommendations.

In general the most thorough and effective approach to implementing this methodology is to hold an interactive workshop or series of workshops in which protected area managers, policy makers, and other stakeholders participate fully in evaluating the protected areas, analysing the results and identifying subsequent next steps and priorities.

RAPPAM workshops usually take three days. Two-day workshops have been held, but in these cases the agenda has been very tight with little time available for group and plenary discussions. The costs depend largely on where the workshop is held. Where possible it is advisable to hold the workshop inside a protected area as many of the discussion points during the workshop will be represented right outside the door. However, these logistics are usually the choice of the government ministry (or other protected area authority), who will be the lead player in the workshop.

Getting the right participants to the workshop is critical – and the broader the stakeholder group present, the more true the results. It is important to have at least the manager of each park present at the workshop, as well as top-level participation from the appropriate government ministry. If deemed appropriate, donors can be invited, in the hope that they engage in helping with follow-up steps, as can other international and local NGOs present in the country or region. This helps build support for implementing recommendations that stem from the workshop. Other stakeholders such as community representatives, tourism operators and university staff strengthen the results. And even if in the end, there is disagreement between park staff and community members for example, points raised by the community can still be reflected in the RAPPAM report and taken into consideration.

Lessons learned:

- Ensure the government protected area authority leads the assessment process.
- Develop partnerships with other NGOs present in the country or region.
- Choose a useful assessment scope: RAPPAM is seen at its best when a larger number of protected areas are included in the assessment.
- Administer the questionnaire through interactive workshops.
- Think carefully about assessment objectives and adapt the method to local needs.
- Launch the report at an event if possible.
- Make clear, concrete, practical recommendations.
- Ensure participation and engagement of local communities and other relevant stakeholders in assessments, but plan carefully for their input.

1.10 Elements and indicators

The questionnaire begins with introductory context questions on values and threats/ vulnerability, followed by questions aimed at the protected area level and the system level. Questions are divided into a number of headings.

Table 1: Indicators for the RAPPAM methodology

WCPA Elements	Sections	Questions
	1. Background	includes specific management objectives and critical management activities
Context	2. Pressures and threats	including trend, extent, impact, permanence, and probability of past and future threats
Context	3. Biological importance	Number of rare, threatened or endangered species Relative level of biodiversity Degree of endemism Critical landscape function Extent of full range of plant and animal diversity Contribution to the representativeness of PA system Minimum viable populations of key species Consistency of structural diversity with historic norms Historic range has been greatly diminished ecosystems Extent of full range of natural processes and disturbance regimes
Context	4. Socio-economic importance	Employment for local communities Dependence of communities on PA resources for their subsistence Community development opportunities through sustainable resource use Religious or spiritual significance Unusual aesthetic features Plant species of high social, cultural or economic importance Animal species of high social, cultural or economic importance Recreational value Ecosystem services and benefits to communities Educational and/or scientific value
Context	5. Vulnerability	Low law enforcement Common bribery and corruption Civil unrest and/or instability Conflicting cultural practices, beliefs and traditional uses High market value of PA resources Accessibility for illegal activities Demand for vulnerable resources Pressure to unduly exploit resources Difficult recruitment and retention of employees Difficulty in monitoring illegal activities within the PA
Planning	6. Objectives	PA objectives provide for the protection and maintenance of biodiversity Specific biodiversity-related objectives are clearly stated in the management plan The management policies and plans are consistent with the PA objectives PA employees and administrators understand the PA objectives and policies Local communities support the overall objectives of the PA
Planning	7. Legal security	The protected area has long-term legally-binding protection There are no unsettled disputes regarding land tenure or use rights Boundary demarcation is adequate to meet the PA objectives Staff and financial resources are adequate to conduct critical law enforcement activities Conflicts with the local community are resolved fairly and effectively
Planning	8. PA site design and planning	The sitting of the PA is consistent with the PA objectives The layout and configuration of the PA optimises the conservation of biodiversity The PA zoning system is adequate to achieve the PA objectives The land use in the surrounding landscape enables effective PA management The protected area is linked to another area of conserved or protected land
Inputs	9. Staff	The level of staffing is sufficient to effectively manage the area Staff members have adequate skills to conduct critical management activities Training and development opportunities are appropriate to the needs of the staff Staff performance and progress on targets are periodically reviewed Staff employment conditions are sufficient to retain high-quality staff

WCPA Elements	Sections	Questions
Inputs	10. Communication and information inputs	There are adequate means of communication between field and office staff Existing ecological and socio-economic data are adequate for management planning There are adequate means of collecting new data There are adequate systems for processing and analysing data There is effective communication with local communities
Inputs	11. Infrastructure	Transportation infrastructure is adequate to perform critical management activities Field equipment is adequate to perform critical management activities Staff facilities are adequate to perform critical management activities Maintenance and care of equipment is adequate to ensure long-term use Visitor facilities are appropriate to the level of visitor use
Inputs	12. Finances	Funding in the past 5 years has been adequate to conduct critical management activities Funding for the next 5 years is adequate to conduct critical management activities Financial management practices enable efficient and effective PA management The allocation of expenditures is appropriate to PA priorities and objectives The long-term financial outlook for the PA is stable
Process	13. Management planning	There is a comprehensive, relatively recent written management plan There is a comprehensive inventory of natural and cultural resources There is an analysis of, and strategy for addressing, PA threats and pressures A detailed work plan identifies specific targets for achieving management objectives The results of research and monitoring are routinely incorporated into planning
Process	14. Management decision-making practices	There is clear internal organisation Management decision making is transparent PA staff regularly collaborate with partners, local communities and other organisations Local communities participate in decisions that affect them There is effective communication between all levels of PA staff and administration
Process	15. Research, monitoring, and evaluation	The impact of legal and illegal uses of the PA are accurately monitored and recorded Research on key ecological issues is consistent with the needs of the PA Research on key social issues is consistent with the needs of the PA PA staff members have regular access to recent scientific research and advice Critical research and monitoring needs are identified and prioritised
Outputs	16. Outputs	Threat prevention, detection and enforcement Site restoration and mitigation efforts Wildlife or habitat management Community outreach and educational efforts Visitor and tourist management Infrastructure development Management planning and inventorying Staff monitoring, supervision and evaluation Staff training and development Research and monitoring outputs

WCPA Elements	Sections	Questions
System-level questions	17. Protected area system design	The PA system adequately represents the full diversity of ecosystems within the region The PA system adequately protects against the extinction or extirpation of any species The PA system consists primarily of exemplary and intact ecosystems Sites of high conservation value for key species are systematically protected The PA system maintains natural processes at a landscape level The PA system includes the protection of transition areas between ecosystems The PA system includes the full range of successional diversity Sites of high biodiversity are systematically protected Sites of high endemism are systematically protected The layout and configuration of the PA system optimises the conservation of biodiversity
System-level questions	18. Protected area policies	National PA policies clearly articulate a vision, goals and objectives for the PA system. The area of land protected is adequate to maintain natural processes at a landscape level There is a demonstrated commitment to protecting a viable and representative PA network There is a comprehensive inventory of the biological diversity throughout the region There is an assessment of the historical range of variability of ecosystem types in the region There are restoration targets for underrepresented and/or greatly diminished ecosystems There is ongoing research on critical PA-related issues The PA system is periodically reviewed for gaps and weaknesses (e.g. gap analyses) There is an effective training and capacity-building programme for PA staff PA management, including management effectiveness, is routinely evaluated
System-level questions	19. Policy environment	PA-related laws complement PA objectives and promote management effectiveness There is sufficient commitment and funding to effectively administer the PA system Environmental protection goals are incorporated into all aspects of policy development There is a high degree of communication between natural resource departments There is effective enforcement of PA-related laws and ordinances at all levels National policies promote widespread environmental education at all levels National policies promote sustainable land management. National policies promote an array of land conservation mechanisms There is adequate environmental training for governmental employees at all levels National policies foster dialogue and participation with civic and environmental NGOs

1.11 Scoring and analysis

Most questions use a standard 4-selection scale (no=0, mostly no=1, mostly yes=3, yes=5), where 'yes' describes an ideal situation. Threats (vulnerability) are rated according to their extent, impact and trend.

Analysis of the data is usually presented as comparisons among the sites in the protected area system. Many different analyses are presented in the reports. Important outputs include lists and graphs of the most common threats, management strengths and management weaknesses; prioritisation of parks with respect to their vulnerability and importance; and other comparative information about specific aspects of management.

1.12 Further reading and reports

See reference list for full referencing of the following reports in the bibliography or refer to the WWF Website:

(Anonymous no date; Department of Forests and Wildlife Sikkim and WWF India 2003; Diqiang *et al.* 2003; Duguman 2006; Ervin 2003a; Ervin 2004a; b; Goodman 2003; Higgins-Zogib 2004; Higgins-Zogib and Lacerda 2006; Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis and WWF-Brasil 2007; Lacerda *et al.* 2004; Ministry of Natural Resources and the Environment 2006; Nemekhjargal and Belokurov 2005; Nepali 2006; Simões 2005; Simoes and Numa de Oliveria 2003; Stanciu and Steindlegger 2006; Steindlegger and Kalem 2005; Tacón *et al.* 2005; Tshering 2003; Tyrlyshkin *et al.* 2003; WWF 2001; 2004; no date; WWF India 2006)

2 Management Effectiveness Tracking Tool (METT)

Written with assistance and comments from Sue Stolton

2.1 Organisation

World Bank/WWF Alliance

2.2 Primary methodology reference

Stolton S, Hockings, M, Dudley, N, MacKinnon, K, Whitten, T and Leverington, F (2007) 'Reporting Progress in Protected Areas A Site-Level Management Effectiveness Tracking Tool: second edition.' World Bank/WWF Forest Alliance published by WWF, Gland, Switzerland.

http://www.panda.org/about_wwf/what_we_do/forests/our_solutions/protection/tools/tracking_tool/index.cfm

The Tracking Tool is available in a number of languages.

2.3 Brief description of methodology

The methodology is a rapid assessment based on a scorecard questionnaire. The scorecard includes all six elements of management identified in the IUCN-WCPA Framework (context, planning, inputs, process, outputs and outcomes), but has an emphasis on context, planning, inputs and processes. It is basic and simple to use, and provides a mechanism for monitoring progress towards more effective management over time. It is used to enable park managers and donors to identify needs, constraints and priority actions to improve the effectiveness of protected area management.

2.4 Purposes

- ✓ **donor/ treasury evaluation**
- ✓ to improve management (adaptive management)
- ✓ for accountability/ audit

2.5 Objectives and application

The tool's objectives are stated as:

- Capable of providing a harmonised reporting system for protected area assessment;
- Suitable for replication;
- Able to supply consistent data to allow tracking of progress over time;
- Relatively quick and easy to complete by protected area staff, and thus not reliant on high levels of funding or other resources;
- Easily understood by non-specialists;
- Nested within existing reporting systems to avoid duplication of effort.

(Stolton *et al.* 2007)

The Tracking Tool has been applied in at least 85 countries, primarily by donor agencies and NGOs. It is being used by the World Bank, WWF and the GEF as a mandatory monitoring tool for areas in which they are involved.

'The Tracking Tool has been used to survey the effectiveness of the WWF portfolio of 206 forest protected areas, in Europe, Asia, Africa and Latin America, initially in 2003/4 and then repeated during 2005/6. The World Bank has time series data for

project sites in several countries, including Bolivia, India, Philippines, Indonesia and Central Asian republics. The Global Environment Facility (GEF) has adopted the Tracking Tool as a simple impact monitoring indicator, and recently China and India have adopted the tool as part of their national protected area monitoring systems. To aid adoption the tool has been translated into many languages'(MacKinnon and Higgins-Zogib 2006).

The methodology can also be adapted and used by other development programs, protected area management agencies or national governments as a tool to assess protected areas across a group or system, as has been done in Korea (Young 2005) and Namibia (Jonathon Smith *pers. comm.)* and for 150 forest reserves in Tanzania (Neil Burgess *pers. comm.*). An adaptation is also being used in the Brazilian Amazon (Ronaldo Weigand *pers. comm.*).

2.6 Origins

The World Bank/WWF Alliance for Forest Conservation and Sustainable Use ('the Alliance') was formed in April 1998. As part of its programme of work the Alliance set a target relating to management effectiveness of protected areas: 50 million hectares of existing but highly threatened forest protected areas to be secured under effective management by the year 2005. To evaluate progress towards this target the Alliance developed a simple site-level Tracking Tool to facilitate reporting on management effectiveness of protected areas within WWF and World Bank projects. The Tracking Tool has been built around the application of the IUCN-WCPA Framework.

After being tested and modified over a three-year period, the Tracking Tool has been operational since 2003. A revised version released in 2007 is compatible with the previous version but clarifies some questions and is more consistent in its descriptions of scores.

2.7 Strengths

The Tracking Tool produces a standard report which has been widely used across the world. It is designed primarily to track progress over time (rather than to compare sites) and can reveal trends, strengths and weaknesses in individual protected areas or in groups. The data set from the Tracking Tool is large enough to reveal some international trends in protected area management (Dudley *et al.* 2004).

It is rapid to complete, with only 30 questions, but covers all the elements of the IUCN-WCPA Framework and, especially if it is applied in a workshop situation, leads to a good deal of discussion and reflection. If it is fully completed, with comments and 'next steps', it can be valuable in setting directions and in evaluating progress towards improving protected area management. '… the Tracking Tool has proven to be a useful instrument to build a baseline on management effectiveness, for tracking progress over time, for providing critical information about portfolio-wide issues that need to be addressed as a priority, and for putting in place a simple monitoring system in sites that will not afford to develop a more detailed monitoring system in years to come' (MacKinnon and Higgins-Zogib 2006).

2.8 Constraints and weaknesses

The constraints of the Tracking Tool are acknowledged in its documentation. The assessments produced are relatively superficial (as expected from a rapid analysis) and do not cover all aspects of management. Because of the great differences between expectations, resources and needs around the world, the Tracking Tool is not designed to compare sites.

'The objectives of the Tracking Tool, to be quick and simple, also mean it has limitations as to what it can achieve. It should not, for example, be regarded as an independent assessment, or as the sole basis for adaptive management, and should certainly not replace more thorough methods of assessment for the purposes of adaptive management.' (MacKinnon and Higgins-Zogib 2006). Evaluation of outcomes is not detailed and for this the Tracking Tool should be used in conjunction with other monitoring and evaluation tools.

The experience of some people in the field is that the Tracking Tool is better received by field staff if some additional questions specifically relevant to that area and situation are added.

2.9 How the methodology is implemented

The Tracking Tool is designed to be simple and implemented with minimal costs. Ideally, the questionnaire should be completed as part of a discussion between, at a minimum, the project officer or task manager, the protected area manager and a representative of local stakeholders. Wider discussions with a number of managers and stakeholders are beneficial where possible. A useful part of the questionnaire for the purpose of project oversight and management improvement is the section on "comments" and 'agreed next steps'.

'The Tracking Tool has been designed to be easily answered by those managing the protected area without any additional research. However, it is useful to review the results of existing monitoring and to spend sufficient time discussing each aspect of management being assessed to arrive at a considered judgement. In most cases, a group of protected area staff from the reserve, project staff or other agency staff should be involved in the assessment; where possible additional external experts, local community leaders or others with knowledge and interest in the area and its management can be involved in completing the assessment' (Stolton *et al.* 2007).

When repeat assessments are undertaken it is advisable to use at least some of the same team members who undertook previous assessments. Where this is not possible the information provided by previous assessors in the text fields of the Tracking Tool will be particularly valuable in guiding the assessment and ensuring consistency in the evaluation being made.

2.10 Elements and indicators

After introductory questions, 30 questions are asked. The tool has been adapted slightly by different countries and has given rise to other systems including the wetland and marine Tracking Tools. As discussed earlier, some organisations have adapted the Tracking Tool to better suit their needs. It is best if this can be done by adding questions to the end, so that answers to other questions can be analysed in a wider data set if desired.

Note: the indicators shown are from the new version of the Tracking Tool, released in 2007.

Table 2: Indicators for the Tracking Tool methodology (2007 version)

Data sheet 1: Details about the protected area and its management objectives, administration, staffing and funding
Data sheet 2: Threat assessment (high, medium, low, not applicable) based on the Conservation Measures Partnership threat hierarchy[10] under the following major headings:
1. Residential and commercial development within a protected area: Threats from human settlements or other non-agricultural land uses with a substantial footprint
2. Agriculture and aquaculture within a protected area: Threats from farming and grazing as a result of agricultural expansion and intensification, including silviculture, mariculture and aquaculture
3. Energy production and mining within a protected area: Threats from production of non-biological resources
4. Transportation and service corridors within a protected area: Threats from long narrow transport corridors and the vehicles that use them including associated wildlife mortality
5. Biological resource use and harm within a protected area: Threats from consumptive use of "wild" biological resources including both deliberate and unintentional harvesting effects; also persecution or control of specific species (note this includes hunting and killing of animals)
6. Human intrusions and disturbance within a protected area: Threats from human activities that alter, destroy or disturb habitats and species associated with non-consumptive uses of biological resources
7. Natural system modifications: Threats from other actions that convert or degrade habitat or change the way the ecosystem functions
8. Invasive and other problematic species and genes: Threats from non-native and native plants, animals, pathogens/microbes or genetic materials that have or are predicted to have harmful effects on biodiversity following introduction, spread and/or increase
9. Pollution entering or generated within protected area: Threats from introduction of exotic and/or excess materials or energy from point and non-point sources
10. Geological events: Geological events may be part of natural disturbance regimes in many ecosystems. But they can be a threat if a species or habitat is damaged and has lost its resilience and is vulnerable to disturbance. Management capacity to respond to some of these changes may be limited.
11. Climate change and severe weather: Threats from long-term climatic changes which may be linked to global warming and other severe climatic/weather events outside of the natural range of variation
12. Specific cultural and social threats
Assessment
1. Legal status: Does the protected area have legal status (or in the case of private reserves is covered by a covenant or similar)?
2. Protected area regulations: Are appropriate regulations in place to control land use and activities (e.g. hunting)?
3. Law enforcement: Can staff enforce protected area rules well enough?
4. Protected area objectives: Is management undertaken according to agreed objectives?
5. Protected area design: Is the protected area the right size and shape to protect species and habitats of key conservation
6. Protected area boundary demarcation: Is the boundary known and demarcated?
7. Management plan: Is there a management plan and is it being implemented?
7a. Planning process: The planning process allows adequate opportunity for key stakeholders to influence the management plan
7b. Planning process: There is an established schedule and process for periodic review and updating of the management plan
7c. Planning process: The results of monitoring, research and evaluation are routinely incorporated into planning
8. Regular work plan: Is there a regular work plan and is it being implemented
9. Resource inventory: Do you have enough information to manage the area? 10. Protection systems: Are systems in place to control access/resource use in the protected area?
11. Research: Is there a programme of management-orientated survey and research work?
12. Resource management: Is active resource management being undertaken?
13. Staff numbers: Are there enough people employed to manage the protected area?
14. Staff training: Are staff adequately trained to fulfil management objectives?
15. Current budget: Is the current budget sufficient?
16. Security of budget: Is the budget secure?
17. Management of budget: Is the budget managed to meet critical management needs?

[10] IUCN – Conservation Measures Partnership (2006) IUCN – CMP Unified Classification of Direct Threats Version 1.0 – June 2006. http://www.iucn.org/themes/ssc/sis/classification.htm.

18. Equipment: Is equipment sufficient for management needs?
19. Maintenance of equipment: Is equipment adequately maintained?
20. Education and awareness: Is there a planned education programme linked to the objectives and needs?
21. Planning for land use: Does land use planning recognise the protected area and aid the achievement of objectives?
22. State and commercial neighbours: Is there co-operation with adjacent land users?
23. Indigenous people: Do indigenous and traditional peoples resident or regularly using the protected area have input to management decisions?
24. Local communities: Do local communities resident or near the protected area have input to management decisions?
24 a. Impact on communities: There is open communication and trust between local and/or indigenous people, stakeholders and protected area managers
24b. Impact on communities: Programmes to enhance community welfare, while conserving protected area resources, are being implemented
24c. Impact on communities: Local and/or indigenous people actively support the protected area
25. Economic benefit: Is the protected area providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
26. Monitoring and evaluation: Are management activities monitored against performance?
27. Visitor facilities: Are visitor facilities adequate?
28. Commercial tourism operators: Do commercial tour operators contribute to protected area management?
29. Fees: If fees (i.e. entry fees or fines) are applied, do they help protected area management?
30. Condition of values: What is the condition of the important values of the protected area?
30a: Condition of values: The assessment of the condition of values is based on research and/or monitoring
30b: Condition of values: Specific management programmes are being implemented to address threats to biodiversity, ecological and cultural values
30c: Condition of values: Activities to maintain key biodiversity, ecological and cultural values are a routine part of park management

2.11 Scoring and analysis

In the main assessment form, 30 questions are asked - each with a four-point scale (0, 1, 2, and 3). The intention is that the scale forces respondents to choose whether the situation is acceptable or not. Generally 0 is equivalent to no or negligible progress; 1 is some progress; 2 is quite good but has room for improvement; 3 is approaching optimum situation. A series of four alternative answers are provided against each question to help assessors to make judgements as to the level of score given. In addition, there are three groups of supplementary questions which elaborate on key themes in the previous questions and provide additional information and points. Where questions are not relevant to the protected area, they are left out and the scores adjusted accordingly.

The scores are totalled and the percentage of the possible score calculated.

It is noted that 'the whole concept of "scoring" progress is however fraught with difficulties and possibilities for distortion. The current system assumes, for example, that all the questions cover issues of equal weight, whereas this is not necessarily the case. Scores will therefore provide a better assessment of effectiveness if calculated as a percentage for each of the six elements of the IUCN-WCPA Framework (i.e. context, planning, inputs, process, outputs and assessments)' (Stolton *et al.* 2007).

Some analyses have been conducted to discover overall trends and correlations between management strengths and weaknesses. Analyses of repeated surveys have also begun.

2.12 Further reading and reports

(Dudley *et al.* 2004; Dudley *et al.* 2006; Stolton *et al.* 2003b)

3 Enhancing our Heritage

Written with assistance/comments from Sue Stolton

3.1 Organisation

UNESCO, IUCN, and the University of Queensland

3.2 Primary reference

Hockings M, Stolton, S, Courrau, J, Dudley, N, Parrish, J, James, R, Mathur, V and Makombo, J (2007) 'The World Heritage Management Effectiveness Workbook: 2007 Edition.' UNESCO, IUCN, University of Queensland, The Nature Conservancy.

Hockings, M., Stolton, S., Courrau, J., Dudley, N., Parrish, J., James, R., Mathur, V. and Makombo, J. (2007) 'Libro de trabajo para la efectividad del manejo del Patrimonio Mundial: Edición 2007: 2007 Edition.' UNESCO, IUCN, University of Queensland, The Nature Conservancy.

Available online at www.enhancingheritage.net

3.3 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ to raise awareness and support
- ✓ for accountability/ audit
- ✓ for prioritisation and resource allocation

As this is a toolkit, it can be adapted for multiple purposes

3.4 Brief description of methodology

The Enhancing our Heritage (EoH) project is developing and testing a toolkit of methodologies, detailed in the *World Heritage Management Effectiveness Workbook* (Hockings *et al.* 2007), which help managers and stakeholders assess current activities, identify gaps and discuss how problems might be addressed. The IUCN-WCPA Framework is the unifying theme around which the Workbook is structured. Indicators and tools for assessing each component of the Framework are suggested to build up a picture of the adequacy and appropriateness of management and the extent to which objectives are being achieved.

The workbook includes 12 tools (see the indicator list) which are based on a variety of best practices in protected area, and in particular World Heritage, assessment. The assessment tools centre on identifying the main values (biodiversity, social, economic and cultural) which the World Heritage Site was set up to protect (and other important values), ensuring that appropriate objectives based on these values have been set, and then assessing the effectiveness of management in achieving these objectives.

Important values are used because, just as it is impossible to manage every species, hectare or social interaction in a protected area, it is impossible to monitor and assess everything that happens there. World Heritage sites vary in their objectives, management approaches, and capacity for assessment and monitoring; so various different tools are provided. The assessment tools can be used either to supplement existing assessment activities, helping to ensure all components of the management cycle are assessed, or to build a complete assessment system from the start' (Hockings *et al.* 2004). The scale and detail of the assessment are likely to vary, depending on available financial and human resources.

3.5 Objectives and application

The objectives of EOH are to provide site managers and stakeholders with a tested set of tools for developing and implementing a site-based management effectiveness monitoring and evaluation system which:

- focuses on the most important values and objectives of the site;
- addresses key threats to these values and objectives;
- is flexible and enables incorporation of existing monitoring and assessment systems into the overall evaluation; and
- provides for in-depth participatory assessment of important aspects of management for all six of the IUCN-WCPA Framework elements (context, planning, inputs, processes, outputs and outcomes) but pays particular attention to assessing outcomes of management.

It is also valuable for donor/ treasury evaluation, especially to improve the comprehensiveness and usefulness of reporting to the World Heritage Committee.

The EoH methodology is being designed for World Heritage Sites but it has proven to be applicable to other protected areas. 'The UNESCO/IUCN *Enhancing our Heritage* (EoH) project, funded by the United Nations Foundation, is aiming to improve monitoring and evaluation in natural World Heritage sites. The project team, from Europe and Latin America and managed by the University of Queensland, Australia, is working with staff and partners in nine pilot World Heritage sites in Africa, Asia and Latin America to develop and test management assessment methods'(Stolton *et al.* 2006).

Projects currently in development will increase the application of this methodology through awareness raising and capacity building at national and regional levels, training for regionally-based mentors to help guide evaluations and support for extending application of the system to a wider range of countries and sites.

3.6 Origins

'The EOH project has been in progress since 2001 and the first draft of the manual was published in that year. Many of the tools used in the methodology draw from the experiences in Fraser Island World Heritage site, Australia and from a joint WWF and IUCN project to develop assessment methods in Central Africa, in particular at the Dja World Heritage site, Cameroon. Tools for identifying objectives are based on those developed by The Nature Conservancy (TNC) for use in the USA, the Caribbean and Central and South America. The threat assessment also draws on work by TNC and the Biodiversity Support Program. The methodology developed for assessing ecological integrity (an outcome measure) was inspired by existing systems used by Parks Canada, TNC and Kruger National Park in South Africa' (Stolton *et al.* 2006).

The tools in the workbook have been field-tested and revised, in co-operation with managers and partners, in the nine sites participating in the Enhancing our Heritage project. The insights of those using the tools in these sites (which vary greatly biologically and in their size, level of funding and staffing and knowledge base) were incorporated into in the latest draft of the workbook. The final version of the workbook will be published by UNESCO in 2008.

3.7 Strengths

The approach provides guidance for an integrated in-depth evaluation of all six elements of the IUCN Management Effectiveness Framework. As it uses a number of different 'tools', it is flexible and can be adapted to suit the local situation, needs and

level of resources. Other systems of evaluation, such as questionnaires already developed to assess inputs, processes or context issues, could be fed into this system.

Unlike many other systems, it places emphasis on the measurement of outcomes of management and assists in both the reporting of monitoring activities and in the development of monitoring priorities and procedures.

It encourages stakeholder participation in both the design and evaluation phases and has resulted in some improved communication in the field. The process can result in considerable capacity strengthening

3.8 Constraints and weaknesses

The EOH methodology is not a simple 'off-the-shelf' methodology and must be adapted to the individual situation. The system as a whole is relatively time-consuming and expensive, and its implementation requires continuing resourcing and some training and assistance.

3.9 How the methodology is implemented

The implementation process includes the following steps:

- Training for protected area managers;
- Desktop literature surveys, data collection and review;
- Workshops with staff;
- Workshops with stakeholders;
- Compilation of existing monitoring results; and
- Development of enhanced, values-based monitoring program.

The need for partnerships and local capacity building during the process is stressed: 'The underlying premise of the EoH Project is that World Heritage sites undertake assessment of their own management effectiveness. For the self-assessment process to be rigorous it is essential that site managers assemble a team of stakeholder representatives to work with them to develop and support the monitoring and assessment process. …. The project requirement for site implementation teams to undertake the project, who then work with a wider group of stakeholders to develop and ratify the initial assessment, reinforces this need to build strong and coherent local teams to work together to assess management' (Stolton et al., 2006, p.69).

3.10 Elements and indicators

The workbook provides worksheets for each tool. The worksheets and accompanying text provide indicators for assessment, but sites can adapt these criteria and indicators to suit local circumstances if required.

Table 3: Indicators for the EOH methodology

Tool	Indicators
1. Management values and objectives	Biodiversity values Other natural values Cultural, social and economic values Principal management objectives
2. Identifying threats - stress, source (potential and current), status of threat (area, intensity, action, urgency of action)	Threats to biodiversity Threats to other natural values Threats to cultural and socioeconomic values
3. Relationships	Identify all the stakeholders and partners

with stakeholders and partners	Details of the stakeholder and the issue being assessed Nature of the relationship between this stakeholder and the issue Economic dependency Impacts – Negative impacts Impacts – Positive contributions Willingness to engage Political/Social influence Organisation of stakeholders Opportunities stakeholders/partners have to contribute to management the Level of engagement of the stakeholder/partner Overall adequacy of stakeholder engagement
4. Review of national context	How adequate is the legislation? To what extent is the legislation used/useful? Is the legislation effective? How high does conservation rank relative to other government policies? Does other government policy relevant to this site contradict or undermine conservation policy? Is there a conscious attempt to integrate conservation within other areas of government policy? Are policies implemented i.e. has the necessary legislation been enacted? International conservation conventions and treaties Are these conventions and treaties reflected in national law? How willing is government to fund the World Heritage site? Does government have the capacity to match its willingness? What is the relationship between site level and agency level staff– e.g. money, staff, training, equipment? What proportion of the agency's budget goes to field operations?
5. assessment of management planning	Name of plan; Level of approval of the plan (L,G,A, S/A,D); Year of preparation, likely completion or most recent review; Year specified for next review of plan Comments (comments should concentrate on the adequacy, currency, and integration of the plan with other planning instruments) Does the plan establish a clear understanding of the desired future for the site? Does the plan provide sufficient guidance on the desired future for the site? Does the plan provide for a process of monitoring, review and adjustment? Does the plan provide an adequate and appropriate policy environment? Is the plan integrated/linked to other significant national/regional/sectoral plans? Is the plan based on an adequate and relevant information base? Does the plan address the primary issues? Are the objectives and actions specified in the plan represented as adequate and appropriate response to the issues? Does the plan take account of the needs and interests of local and indigenous communities? Does the plan take account of the needs and interests of other stakeholders? Does the plan provide adequate direction on management actions? Does the plan identify the priorities?
6. Design assessment	List objectives for biodiversity and other natural values Key habitats Size External interactions Connectivity List community objectives for cultural, social and economic values Key area legal status and tenure List management issues related to legal status, access and boundary issues with neighbours Legal status and tenure Access points Neighbours
7. Management needs	Assessing management needs Assessing whether the inputs available match the management needs
8. Assessment of management processes	Management planning: Is there a plan and is it being implemented? Planning systems: Are the planning systems appropriate i.e. participation, consultation, review and updating? Regular work plans: Are there annual work plans or other planning tools? Maintenance of equipment: Is equipment adequately maintained? Management staff facilities: Are the available facilities suitable for the management requirements of the site? Staff/management communication: Do staff have the opportunity to feed into management decisions? Staff training: Are staff adequately trained? Personnel management: How well are staff managed? Financial management: Does the financial management system meet the Critical management needs? Managing resources: Are there management mechanisms in place to control inappropriate land uses and activities (e.g. poaching)?

	Law enforcement: do staff have the capacity to enforce legislation? Monitoring and assessment: Are management activities monitored against performance? Resource inventory: Is there enough information to manage the World Heritage site? Research: Is there a programme of management- orientated survey and research work? Reporting: Are all the reporting requirements of the World Heritage site fulfilled? Ecosystems and species: Is the biodiversity of the World Heritage site adequately managed? Cultural/ historical resource management: Are the site's cultural resources adequately managed? Are visitor facilities (for tourists, pilgrims etc) adequate? Do commercial tour operators contribute to protected area management? Have plans been developed to provide visitors with the most appropriate access and diversity of experience when visiting the World Heritage site? Is there a planned education programme? Access Is visitor access sufficiently controlled? Local communities Do local communities resident in or near the World Heritage site have input to management decisions? Indigenous people Do indigenous and traditional peoples resident in or regularly using the site have input to management decisions? Local, peoples welfare Are there programmes developed by the World Heritage managers which consider local people's welfare whilst conserving the sites resources? State and commercial neighbours: Is there cooperation with neighbouring land/sea users? Conflict resolution: If conflicts between the World Heritage site and stakeholders arise, are mechanisms in place to help find solutions?
9. Assessment of management plan implementation	Achievement of management plan actions
10. Output assessment	Numbers of users (e.g. numbers of visitors, numbers of people using a service, numbers of inquiries answered) Volume of work output (e.g. numbers of meetings held with local communities, number of patrols undertaken, extent of area surveyed in a research programme, numbers of prosecutions instigated) Physical outputs (e.g. length of site boundary delineated and marked, numbers of brochures produced or distributed, number and value of development projects completed)
11. Outcomes of management (suggested)	Size of protected area Ecosystem functioning Renewal of ecosystem Uniqueness Diversity Human well-being Cultural values Recreation management objectives Economic objectives Stresses
12. Achievement of principal objectives	

3.11 Scoring and analysis

Many of the indicators in the workbook use a four-point scale. In many of these, a description is provided for each of these levels. However, other questions have qualitative and descriptive answers only, or yes/no answers. As this is a toolkit rather than a definitive system, other systems of scoring and analysis could be fed into different aspects if desired.

Outcome indicators depend on data from monitoring programs and are reported in quantitative terms against nominated target conditions, in a system similar to that used by Parks Canada and the TNC CAP methodology.

Reports are prepared structured around the results from the 12 assessment tools with additional commentary, supporting information and analysis as required. Reports are designed to identify any corrective actions or other responses to the evaluation findings. The goals are to use results for adaptive management measures.

3.12 Further reading and reports

(Dudley and Stolton 2003; GEF ; Hockings *et al.* 2004; Stolton *et al.* 2006; Stolton *et al.* 2003a). See site reports on http://www.enhancingheritage.net/

4 How is Your MPA Doing?

4.1 Organisation/ Affiliation

NOAA/National Ocean Service/IUCN WCPA Marine, WWF

4.2 Primary reference

Pomeroy R, Parks, J and Watson, L (2004) 'How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness.' (IUCN, WWF, Gland and the US National Oceanic and Atmospheric Administration (NOAA): Gland and Cambridge)

Pomeroy RS, Parks, JE and Watson, LM (2006) 'Cómo evaluar una AMP. Manual de Indicadores Naturales y Sociales para Evaluar la Efectividad de la Gestión de Áreas Marinas Protegidas.' UICN, Gland, Suiza y Cambridge, Reino Unido.

4.3 Purposes

- ✓ to **improve management (adaptive management)**
- ✓ for accountability/ audit
- ✓ for prioritisation and resource allocation
- ✓ to raise awareness and support

4.4 Brief description of methodology

'How is your MPA doing' is a substantial manual (more than 200 pages) guiding marine protected area managers in the field of monitoring and evaluation. It provides detailed guidance and advice on assessing all aspects of marine protected area management using a wide range of techniques, within the IUCN-WCPA Framework.

4.5 Objectives and application

This methodology is intended as a toolbox for managers to monitor and evaluate their own marine protected area (MPA). The guidebook provides detailed advice on developing a system tailored to the needs, goals and objectives of a particular area.

It has been field tested at 17 sites throughout the world and translated into several languages.

4.6 Origins

IUCN (WCPA Marine) and WWF jointly formed the MPS management effectiveness initiative in 2000, and between 2001 and 2003 conducted a series of surveys, workshops and field trials to develop, test and refine the system. The final manual for the methodology was published in 2004 (Pomeroy *et al.* 2004) and is also available in Spanish (Pomeroy *et al.* 2006). The project was also sponsored by NOAA and the Packard Foundation.

4.7 Strengths

The methodology has been designed with input from numerous international experts and managers and provides detailed guidance applicable to many different marine protected area environments. It covers all aspects of the IUCN-WCPA Framework. It is designed to be adapted and applied in the field to meet relevant needs.

The manual provides advice on designing, applying and analysing the system but also emphasises the need for communication and application of results to adaptive management.

4.8 Constraints and weaknesses

"How is your MPA doing?' is not a complete set of indicators or a 'ready-to-apply' methodology. It might appear somewhat intimidating if people feel they need to apply all indicators.

4.9 How the methodology is implemented

The manual is intended as a toolbox, and contains numerous indicators and suggested techniques for measuring them. It is intended that the protected area manager organize or coordinate the overall evaluation, though technical experts might be used for various tasks within it. Most of the indicators require collection of field data, either directly or from secondary sources.

The guidebook stresses that techniques are intended to be simple and 'approachable' rather than very detailed scientific measurements, and that the system is meant to be applied in conjunction with other scorecards etc to meet the needs of the individual managers.

A number of measurement techniques are suggested for each indicator, and references given for more detailed technical assistance.

4.10 Elements and indicators

All elements of the IUCN-WCPA Framework are covered in the manual. As a 'toolkit', this methodology is not prescriptive with respect to indicators, but rather gives guidance and suggestions for possible indicators' types.

The manual for this system stresses that indicators must be chosen to reflect the goals and objectives of the marine protected area, and to match the purposes and resources available for the evaluation. Each indicator is presented as associated with particular management goals.

The guidebook presents 42 indicators: 10 biophysical, 16 socioeconomic and 16 of governance.

Table 4: Indicators for "How is your marine park doing?"

Biophysical	Area showing signs of recovery
	Food web integrity
	Recruitment success within the community
	Composition and structure of the community
	Habitat distribution complexity
	Water quality
	Focal species abundance
	Area under no or reduced human impact
	Focal species population structure
	Type, level and return on fishing effort
Socioeconomic	Local marine resource use patterns
	Quality of human health
	Percentage of stakeholder group in leadership
	Distribution of formal knowledge to community
	Stakeholder knowledge of natural history
	Number and nature of markets

	Community infrastructure and business
	Household income distribution by source
	Changes in conditions of ancestral and historical sites, features or monuments
	Material style of life
	Perception of non-market and non-use value
	Perception of local resource harvest
	Perception of seafood availability
	Level of understanding of human impacts on resources
	Local values and beliefs regarding marine resources
	Occupational structure
Governance	Availability and allocation of administrative resources
	Proportion of stakeholders trained in sustainable use
	Degree of interaction between managers and stakeholders
	Existence and application of scientific research and input
	Existence and adequacy of enabling legislation
	Local understanding of MPA rules and regulations
	Existence and adoption of a management plan
	Existence of an MPA decision-making and management body
	Existence and activity level of community organisations
	Level of training provided to stakeholders in participation
	Level of stakeholder participation and satisfaction in management process and activities
	Level of stakeholder involvement in surveillance, monitoring and enforcement
	Clearly defined enforcement procedures
	Number and variety of patrols per time period per unit area
	Degree of information dissemination to encourage stakeholder compliance
	Level of resource conflict

4.11 Scoring and analysis

Scoring systems vary, as answers may be qualitative/ descriptive, scores or measurement. Outputs range from species abundance profiles, habitat maps, and graphs to descriptions of human impacts and threat indexes.

5 Conservation Action Planning (TNC)

5.1 Organisation

The Nature Conservancy (TNC)

5.2 Primary references

The latest material on the CAP methodology is available at www.conserveonline.org/workspaces/cbdgateway/cap/practices

The Nature Conservancy (2007) 'Conservation Action Planning: Developing Strategies, Taking Action, and Measuring Success at Any Scale. Overview of Basic Practices Version: February 2007.'

5.3 Purposes

✓ Adaptive management

5.4 Brief description of methodology

The Conservation Action Planning (CAP) methodology is one of three key analytical methods that support the application of The Nature Conservancy's strategic framework for mission success, called *Conservation by Design (The Nature Conservancy 2006)*. The basic concepts of this conservation approach follow an adaptive management framework of setting goals and priorities, developing strategies, taking action and measuring results. These basic concepts are reflected in each of the three key methods, which in addition to CAP include Major Habitat Assessment and Ecoregional Assessment. In general, Major Habitat and Ecoregional Assessments focus on setting goals and priorities; CAP focuses on developing and implementing strategies to address the priorities and achieve the goals, and all three methods incorporate aspects of measuring results' (Esselman 2007).

The CAP process includes aspects of management effectiveness evaluation – primarily assessing context (values and threats) and outcomes (conservation status), but integrates this into a wider process of developing and implementing conservation strategies. It is not primarily designed for protected areas, but can be applied to any conservation site. CAP is thus not a comprehensive MEE methodology in itself, but some of its tools and approaches are very useful for MEE. TNC is in some case applying CAP in conjunction with other tools to enable a more complete management effectiveness assessment.

The CAP methodology is implemented by a project team which works through a series of steps (see section 5.9) to develop objectives and strategies for site conservation. The components of the process most relevant to management effectiveness evaluation include:

- Clearly defining the 'conservation targets' or most critical values;
- Clearly identifying and rating threats to these targets;
- Using monitoring data and other information to allocate a current conservation status (poor, medium, good or very good) to the conservation target; and
- Applying the findings to adaptive management.

5.5 Objectives and application

Conservation Action Planning is designed to help develop and implement strategies to conserve key targets in conservation sites.

The CAP methodology has been applied by TNC in protected areas and other conservation sites around the world. The methodology is also being adapted and applied by WWF, and is being used by a range of other NGO and government agencies.

5.6 Origins

The CAP methodology has been in development by staff of The Nature Conservancy for some 20 years and has been progressively improving.

5.7 Strengths

From the MEE viewpoint, strengths of the CAP methodology include:

- integration of context and outcome evaluation with planning and strategic actions;
- strong and clear framework provided for analysis of threats;
- focus on key values;
- clear framework for evaluating status of values;
- adaptability of the methodology to look at social and cultural values, though the original design was for biodiversity;
- capacity to use it in conjunction with other more rapid, process-focussed methodologies to provide a good overview of management effectiveness; and
- A good network of trained practitioners exists to assist people in implementing the methodology.

5.8 Constraints and weaknesses

The CAP methodology has not been specifically designed for protected areas or for management effectiveness evaluation. It does not cover all elements of management effectiveness.

5.9 How the method is implemented

The following table shows the overall CAP process. Steps which relate to management effectiveness are Steps B3, 4 and 6, and D9.

Table 5: The CAP process. Source: (The Nature Conservancy 2007)

A. Defining Your Project

1. **Identify People Involved in Your Project**
   - Selection of core project team members and assignment of roles
   - Identification of other planning team members and advisors as needed
   - Identification of a process leader
2. **Define Project Scope & Focal Conservation Targets** (5S = Systems)
   - A brief text description and basic map of your project area or scope
   - A statement of the overall vision of your project
   - Selection of no more than 8 focal conservation targets and explanation of why they were chosen

B. Developing Your Conservation Strategies and Measures

3. **Assess Viability of Focal Conservation Targets** (5S = Systems)
   - Selection of at least one key ecological attribute and measurable indicator for each focal target
   - Your assumption as to what constitutes an acceptable range of variation for each attribute
   - Determination of current and desired status of each attribute
   - Brief documentation of viability assessments and any potential research needs
4. **Identify Critical Threats** (5S = Stresses & Sources)
   - Identification and rating of stresses affecting each focal target
   - Identification and rating of sources of stress for each focal target
   - Determination of critical threats
5. **Develop Conservation Strategies** (5S = Strategies)
   - A situation analysis that includes indirect threats/opportunities and

associated stakeholders behind all critical threats and degraded attributes
- A "picture" – either in narrative form or a simple diagram – of your hypothesized linkages between indirect threats and opportunities, critical threats, and focal targets
- At a minimum, good objectives for all critical threats and degraded key ecological attributes that your project is taking action to address and if useful, for other factors related to project success
- One or more strategic actions for each conservation objective

6. **Establish Measures** (5S = Success)
   - A list of indicators and methods to track the effectiveness of each conservation action
   - A list of indicators and methods to assess status of selected targets and threats you are not currently working on

C. Implementing Your Conservation Strategies and Measures

7. **Develop Work Plans**
   - Lists of major action steps and monitoring tasks
   - Assignments of steps and tasks to specific individual(s) and rough timeline
   - Brief summary of project capacity and a rough project budget
   - If necessary, objectives and strategic actions for obtaining sufficient project resources
8. **Implement**
   - Action
   - Monitoring

D. Using Your Results to Adapt and Improve

9. **Analyze, Reflect & Adapt**
   - Appropriate and scheduled analyses of your data
   - Updated viability and threat assessments
   - Modifications to objectives, strategic actions, and work plans, as warranted
   - Regular updates of project documents
10. **Learn & Share**
   - Identification of key audiences and appropriate communication products for each

Detailed instructions for implementing the methodology are provided in the CAP training materials available online and in training courses.

The Excel 'Conservation Action Planning Workbook' which is available on the internet, is an essential tool for this methodology and contains instructions, hints, examples and embedded tools for rolling up and analyzing information.

5.10 Elements and indicators

As discussed above, CAP measures the WCPA elements of context and outcome only.

There are no fixed indicators, as these are defined according to the CAP process. The part of the CAP methodology which is relevant to MEE defines:

Conservation targets (equivalent to key protected area values): Focal conservation targets are a limited suite of species, communities, and ecological systems that are chosen to represent and encompass the biodiversity found in the project area. They are the basis for setting goals, carrying out conservation actions, and measuring conservation effectiveness. In theory – and hopefully in practice – conservation of the focal targets will ensure the conservation of all native biodiversity within functional landscapes (The Nature Conservancy 2007).

Key ecological attributes and indicators: Each focal conservation target has certain characteristics or key ecological attributes that can be used to help define and assess its ecological viability or integrity. These attributes are critical aspects of the target's biology or ecology that, if missing or altered, would lead to the loss of that target over time. The broad categories of size, condition, and landscape context can be used to inform the selection of specific key ecological attributes. Each key ecological attribute

can either be measured directly, or will have an associated indicator that can be measured to represent its status (The Nature Conservancy 2007).

Threats (stresses and sources) to those targets:
Threats are defined according to the unified threat terminology (IUCN – Conservation Measures Partnership 2006).

5.11 Scoring and analysis

A key component of the CAP methodology is its rating system, which has been widely used and adapted.

Threat rankings
Threats (which are divided into stresses and sources in the more detailed methodology) are scored as: Very High, High, Medium or Low for their scope (extent), severity and reversibility.

Meanings of these rating are:
Severity – The level of damage to the conservation target that can reasonably be expected within 10 years under current circumstances (i.e., given the continuation of the existing situation).

Very High: The threat is likely to destroy or eliminate the conservation target over some portion of the target's occurrence at the site.
High: The threat is likely to seriously degrade the conservation target over some portion of the target's occurrence at the site.
*Medium***:** The threat is likely to moderately degrade the conservation target over some portion of the target's occurrence at the site.
Low: The threat is likely to only slightly impair the conservation target over some portion of the target's occurrence at the site.

Scope – Most commonly defined spatially as the geographic scope of impact on the conservation target at the site that can reasonably be expected within 10 years under current circumstances (i.e., given the continuation of the existing situation).

Very High: The threat is likely to be widespread or pervasive in its scope and affect the conservation target throughout the target's occurrences at the site.
High: The threat is likely to be widespread in its scope and affect the conservation target at many of its locations at the site.
Medium: The threat is likely to be localized in its scope and affect the conservation target at some of the target's locations at the site.
Low: The threat is likely to be very localized in its scope and affect the conservation target at a limited portion of the target's location at the site.
(The Nature Conservancy 2007)

The method for 'rolling up' and combining results is embedded in the worksheet and has been detailed in unpublished TNC material (Salzer 2007). Four basic threat rank combinations are needed:

Type I: Combining the base level variables (e.g., Severity X Scope) to assess a single threat to a single target.
Type II: Rolling up assessments of the impact of different threats to a single target.
Type III: Rolling up assessments of the impact of one threat across multiple targets.
Type IV: Rolling up threat assessments for multiple targets into an overall threat status for a project.

In brief, the scores are combined to give a threat magnitude rating as shown in Figure 1.

		Scope			
		4-Very High	3-High	2-Medium	1-Low
Severity	4-Very High	4-Very High	3-High	2-Medium	1-Low
	3-High	3-High	3-High	2-Medium	1-Low
	2-Medium	2-Medium	2-Medium	2-Medium	1-Low
	1-Low	1-Low	1-Low	1-Low	1-Low

Figure 1: Combining scope and severity scores

This magnitude is then combined with an 'irreversibility' measure as shown to derive an overall threat ranking.

		Irreversibility			
		4-Very High	3-High	2-Medium	1-Low
Magnitude	4-Very High	4-Very High	4-Very High	4-Very High	3-High
	3-High	4-Very High	3-High	3-High	2-Medium
	2-Medium	3-High	2-Medium	2-Medium	1-Low
	1-Low	2-Medium	1-Low	1-Low	1-Low

Figure 2: Combining magnitude and irreversibility scores

Multiple threats to individual targets and multiple target threat scores are summed together using the 3-5-7 rule:

3 High ranked threats are equivalent to 1 Very High-ranked threat;
5 Medium ranked threats are equivalent to 1 High-ranked threat;
7 Low ranked threats are equivalent to 1 Medium-ranked threat

Once multiple threats scores are summed together, the overall threat status for a single target, for a threat, and the overall threat status for the whole project is calculated using the 2-prime rule. This rule requires the equivalent of two Very High rankings (e.g., one Very High and at least three High rankings) for the overall ranking to be Very High and the equivalent of two High rankings for the overall ranking to be High.

The "majority rank override" rule states that if a majority (more than 50%) of the targets within a project have a Very High (or High, or Medium...) threat, then the Threat Status of the project would be Very High (or High, or Medium...).

Occasionally, the "2-prime" rule yields a higher rank than the "majority rank override" rule. The matrix ensures that in all cases, the higher rank is selected.

An example of a threat assessment summary is shown in Figure 3. This example is adapted from the TNC-WWF Bering Sea Project.

Summary of Threats to Targets **Project-specific threats**	Seabirds	Pinn-ipeds	Pelagic Fish	Sea Ice Ecosys-tem	Sea Otter	Whales	Coral & Sponge Gardens	Bottom Dwelling Fish & Crab	Overall Threat Rank
Climate change	High	High	High	V High	V High	-	-	High	V High
Excessive predation	-	-	-	-	V High	-	-	-	High
Oil spill	High	Med.	Med.	Med.	High	-	-	-	High
Competition with fisheries	High	High	-	-	-	-	-	-	High
Overfishing	-	-	Med.	-	-	-	-	High	Med.
Fisheries	-	-	-	-	-	-	High	-	Med.
Introduced predators	High	-	-	-	-	-	-	-	Med.
Whaling (historic)	-	-	-	-	-	High	-	-	Med.
Contaminants	Med.	Med.	-	-	-	-	-	-	Med.
Fishing bycatch mortality	Med.	-	Med.	-	-	-	-	-	Med.
Fishing gear damage	-	-	-	-	-	-	-	Med.	Low
Aquaculture	-	-	Med.	-	-	-	-	-	Low
Roads & infrastructure	Med.	-	-	-	-	-	-	-	Low
DLP killings (polar bears)	-	-	-	Med.	-	-	-	-	Low
Overhunting	-	-	-	Med.	-	-	-	-	Low
Threat Status for Targets and Site	High	High	Med.	High	V High	Med.	Med.	High	V High

Figure 3: Example of a Threat Rating Summary. Source: (The Nature Conservancy 2007)

Conservation target condition

The conservation condition of a target is rated according to a four-level scheme which has been described and published (Parrish *et al.* 2003) and discussed in more detail in other documents (Braun 2005).

As discussed above, before status can be assessed, the project team has defined the targets or key values for conservation in a site and has identified key ecological attributes and indicators for that target.

This method then defines whether the attribute of the target values lies within a defined level of acceptable variation, and on the level of intervention necessary to improve or maintain its status.

> ***Very Good***: The indicator is functioning within an ecologically desirable status, requiring little human intervention for maintenance within the natural range of variation (i.e., is as close to "natural" as possible and has little chance of being degraded by some random event).
> ***Good:*** The indicator is functioning within its range of acceptable variation, although it may require some human intervention for maintenance.
> ***Fair:*** The indicator lies outside of its range of acceptable variation and requires human intervention for maintenance. If unchecked, the target will be vulnerable to serious degradation.
> ***Poor:*** Allowing the indicator to remain in this condition for an extended period will make restoration or prevention of extirpation of the target practically impossible (e.g., too complicated, costly, and/or uncertain to reverse the alteration).

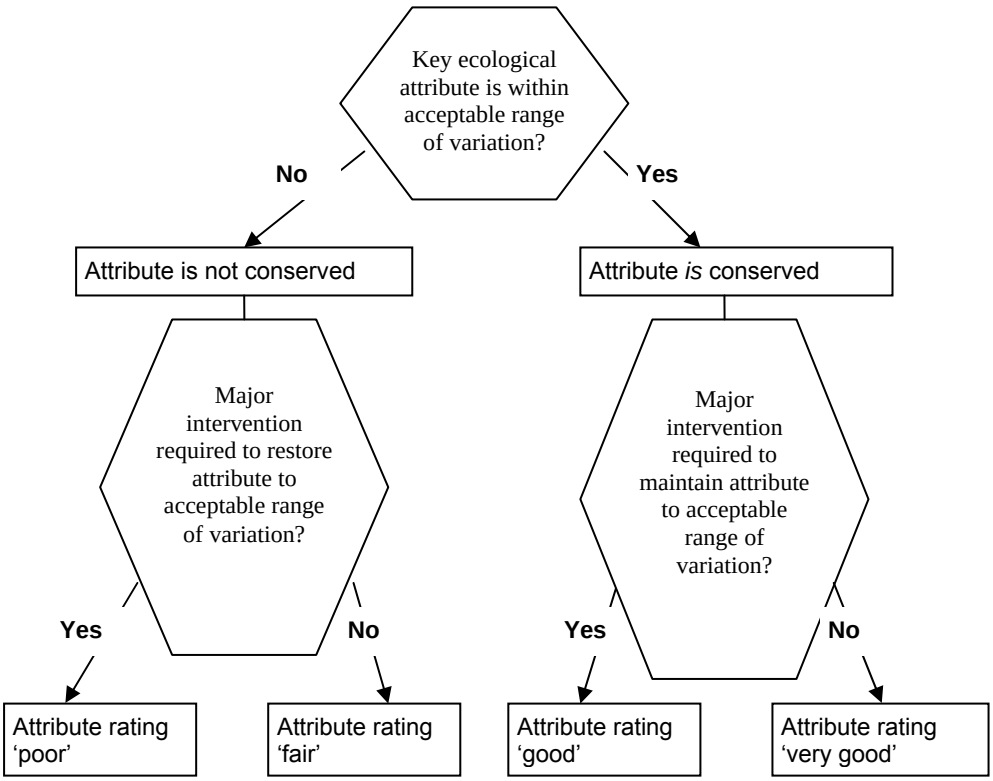

Figure 4: TNC target conservation rating system. Source: (Braun 2005)

An example of a condition assessment, including the criteria for the ratings, is shown in Table 6.

Table 6: Example of target condition assessment

Conservation Target	Key Attribute	Indicator	Poor	Fair	Good	*Very Good*	Current Indicator Status	Current Rating	Desired Rating
CO Plateau Cliff and Canyon	Actively breeding peregrine falcons	Number of active nests	1 breeding pair (3 year running average)	2 - 4 breeding pairs (3 year running average)	5 -10 breeding pairs (3 year running average)	*10 breeding pairs (3 year running average)*	3 B; 2 C and 2 unranked occurrences	Good	Very Good
CO Plateau Cliff and Canyon	Characteristic Species - Dolores River Skeleton-plant	high quality occurrences of Dolores River skeleton-plant	some of needed occurrences are not viable	At least one of needed occurrences are marginally viable (ranked C)	*Needed occurrences are high quality (ranked A and B)*	Needed occurrences are mostly very high quality (ranked mostly A; a few B)	2 B; 2 C and 2 unranked occurrences	Fair	Good

Figure 5: Example of target condition assessment

5.12 Further reading

For further information, see the websites maintained by TNC which include a large volume of material explaining the methodology.
www.conserveonline.org/workspaces/cbdgateway/cap/practices

6 WWF-World Bank MPA Score Card

6.1 Organisation/ Affiliation

WWF-World Bank

6.2 Primary reference

Staub F and Hatziolos, ME (2004a) 'Calificador para Evaluar el Progreso en Alcanzar las Metas de la Efectividad de Manejo de las Áreas Marinas Protegidas.' Banco Mundial.

Staub F and Hatziolos, ME (2004b) Score Card to Assess Progress in Achieving Management Effectiveness Goals for Marine Protected Areas. World Bank

6.3 Purposes

✓ **to improve management (adaptive management)**
✓ for accountability/ audit

6.4 Brief description of methodology

This is a simple scorecard system designed for marine protected areas. It consists of a data sheet to gather general information about the protected area, and an assessment sheet with a total of 68 questions. It covers all elements of the IUCN-WCPA Framework.

This type of assessment requires little or no additional data collection and focuses on the context of the MPA along with the appropriateness of planning, inputs and processes of management. It relies largely on available date through literature searches and informed opinions of site managers and/or independent assessors, takes a short period of time and costs little. Issues are broadly covered, but depth of analysis is generally low(Staub and Hatziolos 2004b).

6.5 Objectives and application

'The purpose of the Score Card is to help marine protected area managers and local stakeholders determine their progress along the management continuum. It is a short, straightforward self-assessment tool to help managers identify where they are succeeding and where they need to address gaps. Because it is intended to be completed by the MPA staff and other stakeholders, it can be a useful team building exercise(Staub and Hatziolos 2004b).

'The MPA Score Card has many uses as an orientation tool to help managers of new protected areas scope out issues to be addressed in establishing an effective MPA, or as a Tracking Tool to provide managers with a sense of "where they are" along the management continuum. It also serves as a user-friendly reporting tool on MPA status based on information largely already collected without any additional field level research' (Staub and Hatziolos 2004b).

6.6 Origins

This is a marine adaptation of the World Bank/WWF Management Effectiveness Tracking Tool (METT) and from other tools (Hockings *et al.* 2000; Staub and Hatziolos 2004b; Wells and Mangubhai 2004).

6.7 Strengths

The system covers all parts of the IUCN-WCPA Framework. It is rapid and simple to implement, and allows cross-comparison with other sites.

This scorecard places higher emphasis on both outputs and outcomes of management than the terrestrial Tracking Tool, with questions/ indicators tied back well to the values set in the context section. As an overall reporting mechanism for progress it should be useful.

Its compatibility with the terrestrial Tracking Tool could be useful

6.8 Primary constraints and weaknesses

As with all scorecards, this is relatively superficial and general; and ratings are subjective and therefore open to interpretation. Outcome measures are included but there is no guidance on the detailed assessment of biophysical outcomes.

6.9 How the methodology is implemented

'The Score Card should be completed by marine protected area staff and, ideally, local stakeholders to validate the scoring. It is designed to be completed within a relatively short period, such as during a staff meeting or other routine meeting, by referencing available reports or datasets' (Staub and Hatziolos 2004b).

6.10 Elements and indicators

The questionnaire consists of a data sheet and an assessment form with a total of 68 questions as follows. There is also space for comments and respondents are encouraged to add their comments. The indicators are arranged according to the IUCN-WCPA elements (Table 7).

Table 7: Indicators in Marine Tracking Tool scorecard methodology

Context	1	Legal status – Does the marine protected area have legal status?
	2	Marine protected area regulations – Are unsustainable human activities (e.g. poaching) controlled?
	3	Law enforcement – Can staff sufficiently enforce marine protected area rules?
	3a	There are additional sources of control (e.g., volunteers, national services, local communities)
	3b	Infractions are regularly prosecuted and fines levied
	4	Marine protected area boundary demarcation – Are the boundaries known and demarcated?
	5	Integration of the MPA in a larger coastal management plan – Is the MPA part of a larger coastal management plan?
	5a	a. The MPA is part of a network of MPAs which collectively sustain larger marine ecosystem functions
	5b	b. The MPA is part of a network of MPAs which collectively represent the range of bio-geographic variation in a marine eco-region
	6	Resource inventory – Is there enough information to manage the area?
	7	Stakeholder awareness and concern – Are stakeholders aware and concerned about marine resource conditions and threats?
Planning	8	Marine protected area objectives – Have objectives been agreed?
	9	Management plan – Is there a management plan and is it being implemented?
	9a	There is also a long term master plan (at least 5 years)
	9b	The planning process allows adequate opportunity for key stakeholders to influence the management plan
	9c	Stakeholder participation includes representation from the various ethnic, religious and user groups as well as representation from both genders
	9d	The socioeconomic impacts of decisions are considered in the planning process
	9e	The local culture, including traditional practices, social systems, cultural features, historic sites and monuments, is considered in the planning process
	9f	There is an established schedule and process for periodic review and updating of the management plan

	9g	The results of monitoring, research and evaluation are routinely incorporated into planning
	9h	Management plan is tied to the development and enforcement of regulations
Input	10	Research – Is there a program of management-oriented survey and research work?
	10a	a. Carrying capacity studies have been conducted to determine sustainable use levels
	11	Staff numbers – Are there enough people employed to manage the protected area?
	11a	There is additional support from volunteer programs, local communities, etc
	12	Current budget – Is the current budget sufficient?
	12a	There is a secure budget for the marine protected area and its management needs on a multi–year basis.
	12b	The budget is not entirely dependent on government funding; instead, funding also comes from NGO contributions, taxes, fees, etc.
Process	13	Education and awareness program – Is there a planned education program?
	14	Communication between stakeholders and managers – Is there communication between stakeholders and managers?
	14a	There is some communication with other MPA managers (and for example exchanges of good practices
	15	Stakeholder involvement and participation – Do stakeholders have meaningful input to management decisions?
	15a	There are clear financial contributions / agreements between MPA and tourism operators to recover MPA resources rents for local benefits
	16	Indigenous people – Do indigenous and traditional peoples resident or regularly using the MPA have input to management
	17	Staff training – Is there enough training for staff?
	18	Equipment – Is the site adequately equipped?
	19	Monitoring and evaluation – Are biophysical, socioeconomic and governance indicators monitored and evaluated?
	19a	The MPA participates as a site in national or international environmental monitoring programs such CARICOMP, CPACC, GCRMN, AGGRA or similar. (Provide the name of the program(s))
	19b	There is an Emergency Response Capability in place to mitigate impacts from non threats
Output	20a	Legal status has improved (refers to question 1. Legal status)+2
	20b	Regulations have improved (refers to question 2. MPA Regulations)+2
	20c	Law enforcement has improved (refers to question 3.
	20d	Boundary demarcation has improved (refers to question 4.
	20e	The MPA has been integrated into ICM (refers to question 5. Integration of the MPA)+2
	20f	The resource inventory has improved (refers to question 6.
	20g	Stakeholder awareness and concern has improved(refers to question 7.)+2
	21a	Signs – signs are now available, or new one have been installed
	21b	Moorings – moorings are now available, or new one have been installed
	21c	Education materials – education materials are available, or new one have been developed
	22	Mechanisms for stakeholder participation in decision-making and/or management activities (e.g. advisory council) – are mechanisms available to ensure stakeholder participation?
	23	Environmental education activities for stakeholders (e.g. public outings at the MPA) – have education activities been developed for stakeholders?
	24	Management activities – have the two critical management activities (listed in the data sheet) been improved to address threats
	25	Visitor facilities – does the MPA have sufficient visitor facilities?
	26	Fees – If fees (entry fees - tourism, fines) are applied, do they help marine protected area management?
	27	Staff Training
Outcome	28	Objectives – Have MPA objectives (listed in the data sheet page) been addressed?
	29	Threats – Have threats (listed in the data sheet page) been reduced?
	30	Resource conditions– Have resource conditions improved?
Outcome - Has community welfare improved?	31	MPA management is compatible with the local culture, including traditional practices, relationships, social systems, cultural features, historic sites and monuments linked to marine resources and uses
	31a	Resource use conflicts have been reduced
	31b	Benefits from the MPA are equitably distributed
Outcome	31c	The non-monetary benefits of the marine resources to society have been maintained or enhanced
	31d	Environmental awareness – Has community environmental awareness improved?
	32	Compliance – Are users complying with MPA regulations?
	33	Stakeholder satisfaction – Are the stakeholders satisfied with the process and outputs of the MPA?
	34	Stakeholders feel that they are able to effectively participate in management decisions
	34a	Stakeholders feel that they are adequately represented in the MPA decision-making processes
	34b	Community welfare – Has community welfare improved?

6.11 Scoring and analysis

For most questions, there is a choice of four responses (rating 0 to 3), where zero is equivalent to no progress or very little/ poor situation and three is an ideal situation.

Scores are added for each of the six elements of evaluation and a final total score can also be calculated. If some questions are not scored (e.g., not relevant), the maximum score should be changed to an adjusted score (maximum possible score minus points for question that are not applicable). The final score is calculated as a percentage of the score obtained divided by the adjusted maximum score.

7 West Indian Ocean Workbook

Sue Wells and Sangeeta Mangubhai

7.1 Organisation/Affiliation

IUCN Eastern African Regional Office

7.2 Primary reference

Wells, S. and S. Mangubhai (2004) A Workbook for Assessing Management Effectiveness of Marine Protected Areas in the Western Indian Ocean. IUCN Eastern African Regional Programme, Nairobi, Kenya.

Wells, S. and Mangubhai, S. (2005) Manuel d'évaluation de l'efficacité de la gestion des aires marines protégées dans l'océan Indien occidental. Édition française réalisée par la Commission de l'Océan Indien (ProGeCo).

7.3 Purposes

✓ **to improve management (adaptive management)**
✓ to raise awareness and support for effective management

7.4 Brief description of methodology

The workbook follows the IUCN-WCPA Management Assessment Framework closely; the methodology has been adapted from that developed through the UN Foundation/UNESCO/IUCN-WCPA project *Enhancing our Heritage*. It uses worksheets to assess each of the six elements of good management (context, planning, inputs, processes, outputs and outcomes) and explains how these can be adapted to the particular needs of individual MPAs.

A small 'implementation team', comprising MPA personnel, key stakeholders and sometimes consultants, leads the assessment and ensures that data are collected and worksheets compiled. Staff and stakeholders review the worksheets in consultative workshops, and a report and recommendations are produced. The assessments can be carried out over a relatively short period of time (e.g. 3-4 months) and should therefore complement (rather than be an alternative to) the more detailed method developed by WCPA-Marine which focuses on identifying and using indicators to assess outputs and outcomes (Pomeroy *et al.* 2004).

7.5 Objectives and application

The main objective of the workbook is to provide a simple easy-to-use tool for managers to evaluate the management effectiveness of their MPAs and adapt their management accordingly. It results in a more detailed assessment than is obtained by using a score card, is less detailed than the Enhancing our Heritage approach used for World Heritage Sites, and it is more general that the WCPA-Marine methodology.

It has been tested in eight MPAs in three countries in the West Indian Ocean – Kenya (Kisite/Mpunguti, Mombasa, Malindi, and Watamu Marine National Parks and Reserves, and Kiunga Marine National Reserve), Tanzania (Mafia Island and Mnazi Bay-Ruvuma Estuary Marine Parks) and Seychelles (Cousin Island Special Reserve)

(Wells 2004). It has subsequently been used for further assessment work in Kenya (Muthiga 2006). There are plans to use it in some of the French speaking islands in the Western Indian Ocean, and some of the concepts are being incorporated into MPA management effectiveness assessments being undertaken in South-East Asia.

7.6 System origins

The West Indian Ocean Biodiversity Conservation Project initiated in February 2000 was a partnership project to assist the Contracting Parties to the Nairobi Convention to implement the Jakarta Mandate of the Convention of Biodiversity (CBD). The production of the workbook addressed the third result area of the project: "establishment and management of marine protected areas". The 'workbook' was produced in order to test and adapt the WCPA methodologies for use at MPAs in the Western Indian Ocean.

7.7 Strengths

The methodology covers all elements of the IUCN-WCPA Framework but allows flexibility to develop specific indicators relevant to the site being evaluated. The process itself has many benefits, including a more clear definition of management objectives, key values and management standards.

In the pilot assessments, all involved found a benefit in the process. It helped MPA staff to think about the reasons behind the establishment of the site, how their management activities can have an impact on both biodiversity and stakeholders, how even small insignificant management issues can affect the overall success of an MPA, and it encouraged them to look more carefully at their management plans. All six components of the methodology were considered useful, and all sites felt that the results of the assessments should be incorporated into the review and revision process for management plans. Most sites reported that the assessments were particularly valuable in terms of improving relationships with stakeholders and, in all cases, the stakeholders expressed great appreciation of the exercise (Wells, 2004).

7.8 Primary constraints and weaknesses

Assistance is needed for the evaluation teams to work out the indicators and methodologies. It was considered that the process is too complicated for some situations.

The process of self-assessment was challenging and sensitive in some situations, especially in government institutions. Lack of support by senior government officials was a constraint to the project.

7.9 How the methodology is implemented

This methodology uses 'worksheets' to guide the assessment of each component. It encourages basic standards for assessment and reporting, and suggests issues to be measured, and some ideas for indicators. Thus, like the IUCN-WCPA Framework, it provides a common structure and 'language' but allows sites to develop their own indicators or criteria. The scale and detail of an assessment will vary, depending on financial and human resources available and the particular needs of an MPA. It may not be necessary to monitor all aspects of the environment and management process to determine how effectively an MPA is being managed but an attempt should be made to address all components.

For the pilot assessments, each site was provided with a small sum to cover some of the costs, such as meetings or hiring additional assistance. The MPAs themselves were

expected to provide in-kind support (e.g. staff time, use of vehicles), and financial input where possible, particularly since the aim was to make assessments a regular part of the management cycle. The assessment started with an introductory workshop for the eight sites, organised and facilitated by IUCN-EARO, at which the methodology was explained.

An implementation team was formed for each site. Teams varied in composition, although all teams comprised predominantly MPA staff. At Watamu Marine Park and Reserve, however, the team included representatives from non-governmental and community based organisations, as well as a Japanese volunteer; at Kisite the team included one of the key village elders. In Kenya, a national co-ordinating team was also established because of the large number of sites, comprising staff from the Kenya Wildlife Service Coast office in Mombasa, to provide technical and logistical assistance.

The implementation teams drew up a work plan for the assessment and compiled the worksheets with assistance from the national co-ordinators and technical support from IUCN-EARO. All sites followed the same general approach, but made minor modifications according to their needs. Some of the MPAs developed a questionnaire that was used to collect information and opinions in a workshop setting, as the worksheets were found to be too complex for some of the community stakeholders (e.g. fishermen and boat operators). The completed sheets were reviewed by stakeholders at workshops, informal meetings or through correspondence.' (Wells 2006). The process outlined in the workbook is outlined below (Wells and Mangubhai 2004):

Determine level of assessment - This will vary between sites depending on human and financial resources available, and the specific needs of the site. At least some level of assessment should be undertaken on outcomes.

Develop Terms of Reference (TOR) for the assessment - These should clearly state who will be involved, timeline for the assessment, structure of the final report, and the mechanisms for incorporating the results into the MPA management system and for their dissemination.

Identify assessment team, participants and focal person/facilitator - A core team should be identified to lead the assessment. This might include MPA technical staff, key stakeholders, consultants or a combination of these, the main criterion being that these individuals are very familiar with the site.

Select criteria – Generic criteria against which MPA management effectiveness can be assessed are provided in the workbook.

Collate primary and secondary data – It is important to consider carefully how the data will be collected and made available

Fill out the worksheets - This can be done in workshops with the MPA staff and stakeholders, and/or consultants. Ideally all stakeholders should have an opportunity to contribute to the worksheets if they so wish. The questionnaire can be used with groups that might have difficulty interpreting the worksheets.

Analyse and interpret results - The completed worksheets are then analysed, summarised and interpreted by the group(s). It is important that all the stakeholder groups contribute to this step, providing their own perspective and insight into the data interpretation.

Identify recommendations and gaps - Clear recommendations should be made for each of the components assessed, and gaps and monitoring needs should be identified.

Compile report and disseminate to stakeholders - The report should be compiled and disseminated as soon as practical following the completion of the assessment. It should be made available to all staff and key decision makers in the agency and to all stakeholders, including communities, government agencies, private sector, etc as will have been identified in the assessment itself.

After the assessment – Management should be modified according to recommendations resulting from the assessment process. Mechanisms to ensure that recommendations are implemented, within appropriate timeframes, should be built into management processes. This will help to ensure that the assessment does not become a waste of time and resources.

7.10 Elements and indicators

The workbook assists in the process of developing details indicators and scoring. In general, these indicators address the following headings.

Assessment component	Worksheets
Context	Management Targets Threats (Sources and Stresses) Review of National Context Assessment of Stakeholder Engagement Stakeholder Engagement Summary
Planning	List of Planning Documents Adequacy of Management Plan (and other plans if relevant) Design Assessment x
Inputs	Assessment of Resources (Inputs) Resources (Inputs) Summary Assessment of Resources (Inputs) Assessment of Capacity
Process	Assessment of Management Processes Assessment of Capacity
Outputs	Assessment of Management Plan Implementation Management Plan Implementation Summary
Outcomes	Assessment of Biodiversity Objectives Assessment of Socio-economic and Cultural Objectives Ranking of Current Threats Current Threat-Target Summary

7.11 Scoring and analysis

A combination of qualitative and quantitative indicators is recommended, and the workbook focuses on guiding assessors to produce useful information that can be fed into the adaptive management process.

Recommendations for reporting include.

1. Brief description of main characteristics of the MPA
2. Methods used – how the assessment was carried out
    - who was on the implementation team (names, positions, organisations),
    - what was each person's role and responsibilities in the assessment;
    - what meetings were held – when, where, who attended, what was discussed and what resulted.
    - how was the information gathered; list of sources (N.B. sites should keep a record of their sources of data and references)
3. Results achieved
    - Worksheets
    - Text summary of main results of the assessment and conclusions
4. Review of assessment process – identifying any constraints or obstacles
5. General conclusions and summary of recommendations

In addition, suggestions are made to assist in implementing the recommendations.

8 Egyptian site-level assessment

Written with Dan Paleczny and Khaled Allam with information largely extracted from (Paleczny 2007)

8.1 Organisation

Nature Conservation Sector (NCS), Egyptian Environmental Affairs Agency, through support from the Egyptian-Italian Environmental Cooperation Programme, UNDP and IUCN.

8.2 Primary methodology reference

Paleczny, D. (2007) 'Management Effectiveness Evaluations of Egypt National Parks - summary report.' IUCN, Egyptian-Italian Environmental Cooperation Programme, Nature Conservation Sector Capacity Building Project; Nature Conservation Sector, Egyptian Environmental Affairs Agency; UNDP, Cairo.

8.3 Brief description of methodology

A national RAPPAM evaluation had examined the context, planning, inputs, processes and to some extent, outputs for the system of protected areas in Egypt in 2006.

To complement the system-level evaluation, this site level evaluation methodology focuses primarily on ***context*** (threats), ***outputs*** (implementation of work programmes or plans) and ***outcomes*** (state of the protected area's key values).

Through the site level evaluations, the protected area values are agreed upon first, and then the threats affecting the values are determined and examined to find underlying causes, actions and possible indicators. An evaluation of outputs and outcomes is a large task, which at first may discourage protected area managers and staff from initiating this work. The key is to start with the priorities and build upon the system through future work. Accordingly, the four site level assessments focus on priority values (focal targets), using available information and experience.

8.4 Purposes

- ✓ to assess status of protected area values
- ✓ to raise awareness and support
- ✓ to improve management (adaptive management) – at site level
- ✓ for prioritisation and resource allocation

8.5 Objectives and application

The stated objectives for the site level assessments (Paleczny 2007) are:

1. Assess the conservation status of Egyptian National Parks (ENP). Are the key values (ecosystems/resources, ecotourism/recreation, community well being) declining, remaining stable or improving?
2. Use available information and knowledge to substantiate assessments, as much as possible.
3. Identify gaps in knowledge that hinder an accurate assessment.
4. Identify more precisely the threats affecting protected area values, the underlying causes and possible solutions.
5. Examine the site level track record in implementing management plans (where they exist) and taking positive action toward achievement of conservation. Did the

protected areas implement their programme? Were the actions effective in addressing conservation objectives?
6. Examine the underlying problems and possible solutions affecting the delivery of effective management.
7. Develop priorities and actions for implementation and integration into the protected area management plan or descriptive management plan.
8. Further advance a culture of transparency, learning and evaluation in Egyptian NCS. Aim to enhance continuous improvement and effectiveness (includes monitoring, research, reporting).
9. Establish the basis for site level monitoring plans.

8.6 Origins

In 2006, the Nature Conservation Sector Capacity Building Project of the Egyptian-Italian Environmental Cooperation Programme (with technical direction from IUCN), undertook a national, system level management effectiveness evaluation of Egypt National Parks (Fouda et. al., 2006). A recommendation of this RAPPAM assessment was to implement a pilot project to establish and test an approach for carrying out more detailed site level management effectiveness evaluations. The site level evaluation objectives and process were developed and the approach was tested at four protected areas in Egypt: Wadi El-Rayan (WRPA), Qaroun (QPA), Ras Mohammed (RMNP) and Saint Katherine (SKP) (Paleczny 2007).

The first phase was carried out in 2006 when the initial objectives for management effectiveness were set forth and the procedures were established. These were documented in two reports and an initial set of worksheets were designed as tools for protected area staff to use in the evaluation workshops.

The methods employed in the evaluations were informed by three key sources. Firstly, the procedure for examining the implementation of the past actions was adapted from the World Heritage Management Effectiveness Workbook (Hocking et al., 2004). Secondly, the evaluation of protected area values was adapted from The Nature Conservancy's Enhanced 5-S process for measuring conservation effectiveness (outcomes) and analyzing threats (TNC, 2000; Salzer et al., 2003). The E5-S approach was expanded from its focus on natural/biodiversity values to include cultural values, ecotourism-recreational values and community well-being (socio-economic) values. New worksheets and processes were developed for use in the workshops. Thirdly, the elements of the ecosystem approach (Shepherd, 2004; Smith and Maltby, 2003) were examined and built into the respective worksheets and processes.

8.7 Strengths

Technically sound and adaptable: Overall, the procedure for examining threats, indicators, progress and actions to arrive at a status assessment is sound and understood. The ideas can be reasonably communicated. At the same time, the approach can be adapted to suit the needs of the protected area staff so that the process and the results are relevant for their circumstance.

Staff engagement: Thorough involvement of staff in the process, including defining values, threats, measures and actions was a key feature. Overall, this raised their level of awareness of management across the protected area and the complexities of conservation. It promotes integrative thinking.

Threat analysis: The national RAPPAM threat analysis provided useful national/system level information. However, the threats were identified in a general way for the protected area system as a whole. Through the site level evaluations, the protected area

values were agreed upon first, and then the threats affecting the specific values were determined and examined to find underlying causes, actions and possible indicators. This made the threat analysis immediately relevant, and importantly, enabled the identification of pertinent actions.

Ecosystem approach: Tourism and local communities are sometimes identified as threats to the conservation of biodiversity values. However, it can be argued that such treatment is philosophically at odds with the principles of the ecosystem approach. In this process, the social and economic values were identified and studied alongside natural values.

Plan or programme implementation: For the two cases with management plans (St Katherines and Wadi El-Rayan) it was possible to evaluate implementation of the plan (outputs) and to the extent possible the outcomes of implementation. This enabled a better estimate of changing conditions over time, compared to the other two cases (Qaroun and Ras Mohamed) where no management plan or any work plan was available at the time of the evaluation. This underlined the importance of having a management plan. Clearly, an evaluation of outputs and outcomes is tenuous without a clear sense of direction. The absence of annual work plans is an indicator of ineffective management.

Surveys: The stakeholder, local community and visitor surveys were generally seen to be a helpful and worthwhile tool to obtain some external input in the process. Implementation of the surveys well in advance of the workshops would enable better use of the results at the workshop, and a larger sample would improve the value of the information. Overall, the level of external participation in the text cases was small and was a weakness needing improvement.

8.8 Constraints and weaknesses

Several barriers, challenges and weaknesses were also found, related to the process and the organizational context in which the evaluations occur. These included: maintaining practicality (simplicity) while ensuring a technically robust process; some aspects of the threat analysis and ranking system can be further developed; more external knowledge and participation is warranted; funding and time are insufficient to fully apply the system, including the level of current monitoring, and; ensuring integration of biodiversity,
eco-tourism and community wellbeing values (ecosystem approach) can be challenging.

8.9 How the methodology is implemented

The first phase was design the methodology (see ‘origins’ above);

The second phase was trialling the methodology in four protected areas. The management effectiveness evaluation process comprised seven steps and was implemented primarily through staff workshops ranging from 3-5 days each (5 days was considered to be the minimum time required). In total, about 40 staff were trained and participated in the workshops. The workshops provide a useful means of engaging staff and others in thorough and timely discussions in support of management planning and business planning. It is an excellent opportunity for self-evaluation and collective team-evaluation of efforts.

The third phase involved carrying out the analysis of the information and writing individual evaluation reports. Often, the results of workshop working groups contain inconsistencies and these needed to be reviewed and corrected (e.g., terminology).

In addition, a survey of stakeholders, local communities and visitors was part of the evaluation. The purpose of the survey was to obtain additional information and perspectives that may be similar to, or different from, those of staff. Both are useful to have. Although a separate discussion with stakeholders and local community members to obtain their input is valuable, it requires time and commitment beyond the initial workshop evaluation.

8.10 Elements and indicators

The main steps in the evaluation included the following (these steps have been updated following the field testing to reflect lesson learned):

1. **Surveys:** Conduct stakeholder, local community and visitor surveys prior to the evaluation workshop so results can be presented at the beginning of the workshop and be available for use during the workshop. This initial presentation would provide a good venue for local community and stakeholder participants to attend and to engage in discussions. Where possible and appropriate, stakeholders, local community members, technical or academic colleagues could be invited to attend all or any part of the workshop.

2. **Management plan review:** Protected area staff complete a review of the status of management plan implementation (i.e., achievement of objectives and actions) prior to the workshop so that external facilitators and other participants have this information in advance. Where there is no management plan for the protected area, at least one completed annual work plan and evaluation of implementation should be completed and sent to evaluators. A general template (**Table 8**) was applied in an appropriate and practical manner. The status codes were summarized to reflect the degree of implementation. The evidence codes were intended to demonstrate credibility and transparency in the evaluation.

Table 8: Generalized template for evaluating management plans or work plans.

Management Plan or Work Plan Directions	**Status Code** (see below)	**Description** **For status code 1+2:** Describe Effectiveness, Needed Changes, Follow-up; **For status code 3+4:** Note problems and/or reasons for status; **For status code 5:** State rationale	**Evidence of Effectiveness** (see below)

Status codes:	**Evidence of Effectiveness codes:**
1 = Completed or part of an ongoing programme 2 = Implementation underway but not yet completed 3 = Planning is in progress 4 = Not commenced, but action is still worthy of implementation 5 = Circumstances have changed; action is no longer appropriate or necessary	1. Estimation 2. Expert opinion 3. Results of patrolling and monitoring 4. Results of technical or research study or other reports/products

3. **Evaluation workshop:** Carry out a five-day evaluation workshop to identify and study the primary values of the protected area, analyse and map threats, develop status indicators for the respective values, and plan actions.

a. Identify the key values of the protected area, in the following three groups. Then select the one or two priorities from each of these groups to examine in detail.
   - Biodiversity/Natural Resource/Cultural Resource
   - Ecotourism/Recreational Resources
   - Community Well-being (socio-economic)

b. Assess threats:
   - Revisit and confirm pressures and threats from the national RAPPAM, management plan, systems plan and participants' experience.
   - Rate the threats for each key value (Table 9) and summarize these in one chart (see example at the end).
   - Draw a map (chart) to show the relationship of the threats for each of the key values (biodiversity, recreational resources, community well-being) to the underlying causes, and identify possible solutions (Figure 6).

Table 9: Example of threat rating for one key value (Wadi El Hitan World Heritage Site)

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Vehicles driving off track	Very high	Very high	Very high
2.	Too many visitors (core area)	Medium	Medium	Medium
3.	Fossil collecting	High	Very high	High
4.	Natural degradation of fossils	Low	Low	Low

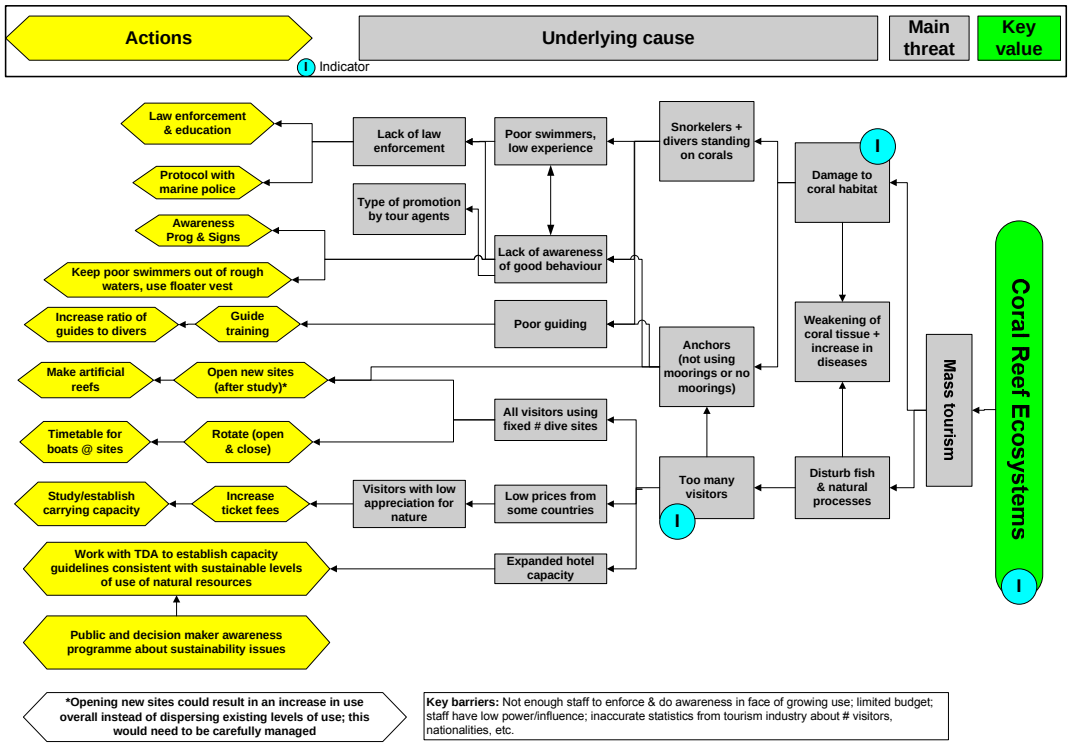

Figure 6: Example of a threat assessment/action map for one threat related to the coral reef key value (Ras Mohamed National Park

c. Develop indicators: For each key value being examined, make an initial list of possible indicators for the key attributes (size, condition, context), threats and actions (Table 10). Choose at least one key attribute and one attribute

indicator and develop rating criteria, noting the current status, as follows (per Salzer et al., 2003):

- **Poor:** Requires immediate intervention
- **Fair:** Outside range: requires intervention
- **Good:** Within acceptable range; little intervention, monitor and maintain
- **Very good:** Desirable; monitor

d. Plan actions:
   - Review, confirm, refine or establish specific objectives for key values, taking into consideration the problems and needs to manage key values and threats.
   - Develop actions for each objective, keeping in mind the threats previously discussed. Evaluate and prioritise the actions based on estimated cost, practicality, and likelihood of achieving a desired impact.

Table 10: Example indicator table and rating for the key value, communities inside protected area (Wadi El Rayan Protected Area).

Category	Key Attributes	Indicator	Indicator Ratings (current rating in **bold**)				Information Source
			Poor	Fair	Good	Very Good	
Size/number	Size of the area	Area cultivated (fedan)	> 4000	**3000-4000**	2000-3000	<2000	LR manager
	Demographic	Total no. individuals in the community	> 6000	5000 - 6000	**4000 - 5000**	< 4000	Periodic survey
Condition	Economic benefits	Direct employment by PA (% of total no. of PA staff)	**< 5**	5 – 7.5	7.5 – 10	>10	WR records
	Productive systems	Amount of water pumped to area (m3 / second)	> 4	3 - 4	**2 - 3**	< 2	Pumping station records
Management Context	Impacts	No. of new invasive species found/year	> 1	1	0	0	Monitoring records
Management Context	Impacts	Area of spread of invasive species (% of Oasis Area)	> 25	11-25	0-10	0	Monitoring records

4. **Evaluation report:** Facilitators, with the participation of a local staff member, should write up the report (draft) and send it back to PA staff for review and comment.

5. **Second workshop:** Conduct a second workshop (two days) with select staff and external groups (stakeholders, local community, academic, technical) to review the draft report and recommended actions.

6. **Report:** Then, update the report and share the results with NCS/EEAA staff and senior managers for a final round of discussion.

7. **Communication of results:**

- Send a two-page summary of results to stakeholders, advocates, partners, participants, etc.

- Post the report and summary on the internet.
- Send copies and a complete file to the protected area for their records and use.

8. **Follow up:** Following the formal evaluation period, and on an ongoing basis, the protected area should continue to have meetings/discussions with stakeholders and communities on specific topics (discuss their problems and possible solutions, ways to cooperate, threats, proposed actions that are relevant to the stakeholder). For specific topics, invite scientific/technical review, either through email or meetings. The report should include a summary of data gaps and invite information and comments for improving indicators.

9. **Implementation, Ongoing Monitoring, Assessment, Reporting:**
   - Continue work on preparing a detailed monitoring plan and indicators. Proper rationalization and development of the indicators is a large and important task.
   - Implement monitoring programme and approved indicators, and evaluate ratings every year.
   - Integrate actions from the management effectiveness evaluation into the Annual Work Plan and Business Plan. Update the Management Plan (or develop one).
   - Report on results of monitoring, using indicators, and schedule the next evaluation. Share information with stakeholders and communities.
   - Adapt and change programmes and actions, as required, to improve effectiveness.

8.11 Scoring and analysis

Threat magnitude was assessed for each key value in terms of severity and extent, and then compiled into an overall threat summary table (per TNC CAP methods and rules). Threat maps (conceptual models) were prepared to examine underlying causes and possible actions (Morgan, 2005; Salzer et al., 2003).

Protected area values were described in terms of size, condition and landscape context (TNC, 2000). Following this, potential indicators were identified and a threat ratings determined (low to very high), noting the current situation (TNC, 2000).

The overall threat rank was established (Table 11) as a means to identify and communicate the degree and nature of threats affecting key values, and the protected area overall. In addition, the overall threats and status were presented in a chart to assist in communicating results of the evaluation (Table 12).

Table 11: An example of a threat assessment matrix for key values (Wadi El Rayan Protected Area)

Threat	Fossils WHS	Springs	Rayan Lakes	Desert	Visitor Area	Visitor Centre	Safary Camp	Camping	Tracks, Roads	Land Rec	Local Comm Inside	Local Comm Outside	**Overall Threat Rank**
Cooperation with PA	-	-	-	-	-	-	H	-	-	-	-	-	M
Facilities	-	-	-	-	H	-	M	H	-	-	-	-	H
Fish farming activities	-	-	M	-	-	-	-	-	H	-	H	-	H
Fishing-over fishing & illegal	-	-	-	-	-	-	-	-	-	-	M	M	M

Habitat change	-	L	H	-	-	-	-	-	-	-	-	-	M
Human disturbance or damage	VH	M	L	L	-	-	-	L	-	L	L	L	M
Visitor use-under use, security	-	-	-	-	-	-	VH	-	-	-	-	-	H
Water-declining levels (input)	-	-	VH	-	H	-	H	VH		H	M	-	VH
Water-deteriorating quality	-	-	-	-	M	-	-	-	-	-	-	-	L
Water-over use	-	L	-	-	-	-	-	-	-	H	M	-	M
Threat status for each value	H	M	H	M	H	L	H	H	H	H	H	VH	H

(Codes: VH=very high; H=high; M=medium; L=low; - not applicable)

Table 12: Overall threat and status chart to communicate the state of Wadi El Rayan Protected Area

Key:

	Threat Today		Status Today vs 5 Years Ago
Very high	VH	Improved	I
High	H	Stable	S
Medium	M	Worsened	W
Low	L		

Value	Threats	Status
1. Biodiversity/Natural Resources/Cultural Resources		
Fossils/World Heritage Site	H	I
Springs oasis (Gazelle)	M	I
Lakes (wetlands, shoreline, aquatic)	H	W
Desert	M	S
2. Ecotourism/Recreational Resources		
Main visitor area (waterfalls, beach)	H	W
Visitor centre	M	W
Safary camp	H	W
Campsites and bird hides	H	W
Tracks	H	W
3. Community Well-being (socio-economic)		
Land reclamation villages (Lower Lake)	H	S
Other communities within WRPA	H	S
Local communities outside WRPA	VH	S

8.12 Conclusion

This process enables a participatory approach to site level evaluation and action planning. Through a facilitated workshop using a variety of worksheet tools (Table 13), staff and others are engage in the process, and as a result, the benefits of evaluation are enhanced. Furthermore, organizations can reap greater benefits by integrating management planning and effectiveness evaluation (Paleczny, 2008). In this manner, the essential planning and evaluation tools for effective management can be put in place in efficiently and effectively.

Table 13: Tool kit for site level evaluations (available in Arabic and English).

No.	Worksheet Name
1.1a	Evaluating management plan implementation and effectiveness
1.1b	Evaluating work plan implementation and effectiveness (no management plan)
2	Guidelines for ranking threats
2.1.1a	Ecosystem/natural resource description
2.1.1b	Geological/fossil resource description
2.1.1c	Cultural resource description (including spiritual and religious values)
2.1.2	Ecotourism/recreational resource description
2.1.3	Community/socio-economic activity description
2.2.2	Charting values, threats and actions (example)
3.1	Indicators and ratings
3.3	Summary of threats in the protected area
3.4	Evaluation criteria and database structure for designing indicators
3.5	Guidelines for implementing questionnaire surveys

8.13 Further reading and reports

Paleczny, D., Allam Harhash, K. and Talaat, M. (2007b). 'The State of Qaroun Protected Area, An Evaluation of Management Effectiveness.' Egyptian-Italian Environmental Cooperation Programme, IUCN, Nature Conservation Sector Capacity Building Project, Cairo.

Paleczny Dan, Khaled Allam Harhash, M. Talaat, Wael Ibrahim (2007c). 'The State of Saint Katherine Protectorate and the Saint Katherine World Heritage Site: An Evaluation of Management Effectiveness. ' Egyptian-Italian Environmental Cooperation Program, IUCN, Nature Conservation Sector Capacity Building Project, Cairo.

Paleczny, D., Allam Harhash, K. and Talaat, M. (2007d). 'The State of Ras Mohammed National Park, An Evaluation of Management Effectiveness.' Egyptian-Italian Environmental Cooperation Programme, IUCN, Nature Conservation Sector Capacity Building Project, Cairo.

Salzer, Dan, Doria Gordon, Jeff Baumgartner (2003). *Measuring Conservation Effectiveness: New Tools Workshop.* Joint TNC/CI science meeting, Duluth, Minnesota.

Shepherd, Gill, (2004). 'The Ecosystem Approach, Five Steps to Implementation.' IUCN, Commission Ecosystem Management, Gland and Cambridge.

Smith R.D., and Maltby, E. (2003). 'Using the Ecosystem Approach to Implement the Convention on Biodiversity, Key Issues and Case Studies.' IUCN Gland and Cambridge

The Nature Conservancy (2000). The Five-S Framework for Site Conservation. A Practioner's Handbook for Site Conservation Planning and Measuring Conservation Success. Volume 1, Second Edition.

The authors have reviewed several useful reports and methods which are not covered in detail in this report. Brief summaries are provided below, and further information can be found in the references given here.

9 Central Africa Republic – evaluation of 'conservation potential' of protected areas

Blom, A., Yamindou, J. and Prins, H. H. T. (2004) Status of the protected areas of the Central African Republic. *Biological Conservation* **118**, 479-487.

A study of the protected areas of the Central African Republic by Blom *et al.* (2004) examined the status of the protected areas of the Central African Republic in light of their potential for long-term protection of biodiversity. It assessed conservation potential as the overall potential for conservation of biodiversity in the mid (10 years) to long-term (50 years). Four groups of factors were evaluated to estimate 'conservation potential:

- threats (7 types of threat rated from none to high);
- biodiversity significance (ecosystem representation);
- integrity (destruction, degradation and fragmentation); and
- management (level of law enforcement staff, financial support and community participation).

Existing information from international organisations and the CAR Government were used, combined with other sources including the authors' experiences and field visits, government sources and interviews.

The data was used to draw some conclusions and make recommendations about the state of the protected area system, to evaluate the 'conservation potential' of individual protected areas, and to look at the correlation of the factors.

10 African Rainforest Protected Areas

Struhsaker, T. T., Struhsaker, P. J. and Siex, K. S. (2005) Conserving Africa's rain forests: Problems in protected areas and possible solutions. Biological Conservation 123, 45-54.

A study was conducted by Struhsaker *et al*. (2005) to identify the problems facing Africa's rain forest protected areas and identify which variables best correlate with their conservation status. The methodology is based on obtaining information to build 32 variables from a number of sources:

- a questionnaire sent to 36 colleagues working in African forest protected areas,
- analysis of vegetation maps, satellite imagery,
- published and unpublished accounts, and
- direct observations by T. T. Struhsaker from 1966 to 2000.

The information ranged from quantitative data (e.g. human population densities, protected area size and degree of ecological isolation) to qualitative impressions (e.g., conservation status of the PA, effectiveness of law enforcement, and public attitudes).

The study then reported on the state of the protected areas, examined how various factors were correlated with conservation success, and made recommendations for improving protected area effectiveness.

11 Threat analysis in Uganda

Mugisha, A. R. and Jacobson, S. K. (2004) Threat reduction assessment of conventional and community-based conservation approaches to managing protected areas in Uganda. *Environmental Conservation* **31**, 233-241.

A study was conducted by Mugisha and Jacobson (2004) in 16 protected areas in Uganda using the 'threat reduction methodology' of Salafsky and Margoluis (1999)to assess the effectiveness of the community-based approach. The method used on-site discussion groups with representatives of community, protected area staff, NGOs and other experts where possible. The discussion groups listed and ranked threats to the protected areas' habitat integrity, quality and ecosystem functioning , by considering the speed at
which the threats could harm the PA, their intensity of destruction and the area they could affect. A ranking scale of 1 (minimum) to 5 (maximum) was used. The groups then evaluated the extent to which the threats were being addressed by protected area management, rating the effectiveness from zero to 100%. Threat indices were compared between community-managed and conventional protected areas and an additional index was calculated to consider factors beyond the control of management, such as hydroelectric power dams or guerrilla activities.

The groups also discussed general topics related to community development, natural resource management and environmental concerns to provide a context for the TRA results.

Additional data sources used in the study included document reviews, interviews with government official and questionnaire surveys of protected area wardens.

ASIAN METHODOLOGIES

12 Indian Management Effectiveness Evaluation

Written with input and editorial assistance from Vinod Mathur, Wildlife Institute of India

12.1 Organisation

Ministry of Environment and Forests (MoEF), Government of India and the Wildlife Institute of India

12.2 Purposes

- ✓ for accountability/ audit (including reporting to Parliament)
- ✓ to improve management (adaptive management)
- ✓ for prioritisation and resource allocation

12.3 Brief description of methodology

The methodology is based on the IUCN-WCPA Framework. The evaluation is done at three levels: national, state and site level. The process uses all six elements of the Framework. For each element, a set of indicators have been developed. All criteria are scored on a four point scale and a numeric value is assigned to each score (Very Good: 10; Good: 7.5; Fair: 5; Poor: 2.5) and sub-totals are calculated for each element. An overall management effectiveness score (in percentage) is assigned to each site and state and the results are presented graphically.

The evaluation is undertaken by a three member expert committee comprising wildlife managers and scientists. Six regional committees and one central/core committee have been constituted for this purpose by the Government of India.

12.4 Objectives and application

This methodology has been developed to provide a comprehensive management effectiveness evaluation of the Protected Areas of India on a periodic basis with a view to ascertaining how well the Protected Area network in the country is meeting the conservation objectives as well as the social objectives for effective wildlife management.

12.5 Origins

In 2004-05 the Project Tiger Directorate, Ministry of Environment and Forests, Government of India conducted evaluations of all 28 Tiger Reserves in the country. Four out of six elements of the IUCN-WCPA Framework were used in this evaluation, which was done by five teams comprising two members each. The process and the results were peer-reviewed by IUCN experts. The evaluation reports are available at http://www.wii.gov.in/envis/sdnp/docs/pt_review_of_assessment_report.pdf and http://www.wii.gov.in/envis/sdnp/docs/pt_evaluation_reports_india.pdf

In 2006, the Prime Minister office gave a directive to the MoEF to conduct an independent evaluation of all national parks and wildlife sanctuaries in the country. The present evaluation is a follow-up of this directive, for which the technical backing is being provided by the Wildlife Institute of India, Dehradun.

12.6 Strengths

a) The evaluation is being done at three levels i.e. national, state and site, as effectiveness of management at the site level is also dependent on policy and governance structures at the State and National levels. If the latter are enabling, site management also improves.
b) The evaluation is being carried out by independent and competent experts with no '*conflict of interest*'.
c) Adequate funding support has been provided by the Government of India and all technical support is being provided by the Wildlife Institute of India, a premier scientific institution having adequate understanding of the global MEE process and products.

12.7 Constraints and weaknesses

a) A complete understanding of the IUCN-WCPA Framework and its nuances is not present amongst the entire range of stakeholders from the top political leadership to the frontline staff in the PA. Despite all explanations (both verbal and written) some managers perceive that the process is '*intrusive'* and may be used to '*fix'* them for lapses or shortcomings for which they may not be actually responsible.
b) Presentation of evaluation results in a comparative manner for sites and the states also evokes mixed response. Better performing sites and states feel privileged, while the low performers tend to question the criteria/ indicators used. More 'research and development' effort is needed to develop a comprehensive and objective set of criteria for each element.

12.8 How the method is implemented

The assessment is carried out by expert committees comprising wildlife experts and scientists, appointed to review management in each region of India and at the national level. The role of these committees is to apply the management effectiveness evaluation framework on a regional basis. Each year about 10% of the geographical area under Protected Area in the region would be randomly selected for review.

The Committee uses the evaluation system to assess:

- Whether the chosen approaches in PA management are sound, adequate and appropriate;
- To evaluate whether the funds allocated are used effectively for meeting the objectives of park management as established in the respective management plans and annual operation plans;
- To examine the adequacy and / or the constraints in the PA legislation and policy, administrative structures and procedures, and PA design in relation to management effectiveness; and
- To establish the process of long-term monitoring of the biological and socio-cultural resources of the PA system, socio-economic aspects of use and the impact of management on local communities.

The reports of each regional committee are to be submitted to the central monitoring and coordination committee of MoEF each year for consolidation and presentation to the Parliament.

12.9 Elements and indicators

Table 14: Indicators for Indian MEE assessment methodology

WCPA Element	Indicator	Level of assessment (Site, State, National)
Context	Are the values of the site well documented, assessed and monitored?	Site
	Are the threats to site values well documented and assessed?	Site
	Is the site free from human and biotic interference?	Site
	Is there a clearly articulated vision for the development and management of PA network in the State/India?	State/National
	Does the administrative framework adequately support the effective functioning of the PA network?	State
	Is there a cohesive and well coordinated approach to PA management?	State/National
	Is regional cooperation (i.e. inter-state/international) established and maintained in a manner which supports effective management of PA?	State/National
	Does the legislative framework adequately support the effective functioning of the PA network?	National
Planning	Is the site properly identified and categorized (in terms of zoning) to achieve the objectives?	Site
	Does the site have a comprehensive Management Plan?	Site
	Are Management Plan(s) routinely and systematically updated?	Site/State
	Does the site safeguard the threatened biodiversity values?	Site
	Are stakeholders given an opportunity to participate in planning?	Site
	Are habitat restoration programs systematically planned and monitored?	Site
	Are reintroduction programs systematically planned and monitored?	Site
	Does the site has an effective protection strategy?	Site
	Has the site been effective in the mitigation of human-wildlife conflicts?	Site
	Is the site integrated into a wider ecological network following the principles of the ecosystem approach?	Site
	Are protected areas designed and established through a systematic and scientifically based criteria and process with a clearly articulated vision?	State/National
	Are there mechanisms in place for sharing of revenues from PA	State
Inputs	Are personnel well organised and managed with access to adequate resources?	Site
	Are resources (vehicle, equipment, building etc.) well organised and managed with access to adequate resources?	Site
	Are resources (human and financial) linked to priority actions and are funds released timely?	Site
	What level of resources is provided by NGOs?	Site
	Does PA manager consider resources (human and financial) to be sufficient?	Site
	How have resource levels varied with increases in protected areas in recent years?	State/National
Process	Does the site have trained manpower resources for effective PA management?	Site
	Is PA staff performance management linked to achievement of management objectives?	Site/State
	Is there effective public participation in PA management?	Site
	Is there a responsive system for handling complaints and comments about PA management?	Site/State/ National
	Does PA management address the livelihood issues of resource dependent communities, especially women?	Site
	Does the state have trained manpower resources for effective PA management?	State
	Is management performance against relevant planning objectives and management standards routinely assessed and systematically audited as part of an on-going 'continuous improvement' process?	State/National
	Is there an external and independent involvement in internal audit?	State/National
Outputs	Is adequate information on PA management publicly available?	Site/State/ National
	Are visitor services (tourism and interpretation) and facilities appropriate for the relevant protected area category?	Site
	Are management related trends systematically evaluated and routinely reported?	Site/State

WCPA Element	Indicator	Level of assessment (Site, State, National)
	Is there a systematic maintenance schedule and funds in place for management of infrastructure/assets?	Site/State
	Does India fulfill its monitoring and reporting obligations under international conventions?	National
Outcomes	Are threatened/ endangered species populations stable or increasing?	Site/State/ National
	Are biological communities at a mix of ages and locations that will support native biodiversity?	Site
	Have the threats to the site being abated/ minimized?	Site
	Are the expectations of visitors generally met or exceeded?	Site
	Are neighbors and adjacent communities supportive of PA management?	Site
	Are cultural heritage assets protected?	Site

12.10 Scoring and analysis

All criteria are scored on a four point scale (poor, fair, good, very good) with a descriptive text attached to each point on the scale to assist in allocating the score. Scores are then assigned a numeric value (Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10) and sub-totals calculated for each element. Results are graphed at site and state level for comparison.

13 Management Effectiveness Study - Finland

This information is extracted from Heinonen (2006) and Gilligan et al (2005)

13.1 Organisation/ Affiliation

Metsahallitus

13.2 Primary reference

Gilligan, B., Dudley, N., Fernandez de Tejada, A. and Toivonen, H. (2005) Management Effectiveness Evaluation of Finland's Protected Areas. Nature Protection Publications of Metsähallitus. Series A 147. (www.metsa.fi/mee)

13.3 Purposes

- ✓ to improve management (adaptive management) primarily at system level
- ✓ for accountability/ audit
- ✓ for prioritisation and resource allocation
- ✓ to raise awareness and support

13.4 Brief description of methodology

In 2004 a management effectiveness evaluation of the Finnish protected area system was commissioned by the Finnish Metsähallitus Natural Heritage Services (NHS) and organised in cooperation with the Ministry of the Environment and stakeholders. The evaluation report was published in 2005. The evaluation was one of the most comprehensive and transparent evaluations of a protected area system undertaken so far, with external experts from several countries involved.

The evaluation results indicate substantial progress that has taken place since the first evaluation was carried out on Finnish protected areas by Harold Eidsvik of Canada and Hans Bibelriether of Germany in 1994. The report provides insight into the management of Finland's most valuable natural sites and how effectively the financial and other means granted to the NHS are used. It also shows how successful the result-oriented guidance and creation of operating conditions for protected areas have been.

13.5 Objectives and application

It was designed to assess a national network of protected areas. The assessment included 70 of the nearly 500 statutory protected areas, including the national parks, strict nature reserves, wilderness reserves and national hiking areas. Drawing on these, the team developed a series of specific questions based on the IUCN-WCPA Framework.

13.6 Origins

The management effectiveness evaluation of the Finnish protected areas was conducted using the IUCN-WCPA Framework adapted to the conditions of Finland – for example, considering the large amounts of information and staff expertise available. In accordance to the Framework, the elements of the management cycle considered were context, planning, resources, process, outputs and outcomes.

An international steering group was identified to help to develop and comment on the assessment. The aim was to represent key institutions with an interest in Finland's environment and, by including two representatives from IUCN, help drive the international effort to increase protected area management effectiveness.

A four person evaluation team was identified and appointed, including someone with specific experience in running a comparable protected area programme, someone with expertise in Natura 2000, a representative from a conservation NGO and a local expert.

13.7 Strengths

- The evaluation was combined with a RAPPAM assessment to provide a comprehensive overview of the protected area system.
- It was transparent and conducted with oversight of international experts.

13.8 Primary constraints and weaknesses

Considerable resources were used in the assessment.

13.9 How the methodology is implemented

The management effectiveness evaluation assessment process is shown in

Figure 7 . The evaluation team first reviewed a large amount of literature. Park managers in Finland also completed a self-assessment questionnaire, modified from the RAPPAM methodology.

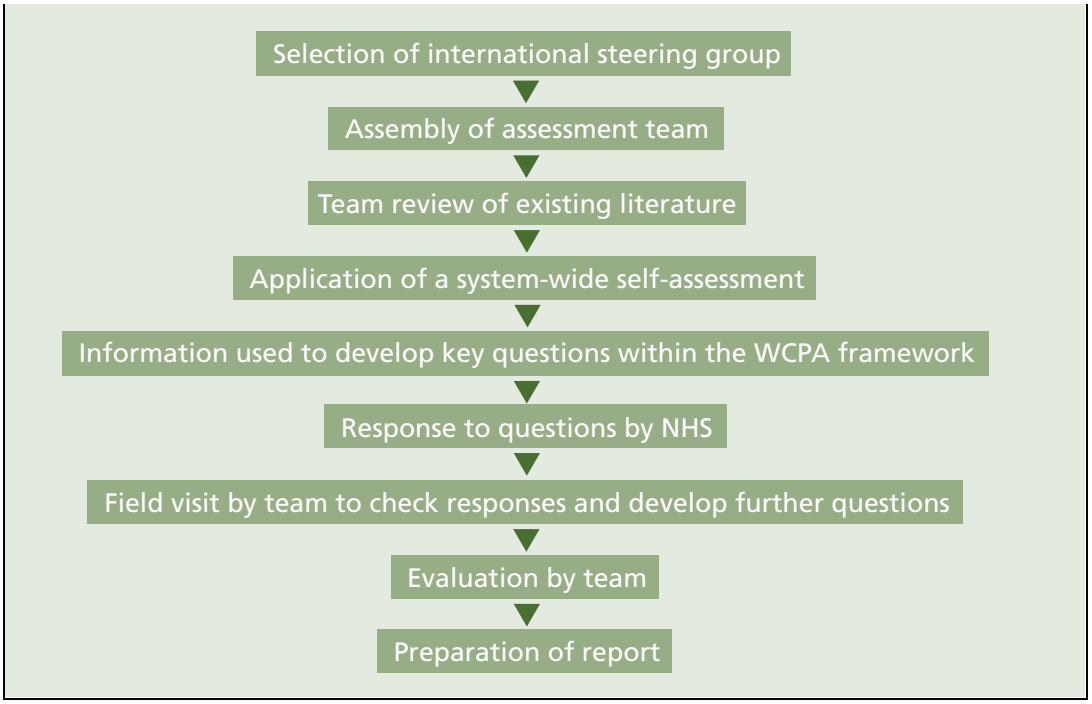

Figure 7: Management effectiveness assessment process in Finland

The questions were answered by the NHS staff and they formed the core of the assessment and the subsequent report. The management effectiveness evaluation was finalised by a field assessment, which included visits to representative protected area sites as well as meetings with NHS staff and representatives of directing and financing ministries, local stakeholder groups and NGOs.

13.10 Elements and indicators

Drawing on literature review and RAPPAM analysis, specific questions were developed.

Context

1.1 Is there a clearly articulated national vision for the on-going development and management of the Finnish PA system?
1.2 Does the legislative and administrative framework support the effective functioning of the PA system?
1.3 Are personnel and resources well organised and managed with access to adequate resources?
1.4 Is there a cohesive and nationally coordinated approach to PA management?
1.5 Is transboundary and regional cooperation established and maintained in a manner which supports effective management of Finnish protected areas?
1.6 Are the values of the PA system well documented and assessed?
1.7 Are the threats to PA system values well documented and assessed?
1.8 Do Finnish PA management objectives harmonise with Natura 2000 objectives?
1.9 Do Finnish PA management objectives harmonise with wider cultural objectives including those relating to the Sámi?

Planning

2.1 Are protected areas identified and categorised in an organised system?
2.2 Are individual protected areas designed and established through systematic and scientifically based criteria and process with a clearly articulated vision?
2.3 Are established reserves covered by comprehensive management plans?
2.4 Are management plans routinely and systematically updated?
2.5 Are protected areas located in places with the highest/most threatened biodiversity values?
2.6 Are stakeholders given an opportunity to participate in planning?

Resources

3.1 What level of overall resource is provided for PA management?
3.2 How have resource levels varied with increases in protected areas in recent years?
3.3 On what basis are resources allocated to PA for management?
3.4 At the park level, are resources linked to priority actions identified in management plans?
3.5 What level of resources is provided by partners and/or volunteers?
3.6 Do PA managers consider resources to be sufficient?

Process

4.1 Is management performance against relevant planning objectives and management standards routinely assessed and systematically audited as part of an on-going 'continuous improvement' process?
4.2 Is NHS staff performance management linked to achievement of management objectives?
4.3 Is the NHS internal audit function systematic and credible?
4.4 Is there external and independent involvement in internal audit?
4.5 Is there effective public participation in PA management in Finland?
4.6 Is there a responsive system for handling complaints and comments about PA management?

Output

5.1 Is adequate information on PA management publicly available?
5.2 Are visitor services appropriate for the relevant protected area category?
5.3 Are management related trends systematically evaluated and routinely reported?
5.4 Do audit reports reveal effective management?
5.5 Is there a systematic maintenance schedule in place for built infrastructure/assets?
5.6 Does Finland fulfill its monitoring and reporting obligations under European Directives and international conventions?

Outcomes

6.1 Are threats to reserve heritage values held in check or reduced?
6.2 Are threatened species populations stable or increasing?
6.3 Are parks and reserves losing native species?
6.4 Are selected indicator species within acceptable ranges?
6.5 Are biological communities at a mix of ages and location that will support native biodiversity?
6.6 Are ecological processes (in the PA) functioning in a healthy and sustainable manner?
6.7 Are the expectations of visitors generally met or exceeded?
6.8 Are neighbors and adjacent communities supportive of PA management?
6.9 Are cultural heritage assets protected?

13.11 Scoring and analysis

After some consideration, it was decided not to use numerical scoring for the assessment (though the earlier RAPPAM assessment was scored in the usual way). Instead, an overall evaluation of fair, good or very good was given to each question, and qualitative discussion and examples were given to each.

14 Catalonia MEE

Material in this summary is extracted from Mallarach (2006)

14.1 Organisation/ Affiliation

Institució Catalana d'Història Natural – ICHN (Catalan Institution of Natural History)

14.2 Primary reference

Mallarach, J.M. and Varga, J.V. (Eds.) 2004 EI PEIN deu anys després: balanç I perspectives. Diversitas: 50, Universitat de Girona, Girona, pp 29-40.: http:// www.iec-ichn/ichn

Mallarach, J.M (ed) (2005); Protegits de dret o de fet? Avaluació de l'efectivitat del sistema d'espais naturals protegits de Catalunya. Institució Catalana d'Història Natural, Barcelona

14.3 Purposes

- ✓ to improve management (adaptive management)
- ✓ for accountability/ audit
- ✓ for prioritisation and resource allocation
- ✓ to raise awareness and support

14.4 Brief description of methodology

The assessment studied the entire system of natural protected areas of Catalonia, Spain, which includes 148 protected areas (21% of Catalonia's land area), from a medium size National Park in the Pyrenees mountains, to small island nature reserves in the Mediterranean Sea. Catalan and Spanish legislation establish 20 different types of protected natural areas, which correspond to I-V IUCN categories. In Catalonia, there is a large majority of category V protected areas.

The evaluation of the protected areas system of Catalonia, Spain (2002-03) was the first to assess the effectiveness of an entire system of protected areas within Spain, and one of the first in the European Union to be conducted by an external, independent scientific organization, based on the IUCN-WCPA Framework.

The evaluation of protected areas was conducted by the Catalan Institution for Natural History *(Institució Catalana d'Història Natural,* ICHN), the oldest and most influential scientific organization in Catalonia. The evaluation was external, participatory and independent, though it received the support and collaboration of the Ministry for the Environment and Housing, as well as economic support from Foundation *Territori i Paisatge de Caixa Catalunya* (a savings bank) and the *Diputació de Girona* (a local authority). In addition, several research centres from three Catalan universities collaborated in the evaluation, helping in the application of a limited number of indicators for the entire system (Mallarach 2006).

14.5 Objectives and application

The project aimed to:

- Assess the condition of the entire system of 148 protected areas of Catalonia; and
- Based on the results of assessment, propose actions for improvement when needed.

The project also aimed to test, refine and be a reference for evaluation methodology, at least in Spain, and may be in other Mediterranean countries, based on the IUCN-WCPA Framework (Mallarach 2006).

The goals of the project were:

- to introduce the practice of protected area evaluation to Spain following a sound, internationally accepted methodology
- to disseminate the findings of the evaluation to the public
- to help improve the condition of the protected areas system in Catalonia

(Mallarach 2006)

14.6 System origins

In 1999, the Institució Catalana d'Història Natural proposed a project to evaluate the effectiveness of the entire system of natural protected areas of Catalonia, and was able to persuade the responsible public agencies and private organizations to cooperate, providing the necessary information and some funding.

The methodology was developed with indicators based on the IUCN-WCPA Framework.

14.7 Strengths

- The positive impact that a committed NGO can make on assessing the management of protected areas, even in countries which lack tradition in this matter. The active participation and support of the Ministry of the Environment and Housing proved to be very useful.
- The value of an iterative, participatory process to adapt the IUCN-WCPA Framework to a particular situation. The pilot plan allowed substantial refinements, even at the end of the process when further simplifications were introduced.
- The critical importance of the support of the key agencies, local governments, and other private NGOs, without which the evaluation could not have been performed.
- The positive reaction of most stakeholders: policy-makers, managers, planners and evaluators – who all acknowledged that they have learned a great deal from this evaluation.
- Outcome indicators are more complete than most methodologies and include impacts on communities as well as on natural systems.

14.8 Primary constraints and weaknesses

- The complexity of coordinating over one hundred different evaluators with different backgrounds, experience levels and knowledge of protected areas.
- The necessity to provide the appropriate training and ensure an effective coordination to the evaluators during the entire process.
- The frequent difficulty of getting significant data from public local and regional authorities that are not used to being evaluated and have a variable level of distrust towards this process.
- For some types of protected areas (mainly Strict Nature Reserves, Wildlife Reserves and some Nature Parks) the problems identified are so serious that it is advisable to undertake evaluations at the individual protected area level, as soon as possible.

14.9 How the methodology is implemented

Since it was the first protected area evaluation to be conducted in Spain, it took a long time to set up, develop and complete the process of assessment. The main steps in this process are summarised below:

- In November 2000 the ICHN organized a workshop to adapt the IUCN-WCPA Framework to the particular situation of Catalonia. Next, six reporters worked on the first draft of 87 indicators. During 2001 the definition of the indicators was completed, and funding was secured to conduct a pilot plan. In February 2002, a seminar was held about the scope of the evaluation and the methodology to be used.

- From March to May 2002 a pilot evaluation was conducted in seven protected areas, representing a sample of the system: from large mountain natural parks, to small steppe natural areas or marine strict nature reserves. The purpose was to test the methodology and refine and adjust the indicators. In July 2002 the coordinators organized seven seminars in different parts of Catalonia to explain the methodology to the 130 evaluators, making sure that everybody had a sufficient understanding of it. Then began the actual data compilation for evaluation, which lasted six months.

- Once the protected area evaluations were completed, the evaluators sent all the forms in electronic format to the managers, asking them to comment on the findings. Once this step was completed, both the evaluation and the managers' comments were sent to the secretariat of the ICHN, were all the forms were reviewed and checked for completion and coherence. When a problem was found, the responsible evaluator was required to solve it.

- In January 2003, data analysis began. The next two months were spent elaborating the proposed analysis with the input of all the evaluators. Later, several workshops were conducted to discuss the analysis, until a consensus was reached to validate the interpretation.

- From September 2003 to the present the methodology and results of the evaluation project have been presented at four levels: Catalonia, Spain, Europe and the international community.

14.10 Elements and indicators

Six sets of indicators were developed based on the IUCN-WCPA Framework: context (21); planning and legislation (13); means or inputs (15); processes (1); activities/services or outputs (13), and results or outcomes (22). The reason for developing so many indicators was an attempt to be as rigorous and comprehensive as possible. For the entire list of indicators, see below. For a complete description of each indicator and its associated form, see www.ies/ichn.es (currently only in Catalan).

Context indicators	Conservation value of geology
	Conservation value of flora and vegetation
	Conservation value of vertebrate fauna
	Conservation value of invertebrate fauna
	Conservation value of domestic traditional breeds
	Presence of habitats of European significance
	Spiritual, cultural or historical relevance
	Dimensions
	Shape

	Ecological reconstitution stage
	Fragmentation
	Ecological connectivity
	Fire risk
	Geological risk
	Urban pressures
	Infrastructure pressures
	Threats significance
	Population
	Sectoral work force
	Area with economic production
	Visitors
Planning and Legislation indicators	IUCN equivalent category
	Adequacy of existing legal protection
	International designations
	Adequacy of design
	Coherence of the protected natural areas system
	Land ownership
	Natural resources management planning level
	Existence and adequacy of the protected area management plan
	Time span between the declaration of the protected area and the approval of the management plan
	Conservation categories included on the management plan
	Public participation during the elaboration of the management plan
	Dissemination of the management plan
	Management of the protected area annual report
Means (inputs)	Staff by type of contract
	Staff by functional responsibility
	Participation of volunteers
	Public participation on the board
	NGOs and corporations making contributions
	Facilities inside the protected natural area
	Facilities outside (around) the protected area
	Fire prevention plan and management
	Use of new technologies
	Environmentally friendly facilities
	Access with motor vehicles
	Budget
	Level of economic autonomy
	Adequacy of the available resources
	Funding sources
Processes	One single indicator to measure how the different processes taking place for the management of the protected areas follow a formal pattern
Activities and services (outputs)	Number of visitors making use of the protected area facilities
	Physical identification of boundaries and accesses
	Informative panels
	Sign posted paths and trails
	Staff devoted to the attendance of visitors
	Litigation and prosecution
	Mandatory consultation reports
	Technical and economic support to local population
	Scientific publications
	Popular publications
	Research related to management
	Educational activities
	Execution of activities included in programs

Results (outcomes)	Changes in key geologic features or elements
	Changes in key species
	Changes in key habitats
	Local extinction of species
	Land use/land cover changes
	Negative impacts due to legal activities
	Changes of rivers ecological conditions
	Eutrophication of marine waters
	Changes on the quality of groundwater
	Impact of wildfires
	Shape and dimension changes
	Changes on the condition of historical and cultural heritage
	Changes on the number of visitors
	Changes on education and sensitivity
	Changes on the perception of quality of the natural environment and the landscape
	Monitoring and research
	Economic activity that has been induced (by the protection of the natural area)
	Number of jobs that have been created
	Changes on the (local population) average family earnings
	Changes on the local population types of jobs
	Changes in the number of farms
	Demographic changes in the local population

15 PAN Parks (protected area network), Europe

Written by Vlado Vancura, (PAN Parks Foundation)

15.1 Organisation

PAN Parks Foundation

15.2 Primary methodology reference

PAN Parks Verification Manual, January 2002, (last update of PAN Parks Verification Manual -January 2008), PAN Parks Foundation, Gyor, Hungary

15.3 Brief description of methodology

The PAN Parks verification system is designed to provide an independent audit to demonstrate that the management of the protected area reaches the PAN Parks Quality Standard known as PAN Parks Principles and Criteria http://www.panparks.org/Introduction/Verification/Principles .

PAN Parks verification system is focusing not only on management effectiveness of protected areas (Principle 1-2) but also on quality of visitor management (Principle 3) and sustainable tourism in the region around protected areas (Principle 4) and local/business partners (Principle 5). The foundation provides marketing and communication support to promote the PAN Parks concept and Certified PAN Parks.

This made PAN Parks approach very complex because of direct engagement with parks management, local stakeholders and the tourism industry. This marriage however raises serious questions as it is known that tourism sector can be a key threat to conservation in many areas. Controlled and carefully planned tourism however can be also unique opportunity for protected areas and conservation. This complex approach is fundamental to maintain a high level of management effectiveness in long-term.

The PAN Parks philosophy focuses on positive element of this relationship but simultaneously is extremely aware about the threat and damage which can uncontrolled tourism cause to protected areas. Because of this awareness the Foundation decided to allocate a lot of resources and capacity to develop a sophisticated and demanding verification system to minimise this threat and provide transparency and credibility to the overall system.

15.4 Purposes

- ✓ to develop network of well-managed protected areas
- ✓ to improve management (support implementation of adaptive management)
- ✓ to set up detailed quality standard for well-managed protected area
- ✓ increase awareness and support for wilderness protection

15.5 Objectives and application

The PAN Parks Foundation connects certified partners through its quality brand, and helps to improve the management of protected areas by utilizing and implementing the following essential goals:

- to ensure the long-term survival of well-managed protected areas while encouraging local communities to flourish;
- to promote wilderness management in protected areas in Europe;
- to facilitate sustainable tourism development in and around these protected areas;

and
- to increase knowledge of and pride in Europe's wilderness heritage.

PAN Parks provides policy makers and protected area authorities with comprehensive information about management effectiveness trends, and identifies issues that need to be addressed for improving management effectiveness. Through implementing a PAN Parks assessment, protected area authorities are able to
- identify priorities for well-managed protected areas and wilderness protection;
- analyse the range of major threats and opportunities;
- identify benchmarks and set priorities; and
- agree on needed corrective actions that improve also system-level management effectiveness.

The PAN Parks methodology has been implemented in eight European countries and in 10 protected areas. More protected areas in Portugal, Estonia, Lithuania, Romania, etc are in a preparatory phase. The PAN Parks methodology has some restrictions on its use because of strict conditions identified in PAN Parks Quality Standard: for example, the size limit of protected area, minimum size of PAN Parks wilderness area, tourism potential, and capacity to develop sustainable tourism in surroundings. However, this methodology fully combines with the original aim to create the network of the well-managed wilderness protected areas and set the quality standard also for other protected areas. Useful verification, monitoring and renewal reports of the protected area status are produced

15.6 Origins

The system was designed as a tool to assess management effectiveness in selected protected area -potential PAN Parks and create quality standard - benchmark, for well-managed protected area generally. The system is based on WCPA PAME Framework and can be described as "in-depth" and "evidence-based" methodology.

The system was described as the world's first operational, third party certification system under the WCPA (World Commission on Protected Areas) Framework for Management Effectiveness. It was developed by WWF between 1997 and 2001 with field-testing in 17 European countries (2001). First PAN Parks were certified in 2002 and today a network of 10 PAN Parks is stretching from Arctic Circle down to the Mediterranean.

15.7 Strengths

The most obvious strength of PAN Parks system is ability to create incentives and motivation to fulfil PAN Parks requirements. This is partially achieved through an attractive aim - become member of well-managed wilderness protected area network and partially through support offered by PAN Parks Foundation in the field of communication and marketing particularly for local business partners.
This approach ends up with very concrete, site-specific solutions to solve identified bottlenecks and threats, prioritised actions and so contributes to the improvement of management effectiveness.

Other strengths:
- Ambitious with philosophy of turning threats into opportunities;
- Support concept of large unfragmented protected areas;
- Allows objective and transparent verification;
- Link PA management effectiveness with regional development and local economy; and

- Offer benefits of well-managed protected areas to the local business partners and others.

15.8 Constraints and weaknesses

PAN Parks assessment methodology was developed as a tool to implement PAN Parks concept. Because ambition of PAN Parks Foundation is to create a network of the well-managed wilderness protected areas implementation of PAN Parks assessment methodology can be interpreted as seemingly limited.

However, lessons learned in previous years proved that experience learned from PAN Parks verification process can be widely used and reach far beyond network of certified PAN Parks.
www.panparks.org/projects/lessonslearnedseries

15.9 How the methodology is implemented

PAN Parks Verification Manual provides a comprehensive guideline to implement this methodology. A short version can be found at
http://www.panparks.org/Introduction/Verification/Howtoapply

The process of PAN Parks verification includes following steps:

- The applicant submits application package that can be downloaded from http://www.panparks.org/Introduction/Verification/Howtoapply to the PAN Parks Foundation.
- As a first filter, the PAN Parks Conservation Manager analyses the application documents.
- The PAN Parks Foundation sends a verification proposal including a timeline and costs estimate to the applicant.
- The applicant decides whether or not to approve the proposal .
- PAN Parks Conservation Manager form verification team .
- The applicant submits its documentation for review to the Lead verifier.
- The Verification team conducts a site verification.
- The Verification team submits a verification report including a recommendation whether or not to award the certificate and an annual monitoring plan.
- Based on the verification report the PAN Parks Foundation agree with the applicant about awarding ceremony.
- The PAN Parks Foundation awards the certificate.
- First local business partners can be verified.
- Local PAN Parks Group and protected area agree with PAN Parks Foundation about awarding ceremony for local business partners.
- The Verification team conducts annual monitoring.
- Renewal verification is conducted after a 5-year period.

Lessons learned (or how to make implementation of PAN Parks easier)

- Ensure the commitment of government protected area authority.
- Ensure that all involved parties including local stakeholders understand complexity of PAN Parks concept.
- Choose a committed protected area: a PAN Parks is seen at its best when a large protected area confirm interest and commitment to meet PAN Parks Quality Standard because they see obvious benefit of this process.
- Involve key local stakeholders and potential future business partners to the PAN Parks process at the early beginning.
- Make clear that to become a PAN Park is long-term commitment.

- Identify one reliable contact person with close links to the park director and key stakeholders.
- Start pre-verification procedure well in advance of side assessment.
- Maintain regular contact with all key stakeholders and partners.

15.10 Elements and indicators

PAN Parks Quality Standard sets a new standard for conservation and sustainable tourism. The standard is described in the format of **PAN Parks Principles, Criteria and Indicators** http://www.panparks.org/Introduction/Verification/Principles. This approach allows for objective verification and transparency. Every PAN Parks and they partners must meet all five comprehensive principles.

Principle 1 Natural values
Any protected area applying for PAN Parks certification must define the scope of protection, the international importance, and size of the protected area.

Principle 2-3 Management effectiveness
Principle 2 (conservation management) and principle 3 (visitor management) are management and process principles, which reflect the management effectiveness of the protected area administration applying to become a PAN Park.

Principle 4-5: Sustainable Tourism Effectiveness
Principle 4 (Sustainable Tourism) and principle 5 (Business Partners), like 2 and 3, are management /process principle. Principles 4-5 are different from the Principles 1, 2 and 3, because fulfilling these fall outside of the responsibility of the management of the National Park. The Sustainable Tourism Development Strategy (STDS) is a multi-stakeholder project, formalised as a Local PAN Parks Group. Principles 4-5 are stakeholder principles.

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Table 15: how the PAN Parks methodology combines with WCPA MEE Framework

WCPA Element	PAN Parks criterion (examples)	To meet the Criterion, the following achievements are required
	1.Background	Include specific management objectives and critical management activities
Context	2.Pressure and threats **e.g. Criterion 2.3** **The protected area has a long-term conservation strategy that is actively implemented …**	Indicator 2.3.11: The conservation strategy / management plan is successfully implemented (e.g. via an annual work plan) including research and monitoring activities, threat prevention and mitigation, and restoration. Indicator 2.3.12: The annual plan implementation and the overall management effectiveness are regularly monitored and the plan then updated, etc…
Context	3.Biological importance **e.g. Criterion 1.2** **Importance for the conservation of biological diversity…**	Indicator 1.2.1: The protected area is internationally recognised and/or supports protection of internationally threatened species and/or habitats, etc… Indicator 1.2.2: The protected area contains Natura 2000 sites, etc…
Context	4.Socio-economic importance **e.g. Criterion 4.2** **The Local PAN Park Group formulates and approves the STDS [11] for the PAN Park region.**	Indicator 4.2.1: The PAN Park region has a STDS, which respects the PAN Parks conservation goals and aims at increasing the quality of tourism products and the quality of the visitor experience in and around the certified park. In particular, the STDS has • a vision, goals, long- and short-term targets, including environmental objectives/care plan, • a description of the PAN Park region (with defined

[1] STDS – Sustainable Tourism Development Strategy

		boundaries of the area that is subject to this STDS - shown on a map indicating the protected area and the involved municipalities) and its zoning system • an assessment of the ecological carrying capacity of different PAN Parks region zones, etc…
Context	5. Vulnerability **e.g. Criterion 2.4** **Protected area management makes use of zoning or some other system that achieves the conservation strategy…**	Indicator 2.4.1: There is a zoning system or another system that ensures effective protection of the area Indicator 2.4.2: The zoning is based on a clear method of demarcating boundaries, both around the protected area and in between its zones. Indicator 2.4.3: The zoning system allows human activities compatible with the conservation strategy and, if existing, the long-term preservation of existing cultural heritages within.
Planning	6. Objectives **e.g. Criterion 2.1** **Design of the protected area aims to maintain natural ecological values.**	Indicator 2.1.1: Priority of the management objectives (e.g. as per the act or decree) is the maintenance of natural ecological values. Indicator 2.1.2: The design of the protected area allows all key natural values (ecological processes and biodiversity) to exist and be maintained. Indicator 2.1.3: There is evidence of bio-geographical connections inside the protected area, with its adjacent areas, and/or with other protected areas.
Planning	7. Legal security: **e.g. Criterion 1.1** **The area is adequately protected by means of an enforced act or decree, or private initiative.**	Indicator 1.1.1: The area is legally protected by means of an act or decree.
Planning	8. PA site design and planning **e.g. Criterion 1.3** **The minimum size of the protected area is 20 000 hectares.**[12]	Indicator 1.3.1: The protected area is large enough and its composition (one block, fragmented) ensures the conservation of internationally important wildlife and ecosystems. Indicator 1.3.2: There is information if the size of protected area has been changed in the past.
Inputs	9. Staff and finance **e.g. Criterion 2.3** **The protected area has a long-term conservation strategy**[13] **that is actively implemented…**	Indicator 2.3.9: The conservation strategy / management plan is addressing needed capacities to effectively manage the protected area, including staff and their range of skills, equipment, organisational structure (functions of board, advisory committee etc.). The protected area management is adequately funded. Indicator 2.3.10: The conservation strategy / management plan is addressing existing and future external and internal threats and pressures to the protected area.
Inputs	**10. Communication and information inputs** **e.g. Criterion 3.3** **Visitor management creates understanding of and support for the conservation goals of the protected area.**	Indicator 3.3.1: There are different visitor target groups that need to understand and support the conservation goals of the protected area and that are addressed by specific messages and different techniques. Indicator 3.3.2: A code of conduct for visitors is communicated to all visitors, specifying for which visits a qualified guide is needed. Indicator 3.3.3: The protected area has a communications and marketing plan that is successfully implemented in communication with the tourism marketing of the surrounding region.
Process	11. Management planning **e.g. Criterion 2.3** **The protected area has a long-**	Indicator 2.3.1: There is a conservation strategy that is implemented through nature, visitor, administration and marketing management (sub-) plans.

[2] An area smaller than 20 000 hectares, but having formal national and / or international transboundary cooperation with another protected area can also be verified, if its partner area also qualifies as a PAN Park. These partner areas would be awarded the PAN Parks Certificate together, as well as lose their certificate together (see also Criterion 2.10!). Also a group of connected PAs can qualify to become a PAN Park.

[3] The long-term strategy is usually presented in the management plan and involves a period of 25 - 50 years.

	term conservation strategy that is actively implemented...	Indicator 2.3.4: The conservation strategy/ management plan has long- and short-term goals. Indicator 2.3.5: A conservation strategy / management plan goal is that ecological processes and biological diversity will be maintained over the long-term.
Process	12. Management decision-making practices **e.g. Criterion 2.3** **The protected area has a long-term conservation strategy that is actively implemented…**	Indicator 2.3.2: The conservation strategy / management plan(s) is developed through a planning process that includes procedures for revision and approval and the participation of different parties in these steps. The plan is communicated to different target groups and achieved via identified funding sources. Indicator 2.3.3: There are links between the area's (nature conservation) management, the visitor management, and the national/regional sustainable tourism development strategy.
Process	13. Research monitoring and evaluation **e.g. Criterion 2.3** **The protected area has a long-term conservation strategy that is actively implemented …**	Indicator 2.3.6: The conservation strategy / management plan includes research programmes designed to improve knowledge and contribute to protected area management. Indicator 2.3.7: The conservation strategy / management plan includes programmes designed to improve the socio-cultural and economic benefits of the protected area for surrounding communities and tourism development. Indicator 2.3.8: The conservation strategy / management plan is based on an adequate site assessment, which includes abiotic and biotic data and an evaluation of past and present human activities and their impacts.
Outputs	14. Output **e.g. Criterion 2.8** **The protected area management system pays particular attention to threatened and endemic species and habitats, and to ecosystem dynamics.**	Indicator 2.8.1: The management plan and other sources provide information, in particular in relation to the current management regime, on endemic, red-listed, vulnerable or other rare species occurring in the protected area, as well as on other, native species that have decreased or become extinct Indicator 2.8.5: There is a habitat or ecosystem restoration plan, according to which, if necessary, conservation values are being restored on the basis of studies from adequate reference areas. The implementation of the restoration plan and its impacts are regularly monitored, etc…
System level questions	16. Policy environment **e.g. Criterion 2.1** **Design of the protected area aims to maintain natural ecological values.**	Indicator 2.1.1: Priority of the management objectives (e.g. as per the act or decree) is the maintenance of natural ecological values. Indicator 2.1.2: The design of the protected area allows all key natural values (ecological processes and biodiversity) to exist and be maintained. Indicator 2.1.3: There is evidence of bio-geographical connections inside the protected area, with its adjacent areas, and/or with other protected areas.
System level questions	15.Protected area policies **e.g. Criterion 2.5** **The protected area has an ecologically unfragmented** [14]	Indicator 2.5.1: The protected area has an ecologically non-fragmented wilderness area of at least 10,000 ha, which embraces all important habitat types and ecological processes, and adequately represents the highest value for

[4] This criterion allows for the wilderness area to be divided into more than one area as long as it is not fragmented ecologically. If the wilderness is in one area, but is ecologically fragmented by a fence, road or other infrastructure, the area does not meet this criterion. Verifiers will use their professional judgement during evaluation. The PAN Parks Foundation always prefers to identify road-less wilderness areas; however the old existing roads can be within wilderness area if clear rules and strict limits of use are agreed, e.g. only emergency use, restoration, low key maintenance without vehicles etc.

[5] The wilderness area still can meet the size criterion when part of it is under an ecosystem rehabilitation process and long-term active restoration management is needed due to missing critical segments of ecosystems dynamics, e.g. crucial elements of ecosystems were extinct and have been replaced by semi-natural components (e.g. reindeer, semi-wild sheep, cattle, horses, etc.). The management must have a clear goal to fully meet this criterion by a defined rehabilitation/restoration schedule and deadline. Verifiers will use their professional judgement during evaluation.

[6] The following human activities are not accepted in the wilderness area: hunting/culling, fishing, collection of animals and (parts of) plants, of rocks and minerals, mining, logging, lifestock grazing, grass cutting, fencing, road maintenance,

	wilderness area of at least 10,000 hectares [15] where no extractive uses [16]are permitted and where the only management interventions are those aimed at maintaining or restoring natural ecological processes and the ecological integrity.	nature conservation of local natural ecosystems. Indicator 2.5.2: The management plan includes a clear management strategy and plan for managing the wilderness area at long term, Indicator 2.5.3: Ecological processes within the wilderness area are undisturbed those missing are under restoration…
System level questions	16. Policy environment **e.g. Criterion 2.1** **Design of the protected area aims to maintain natural ecological values.**	Indicator 2.1.1: Priority of the management objectives (e.g. as per the act or decree) is the maintenance of natural ecological values. Indicator 2.1.2: The design of the protected area allows all key natural values (ecological processes and biodiversity) to exist and be maintained. Indicator 2.1.3: There is evidence of bio-geographical connections inside the protected area, with its adjacent areas, and/or with other protected areas.

15.11 Scoring and analysis

PAN Parks Verification

Generally speaking the third party (independent) verification lends credibility to something, which is under the control of one party and of interest, and/or significance to another. Independence of the verifiers both from the owner of verification methodology (PAN Parks Foundation) and the applicants (protected area) helps to develop trust in the network. This "true and fair view" builds credibility.

Process & Performance

While verification programmes all share certain common components, they are distinguished by whether they use a **process** (systems for monitoring certain criteria through management, there is no universal standard) or **performance** (include a set of benchmarks, often in the form of yes/no questions) methodology.

Certification Trend

There has been a growing consensus that strong certification programmes need to be performance-based, have onsite third-party audits, and include environmental, social and economic standards and criteria that measure impacts both within the business and/or protected area and within the wider community. In line with this trend, our PAN Parks verification system represents a hybrid of the process-based environmental management system and the performance-based standards/benchmarks. Analysis of the data is usually presented as very concrete and site specific proposals, recommendations, and strict conditions named Minor Corrective Action Requests- CARs. Major Corrective Action Requests prevent PA to be certified as a PAN Park. Detailed procedure is described in the PAN Parks Verification Manual 2008.

15.12 Further reading

See manuals, quality standards, reports and lessons learned on http://www.panparks.org
For more details please contact PAN Parks Conservation manager, Vlado Vancura, vvancura@panparks.org

road and building construction, motorised transportation, large-scale cultural and sporting events, etc. These activities are not accepted even if they are based on traditional use; immediate consumption is not considered an extractive use. Obsolete infrastructure should be removed. Verifiers will use their professional judgement during evaluation.

16 MEVAP (Monitoring and Evaluation of Protected Areas) - Italy

Written with Elena Soffietti

16.1 Organisation

C.U.E.I.M., University Consortium for Industrial and Managerial Economics on behalf of the Italian Ministry of the Environment and Territory

16.2 Primary methodology reference

Banini S., Marino D., Lumaca C., Addis D., Alborino N., Marucci A., Palmieri M., Parasacchi A., Soffietti E., Zaottini D., Zarlenga G. (2006) " Assessment of Protected Areas Management Effectiveness" Report phase n°1.

16.3 Brief description of methodology

The aim of MEVAP (Monitoring and Evaluation of Protected Areas) methodology is to assess and monitor protected area management effectiveness through a set of indicators. The method developed for the Italian protected areas takes into account instructions and recommendations from national and international policies on biodiversity and sustainable development (General policy law n° 394, CBD, etc.).

MEVAP allows:

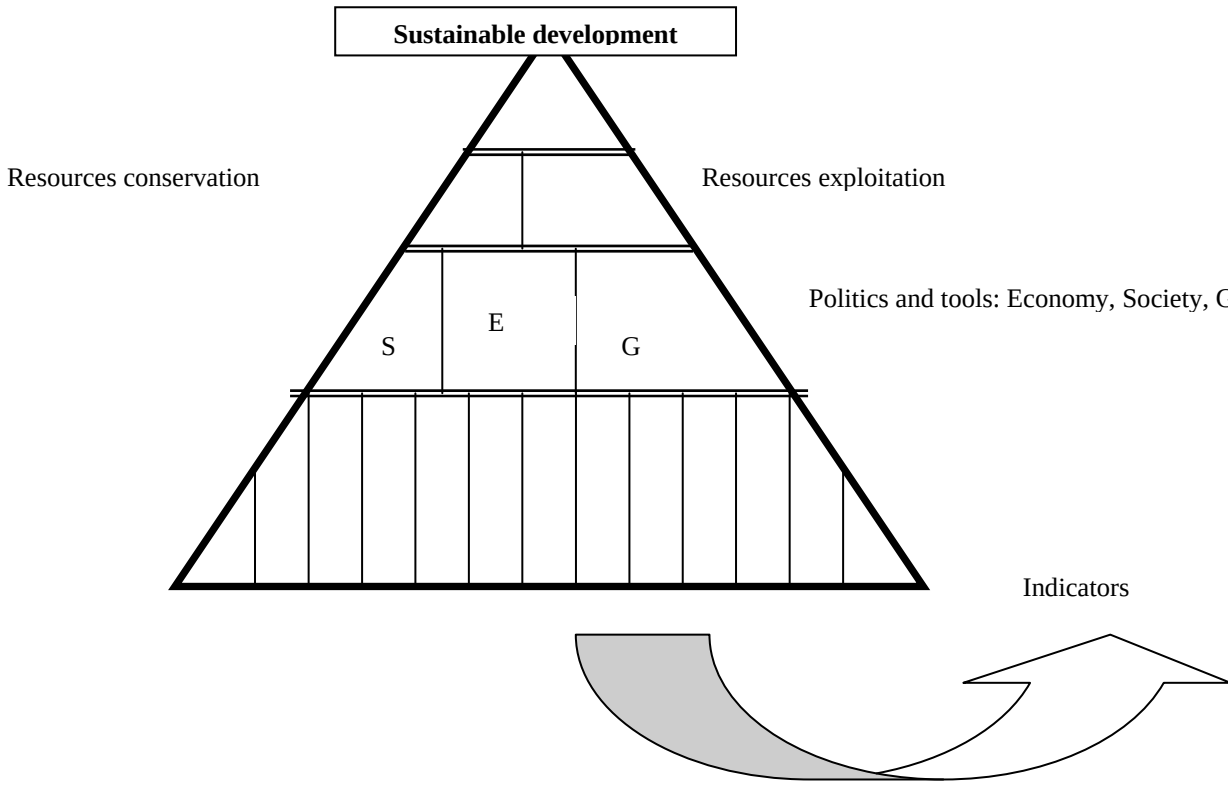
- ✓ A macro-level assessment of protected area management: the achievement of national goals and objectives in observance of international treaties and national strategies; and
- ✓ A micro-level assessment of protected area management: developing methods and criteria in order to diffuse Best Practice arising from the assessment of local management system.

Indicators are associated with four domains: Environment, Economy, Governance, Society. Every domain is related with macro-objectives and topics. Successively the methodology has been adapted to IUCN-WCPA framework.

Table 16: Domains in assessment: example of indicators

Domain	Macro-objective	Topic	Indicator
Environment	Resource Conservation (CBD)	Biodiversity	Levels of threat to animal species
Economy	Reconversion of productivity and promotion of sustainable activities (L. 394/91)	Δ+ products with quality certification	Presence of trademark
Governance	Development of economic management capacity	Park as a generator of creative projects	Promotion of international co-operation
Society	Access and benefit-sharing of genetic resources (CBD)	Access to benefits	Local residents' perception of benefits

Theoretic Model



The triangle shows the hierarchical order among elements of Sustainable Development referring to Protected Areas. Conservation and Resources Exploitation can be affected and can interact with Society, Economy and Governance, which are placed under them. On the top there is Sustainable Development, meant as the synthesis between two trends, Resources Conservation and Resources Exploitation. Society, Economy and Governance are Sustainability management tools able to generate processes affecting its evolution. For this reason, the assessment of PA management effectiveness must take into consideration the maintenance of biodiversity without neglecting the social, economic and governance aspects and as well as human needs.

16.4 Purposes

- ✓ to improve management (adaptive management) primarily at a micro-level and afterwards at a macro-level widening the range of the study to a National Park network at a system level.
- ✓ for accountability/audit
- ✓ to raise best practices and support to Protected Areas authorities

16.5 Objectives and application

MEVAP is a scientific tool designed to be flexible and accessible to different needs and context. It is made up of a wide range of 70 indicators which have been divided in core and supplementary. The set of indicators can be adapted and used in different circumstances and contexts:

- ✓ Evaluation or self-evaluation of protected areas management effectiveness

- ✓ To provide support for Best Practice diffusion
- ✓ Supporting different environmental procedures and programs like ISO 14001, The EU Eco- Management and Audit Scheme (EMAS) and Agenda 21 or State of the Environment Reports.
- ✓ In sectorial studies concerning protected areas (tourism, agriculture, etc.)
- ✓ Supporting procedures for Environment Balance and/or Sustainability Balance

16.6 Origins

The General Directorate "Nature Protection" of The Ministry of the Environment and Territory charged C.U.E.I.M. with working-out a plan to assess the Italian National Parks in order to fulfil obligations under CBD's Programme of Work on Protected Areas (goal 4.2- To evaluate and improve the effectiveness of protected areas management). Figure 8 shows the process for developing the methodology.

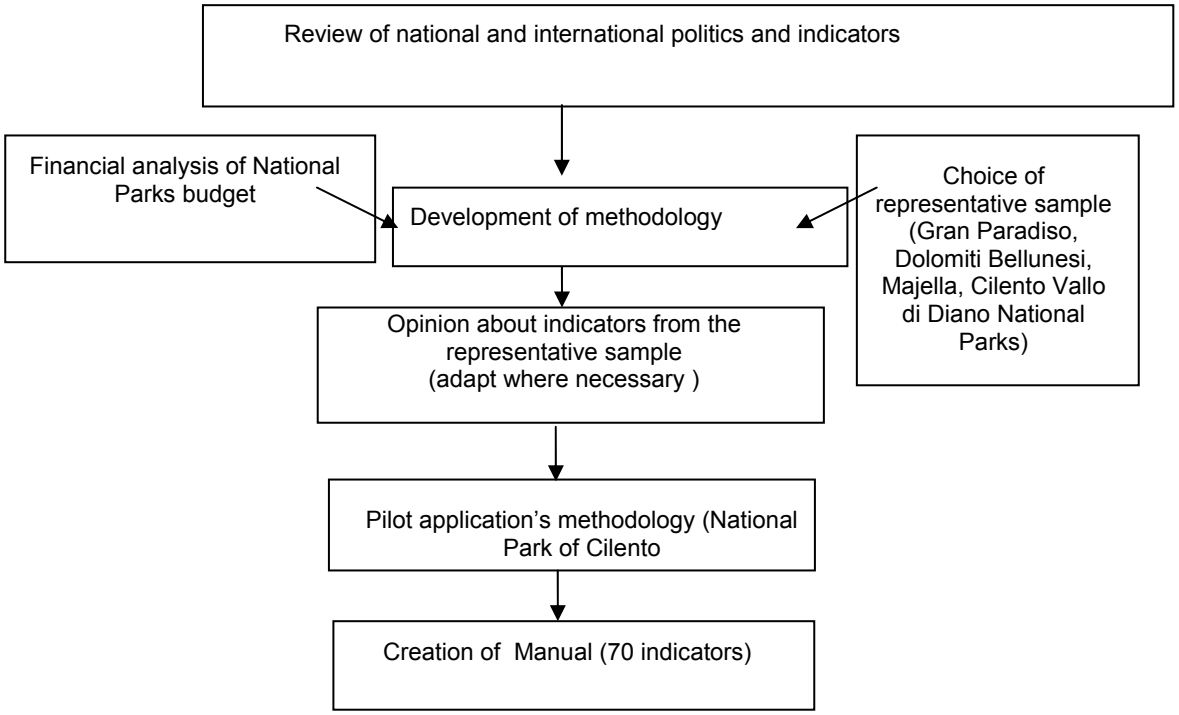


Figure 8: Development of methodology

16.7 Strengths

- ✓ High information details
- ✓ Ability to evaluate park management effectiveness in relation to the context
- ✓ A lot of data are objective and quantititative. The information is official and external the Park Authority. Because of these reasons the data are useful to a self-evaluation.
- ✓ The methodology includes a high number of indicators and related index and can be applied to different needs and context (see paragraph on objectives and application).

16.8 Constraints and weaknesses

- ✓ the information retrieval can be complex and expensive
- ✓ the information retrieval can be not updated and/or is not reliable in territorial

scale
- ✓ Sometimes the data analysis and evaluation can be ineffective due to the lack of availability of a historical series of information.

16.9 How the methodology is implemented

The work is in progress. MEVAP's team is assessing Cilento Vallo di Diano National Park but the aim of the project is to develop an evaluation of all Italian National Parks.

Taking into account the nature of methodology (flexible and accessible to different needs), MEVAP can be also implemented in different kind of protected areas including marine reserves.

16.10 Elements and indicators

The evaluation of management effectiveness is achieved by the assessment of a set of selected indicators. The criteria used for selecting indicators are:

- ✓ Ease of collection
- ✓ Quantification
- ✓ Representativeness
- ✓ Scientific relevance
- ✓ Transferability

Indicators are allocated to four 'domains': Environment, economy, society and governance (Table 17).

Table 17: Indicator groups and domains

WCPA elements	Environment	Economy	Society	Governance
Context	• Floristic resources • Fauna resources • Richness of vegetation • Ecological network • Level of threat to • plant species • Level of threat to animal species • Level of threat to Habitats • Surface water quality • Groundwater quality • Marine and costal water quality • Forest fires • Forest area condition and quality • Landscape quality • Genetic variation in agriculture and in zootechnics • Territory geologic brittleness	• Soil exploitation • Agriculture pressure in the environment • Tourist intensity***** • Production of urban solid waste* • Proximity of sites at risk of incident • Consumption of energy • Sustainable mobility***** • Pressure from road infrastructure • Intensity of water exploitation • Local products***** • Farms and zootechnical • enterprises agreeing to environmentally friendly measures and which practise organic farming***** • Energy production through alternative energy resources***** • Production of services and goods with a low intensity	• Growth and • population • density Social capital quality Quality of life	• Bio-ecological • Architecture*****

WCPA elements	Environment	Economy	Society	Governance
		of material ***** • Energetic intensity • Water Balance • Economic welfare Absorption capacity*****		
Planning				• Environmental planning capacity • Administration complexity • Management and planning instruments • Indicators on fulfilment of legal obligations
Input			Environmental education*	• Funding through planning activities • Staff • Balance indicators about revenue
Process		• Sewage purification capacity • Sustainable management from local authorities and local enterprise		• Functioning of Park board • National and international co-operation activities Indicators on budgetary expenditure • Management of AIB service (Anti-fire plan) • Surveillance and sanction activities • Indemnification • Cost to prevent damages from hydrogeological upheaval • Cost to restore damages from hydrogeological upheaval • Intervention plan
	• Botanical garden • Faunistic Area • Collection and germplasm bank and/or conservatory	• Tourist intensity***** • Production of urban solid waste***** • Sustainable mobility***** • Local products***** • Farms and	• Stakeholders' perception of benefits • Local residents' perception of benefits	• Management of forest resources • Management of fauna • Activity of environment recovery

WCPA elements	Environment	Economy	Society	Governance
Output		zootechnical enterprises agreeing to environmentally friendly measures and which practise organic farming***** • Energy production through alternative energy resources***** • Production of services and goods with a low intensity of material ***** • Enterprises related with the park respect the total of enterprises • Presence of trademark Sustainable timber production	Environmental education*	• Reforestation • Bio-ecological • Architecture*****
Outcome	• Botanical garden • Faunistic Area • Collection and germplasm bank and/or conservatory	• Absorption capacity*	• Visitors' satisfaction	•

*****Some indicators can be valued both as context and as output. They can be put in the output box when the Park promotes (directly or indirectly) projects and activities related with indicators and/or aimed at theirs achievement. Otherwise they can be put in the context box.

*****"Absorption capacity" can be valued both as context and as outcome depending on Park's policy and
intervention in this field

*****Taking into account the different index of this indicators, "Environmental education" can be valued both as input (index: voluntary camp) and as output (index: doctoral thesis, environmental education centres etc.)

17 Teneriffe, Spain

Written by Victor Garcia Diaz

17.1 Organisation/ Affiliation

Excmo. Cabildo Insular de Tenerife (the Island Government of Tenerife), Canary Islands, Spain

17.2 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ for accountability/ audit
- ✓ for prioritisation and resource allocation

17.3 Brief description of methodology

Management effectiveness is monitored at three levels by the Planning Unit of the Environment Division, after making an appropriate diagnosis:

- First level: Assessment of protected area management plans (each protected area has its own management plan over several years), implemented since 2006 with the aim of annual reporting. The objective is to check if planned activities have been carried out, if activities are on time and within the planned budget, and to record what difficulties have arisen and what measures must be taken to correct them. Several indicators will be regularly measured to work at this level.

- Second Level: Assessment of the Annual Work Program for Protected Areas, the plan which contains all the actions undertaken by the different Administrative Units to manage the protected area system. First reporting was in 2006, but the plan is to obtain annual reports. The assessment looks at what activities have been carried out and their degree of completion; what activities are within the management plan, other plans or not planned; the real budget distribution, by services, subjects and themes; and whether budgets are being spent effectively and efficiently. A specifically designed computer application is used.

- Third level: Quality criteria (efficiency criteria) to apply to the protected area management in relation to ISO 9001/2000, ISO 14001/2004 and EMAS criteria. On this base, each Administrative Unit has its own indicators for quality management, which were created between 2003 and 2005. The indicators are designed to assess the efficiency of the different processes and are measured every six months or every year. Reporting began in 2006. Now, this system, designed for the third level assessment, is under review and some indicators for levels 1 and 2 are under development.

Finally, since 2004, there has been a permanent system to monitor the civic fulfilment of conditions included in impact assessment, authorizations, etc.

First and second levels would correspond with several elements of the WCPA Framework: Context, Planning, Inputs and Outputs. Third level would correspond to Process and Outputs. It is necessary to further consider Outcomes.

17.4 Objectives and application

The assessment covers the entire system of protected areas in Tenerife, Canary Islands, Spain, 42 protected areas in all, 98.910 hectares and divided into 7 categories.

The Cabildo is responsible for natural resources conservation, management and use; recreational and educational policies; and local development for the whole PA system. The Environment Division has created three kinds of Administrative Units:

- Territorial units: The island is divided into 7 territorial units. All of them have the same authority within their own territories (e.g. surveillance, building works, promotion of local development, wildlife conservation, recreational facilities), and every unit manages several protected areas together;
- Island units: They have powers over the whole island (e. g. Prevention and fight against forest fire, Biodiversity and Hunting, Environmental Education, Volunteering Office) in order to achieve an efficient management system of these policies, avoiding the allocation of superfluous resources and striving for good coordination; and
- Structural units: They manage resources for the whole system (e.g. Budget and Account Department, Contracts Unit, Planning Unit, Vehicles Unit).

Objectives of the evaluation system include:

First and second levels:

- To understand the implementation of protected area plans and take remedial action where necessary;
- Identify human, material and economic needs;
- Inform public opinion and to produce a feed-back in participative processes. This will result in the improvement of the investments based on public preferences and complaints;
- Achieve good policies in several subjects (wildlife conservation, surveillance, building works, promotion of local development, recreational facilities…);
- Control budgetary deviations;
- Understand the pressures from excessive development in each protected area;
- Report to the European Union on management activities carried out inside the NATURA 2000 Network; and
- Urge the Regional Government (the planning agency) to make more appropriate protected area plans in the future, and plans adapted to the funds and resources available in the Cabildo (the management agency).

Third level:

- Apply the same quality criteria to all protected area management, not only qualitative, but quantitative ones in a process of continuous improvement;
- Establish common procedures for all protected area managers;
- Know the efficiency of the different processes within the organization;
- Understand the budget distribution all over the protected area network in different issues and budgetary subjects;
- Compare performance across Administrative Units;
- Speed up administration processes and activities; and
- Understand the pressures from excessive development.

17.5 Origins

Management effectiveness assessment has been instituted to adhere to the laws of the Canary Islands on protected area management and conservation (Ley 19/2003, Directrices 16 y 18, and Decreto Legislativo 1/2000). Assessments also fit well with the

aims of the Planning, Technical Coordination and Management Control Unit, belonging to the Cabildo Insular de Insular de Tenerife, to develop a continuous process of improved performance, which is certified according to the International Standards Organisations (ISO) 9001/2000, ISO 14001/2004 and Eco-Management and Audit Scheme (EMAS) of European Union (an integrated quality system).

17.6 Strengths

- A great part of the work can be concentrated into one department: the Planning, Technical Coordination and Management Control Unit of the Environment Division.
- A great part of the work can be also developed by means of computer applications.
- The assessment has three scopes which covers all the needs: protected area management plans, Annual Work protected area Program, and Efficiency Indicators for all processes.
- The system enables assessment of each protected area and the whole system.
- The system has external and internal evaluators

17.7 Primary constraints and weaknesses

- The system requires different teams of staff involved to become fully aware of the need for assessments of management effectiveness and it is crucial that all the departments are very well coordinated by one authority. This is the only way to ensure full staff collaboration in the process.
- It is necessary to start with a better diagnosis of the protected area system in order to check outcomes properly.
- The system needs to be applied better with stakeholders in order to obtain a feed-back from them (better outcomes from the community).
- At this time, the system needs better and systematic methods to evaluate conservation state (of flora, fauna, geological resources, etc.), design adequacy, civic satisfaction, economic activity, etc.

17.8 How the methodology is implemented

The following steps are used in the assessment:

- Present the project to the protected area managers;
- Set up the working team;
- Design the indicators to be applied for the three assessment levels and the record cards for Level 1 (one card for each protected area plan) and for Level 2;
- Develop a pilot assessment in at least three different categories of protected area;
- Design the system;
- Set up the evaluation team;
- Data capture;
- Reporting;
- Analysis and feed-back measures; and
- Send the reports to the Regional Government.

17.9 Elements and indicators

The Environment Division of the Cabildo has three main scopes of authority over the protected area system in Tenerife:

- Natural resources conservation, management and use;
- Recreational and educational policies; and
- Local development.

There are three different ways (three kinds of processes) the administration applies these controls:

- Planning (all the plans and programs about protected area)
- Public works, management and services
- Legal control and security (authorisations, impact assessment, official reports, sanctions)

Indicators have been devised for all combinations of these (e.g. planning indicators for local development; legal control and security indicators for recreational and educational policies, and all the other different combinations). These indicators can be calculated for the whole protected area system or for each single protected area.

Some indicators are qualitative and their structure and measurement method are variable. But many of them are quantitative and their structure is always the same, as follows in this example:

Indicator (name)	Type of control	Measurement frequency	Historic data	Range		Unit responsible for measurement	Current state (e.g. December 2006)
				Min	Max		

Levels 1 and 2: protected area plan and Annual Work Program fulfilment
Each action included either into the protected area management plan or the Annual Work protected area Program is monitored under this framework:

Action	Current state	Starting date	Ending date	Planned cost	Total cost

The Planning Unit also compares quantitatively actions made with actions planned, and budgets spent with budgets planned, as follows:

Actions included into the pa management plan and budget balances	
Total actions balance	Actions made/Actions planned
	Budget spent/Budget planned
Actions balance for conservation, management and use of natural resources	Actions made/Actions planned
	Budget spent/Budget planned
Actions balance for recreational and educational policies	Actions made/Actions planned
	Budget spent/Budget planned
Actions balance for local development	Actions made/Actions planned
	Budget spent/Budget planned

Level 3: Efficiency indicators (Quality criteria for protected area management)

Planning indicators

Additionally, there are some indicators to evaluate the effectiveness of the fulfilment of these plans and other plans or programmes. These are indicators to apply to each protected area:

Planning indicators	
Conservation, management and use of natural resources	Budget for Conservation / Service Total Budget
	Funds invested / Hectare per year
Recreational and Educational policies	Budget for Recreational Policy / Service Total Budget
	Budget for Educational Policy / Service Total Budget
	Funds invested / Hectare per year
	Funds invested / visitor per year
Local development	Budget for Conservation / Service Total Budget
	Funds invested / Hectare per year
	Jobs created into the protected area per year

Legal Control and Security indicators

These indicators correspond to different procedures for which the Environment Division of the Cabildo is responsible. These procedures are authorizations, official reports, impact assessments and sanctions:

Legal control and security indicators
Number of cases processed per year
Number of urgent cases processed per year
Number of cases unsolved per year
Total average time for cases resolution
Average time for the characterization stage
Average time for the technical proposal stage
Number of complaints per year

Public works, management and services indicators

These are some indicators to evaluate the efficiency of the ordinary work in every administrative unit.

Public works, management and services indicators	
Conservation, management and use of natural resources	Number of injured animals cured and released in the Recovery Centre
	Number of trees and plants produced in nurseries
	Percentage of failures in reafforestation
	Number of partridges released for hunting
	Number of wild fires
	Number of wild fires in a year in comparison with last ten years
	Forest surface burnt
	Cost of fire extinction
	Average cost of vehicles and machinery repairing
	Average cost of vehicles and machinery maintenance
Recreational and Educational policies	Number of Educational campaigns
	Number of citizen who have been served in their questions
	Number of publications
	Number of educational material lendings
	Number of citizens who have used recreational facilities
	Kilometres of arranged and signposted footpaths
	Number of volunteers

17.10 Scoring and analysis

The staff responsible for each indicator must interpret each measurement or result, and propose measures to correct them accordingly to the planned objectives for each protected area.

METHODOLOGIES FROM LATIN AMERICAN AND THE CARRIBBEAN

18 TNC Parks in Peril Site Consolidation Scorecard

Prepared with assistance and comments from Angela Martin, The Nature Conservancy, amartin@tnc.org

18.1 Organisation

The Nature Conservancy (TNC) and the US Agency for International Development (USAID)

18.2 Primary reference

The Nature Conservancy. 2004. Measuring Success: The Parks in Peril Site Consolidation Scorecard Manual. Arlington, VA: The Nature Conservancy. 56 pp. <http://www.parksinperil.org/howwework/methods/scorecard.html>

18.3 Brief description of methodology

TNC established this monitoring tool for its program Parks in Peril (PiP) to understand the processes and capacities needed for the conservation of individual protected areas and to allow protected area managers to measure progress.

Parks in Peril focuses on strengthening conservation NGOs and agencies in countries where protected areas may have been designated on paper, but the realistic means for protecting them are lacking. Parks in Peril fosters the local support necessary for conserving protected areas using a process called 'site consolidation'. Site consolidation is the process of bringing together the resources necessary to support long-term conservation in specific protected areas. These resources include financial resources, technical resources, human resources, adequate infrastructure, a supportive local constituency, strong capacity for strategic planning, political support, and ecological information.

A consolidated site is one in which the institutions charged with its management have the tools to deal with current threats and management challenges, as well as the capacity to respond to threats that arise in the future. To manage this process, TNC developed the Parks in Peril Site Consolidation Scorecard. This tool helps site managers to set priorities for building conservation capacity, measure progress, and apply adaptive management to improve program efficiency and impact.

18.4 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ to raise awareness and support
- ✓ for accountability/ audit
- ✓ for prioritisation and resource allocation

18.5 Objectives and application

The Site Consolidation Scorecard was designed to measure the effectiveness of the investment in protected areas in the Parks in Peril program. It serves to:

- ➢ Set multi-year, life-of-project objectives for Parks in Peril sites using standard criteria across a portfolio of protected areas;

- Allow project managers to track progress towards site consolidation at specific protected areas over time;
- Allow Parks in Peril program managers to track advances across the entire program/ portfolio of protected areas;
- Enable TNC and USAID to recognize when the objectives of the Parks in Peril Program have been met at particular protected areas;
- Promote adaptive management by providing a planning and monitoring framework;
- Encourage accountability for performance;
- Raise awareness for systematic assessment of conservation capacity over time; and
- Attract future funding and technical resources by demonstrating documented excellence in conservation management.

The Parks in Peril program has operated in 40 countries in Latin America and the Caribbean region since 1990. The Scorecard has been used 271 times across 45 protected areas since 1997. It was revised in 2004, with

- Greater integration – elements are cross-referenced
- Vision-based consolidation (strategic planning first)
- Documentation section
- Site constituency section enhanced

The Scorecard is not designed to measure direct conservation impact or a protected area's success in reducing threats and conserving biodiversity. Instead, it measures processes that lead to site consolidation and the capacity for conservation of a given protected area. When properly developed and implemented, a site-specific monitoring plan, included as one of the 17 indicators, will provide an ongoing measure of conservation impact through changes in threat and biodiversity health indicators.

PiP employed the Site Consolidation Scorecard so that over the life of its investment in a site, managers could set goals that, if met, would create a sustainable conservation presence to conserve and protect the site into the foreseeable future. PiP's intensive investment in this site would be limited to this period; after this period, smaller investments by TNC, USAID or others might be necessary to generate specific products to aid management, but supplementing the development of basic management capacity would not be necessary (Martin and Rieger 2003).

The Scorecard approach has since been applied in protected areas outside the Parks in Peril program and has also been adapted by a number of other programs. It was recently adapted and used in a study to evaluate two protected areas in Austria and Germany (Pfleger 2007).

18.6 Origins

The Scorecard was developed based on experiences in the field between 1990 and 1997 (Martin and Rieger 2003). A tested and revised version was published in 1999, and further revision made for the version published in 2004. Another version is forthcoming in 2007 based on the latest work of the conservation community regarding protected area management effectiveness, lessons learned in the field, and mandates of the Convention on Biological Diversity's Program of Work on Protected Areas.

18.7 Strengths

The Scorecard has successfully provided assessment information for the Parks in Peril program's implementation in Latin America and the Caribbean. The methodology has been incorporated into many other evaluation methods. It is simple, intuitively sound, and has been able to show dramatic improvements in basic management requirements in many protected areas. Outcomes from its use are detailed by Martin and Rieger (2003).

18.8 Constraints and weaknesses

The Site Consolidation Scorecard should be used in conjunction with monitoring and evaluation tools, since it does not measure outcomes or impacts (i.e., changes in threat status and/or biodiversity health).

18.9 How the methodology is implemented

The methodology is implemented using a participatory process involving protected area managers and key stakeholders to facilitate communication and negotiation of management decisions. The steps are:

- Form a team of managers and key stakeholders
- Compile information, define and document baseline scores at beginning of project: Where are we now?
- Set targets, and define changes necessary to reach targets: Where do we want to be?
- Develop strategies: How will we get there?
- Revisit, adjust scores and targets annually: feedback loop for adaptive management

(Martin 2005)

The Site Consolidation Scorecard was designed to be used by a program with specific funding sources in order to sustain its use at protected areas over the short to medium term. It is used in conjunction with complementary tools (i.e., TNC's Conservation Action Planning to define outcomes and TNC's Institutional Self-Assessment (ISA) to marshal resources for project implementation) (Martin 2005).

As one of the first steps in the process, Scorecard users should define what changes in the protected area constitute each benchmark of the Scorecard. For example, Scorecard users should define at the *outset* the changes in infrastructure that will qualify for each of the five benchmark levels. What buildings and equipment are needed and where in order to qualify for a level of '4' within the indicator for infrastructure? This reduces subjectivity and assists development of site activities by making goals more explicit.

The Site Consolidation Scorecard should be accompanied with guidance and technical assistance for its application in order to maximize its effectiveness and improves quality control and consistency across protected areas.

While the Scorecard is designed to measure a protected area's progress towards consolidation, it is not designed to measure direct conservation impact or a protected area's success in reducing threats and conserving biodiversity. Instead, it measures *processes* that lead to the consolidation of a protected area and the *capacity* of a given site. When properly developed and implemented, a site-specific *monitoring plan*, included as one of the 17 indicators, will provide an ongoing measure of conservation impact through changes in threat and biodiversity health indicators.

18.10 Elements and indicators

The Scorecard separates the elements of a functioning protected area into four major categories:

- strategic planning;
- basic on-site protection;
- long-term financing; and
- a supportive local constituency for the protected area.

Within these categories, the Scorecard provides 17 indicators with which to measure consolidation.

Table 18: Indicators for Site Consolidation Scorecard methodology (2004 version)

Categories	indicators
A. Strategic Planning	1. Protected area zoning 2. Site-based long-term management plan 3. Science and information needs assessment 4. Monitoring plan development and implementation
B. Basic Protection Activities	1. Physical infrastructure for the protected area 2. On-site personnel 3. Training plan for on-site personnel 4. Land tenure issues within the protected area 5. Threats analysis for the protected area 6. Official declaration of protected area status within the protected area
C. Long-term Financing	1. Long-term financial plan for the protected area
D. Site Constituency	1. Broad-based management committee/technical advisory committee for the protected area 2. Community involvement in compatible resource use in the protected area 3. Stakeholder and constituency support for the protected area 4. Policy agenda development at national/regional/local levels for protected area 5. Environmental communication and education plans for the protected area 6. Institutional leadership for the protected area

18.11 Scoring and analysis

Each of the 17 Scorecard indicators is rated according to five benchmarks.

Each of the five benchmarks reflects a similar level of progress across all the indicators. The levels can be summarized roughly as follows:
5 =Excellent (proper management of the protected area ensured)
4 =Adequate (protected area is adequately managed for the most critical threats and highest priority conservation targets)
3 =Progress made (protected area becoming adequately managed, but still has progress to make)
2 =Work begun (little actual progress towards adequate management of the protected area)
1 =No work has been done (protected area not being managed)

As a general rule, a protected area that has achieved a score of '4' in all 17 indicators is considered consolidated. The specific circumstances of individual protected areas will vary, and it is the role of the portfolio's manager and in-country partners to determine the level of achievement for each indicator that best represents the consolidation of a given protected area. On a case-by-case basis, the portfolio's manager and the partners may decide that certain indicators do not apply to a given protected area; they may also decide that it will not be possible to boost every indicator to a level of '4' or greater. Ideally, this should be established at the beginning of the project, when baseline conditions are being determined (The Nature Conservancy Parks in Peril Program 2004).

18.12 Further reading and reports

Reports for protected areas in Latin America and the Caribbean and the Parks in Peril Site Consolidation methodology can be downloaded from http://www.parksinperil.org/resources/art18403.html.

19 PROARCA/CAPAS Scorecard Evaluation

19.1 Organisation

PROARCA/CAPAS (Central American Regional Environmental Project / Central America Protected Area System), TNC/IRG

19.2 Primary references

Courrau, J (1999) 'Strategy for monitoring the management of protected areas in Central America.' Programa Ambiental Regional para Centroamérica (PROARCA), Central American Protected Areas System (CAPAS), Comisión Centroamericana de Ambiente y Desarrollo (CCAD), United States Agency for International Development (USAID).

Corrales, Lenin. (2004c) Midiendo el éxito de las acciones en las áreas protegidas de Centroamérica: Medición de la Efectividad de Manejo. PROARCA/APM, Guatemala de la Asunción, Guatemala.

19.3 Purposes

- ✓ **to improve management (adaptive management)**

19.4 Brief description of methodology

According to its guidelines, the methodology should be simple, cheap, generate data in a short time, be applicable over the wide range of protected area types in the region and promote management excellence in protected areas (Izurieta 1997).

The methodology contains the following components:

1. a desired scenario for the protected area;
2. the agreed scope of the analysis;
3. the factors that should be addressed in the analysis;
4. criteria for each factor to be addressed; and
5. indicators for each criterion.

The achievement of the optimum scenario involves five stages of work, each of one year's duration.

The manual refers to the site (protected area) level but the method allows the association of the various protected areas in the region or in the country to give the results an interpretation in a more general context (Corrales 2004c).

19.5 Objectives and application

The system is designed to measure and help improve the quality of management, by comparing the results from the first monitoring session, which provides the baseline data, with the optimum scenario. Every six months thereafter, the results are compared against the scenario and the previous measurements in order to assess progress. Comparisons should be made of the same protected area over time; comparisons between and among protected areas are not considered appropriate, however, as the factors that influence their management differ so widely (Izurieta 2000b).

This methodology has been introduced, adapted and made official in all the countries in Central America. The national protected area offices prepare annual reports on the state of the areas based substantially on the results generated in monitoring sessions at site level. An overall report for Central America has also been produced.

19.6 Origins

This strategy was developed during a workshop organized and carried out in Tegucigalpa, Honduras, by PROARCA/CAPAS, in coordination with the Executive Secretariat of the Central American Council of Protected Areas and Forests (CCAB-AP). The 'scorecard' model used by the TNC Site Consolidation Scorecard contributed to the development of the methodology. The principal objective of the workshop was to develop a monitoring strategy for Central American protected areas. This tool should fulfil some basic requirements that were agreed upon at the beginning of the event. These requirements included: simplicity, low cost, short time necessary for generating data and that excellent management of protected areas would be promoted. Once it was validated in the field, it was adopted at the regional level as a monitoring strategy for Central American protected areas.

Development of a regional methodology to monitor protected area management in Central America started with the Tegucigalpa workshop and, based on this regional methodology, Costa Rica (1999), Honduras (2000), Guatemala (2001) Nicaragua (2001), Panama (2002) and El Salvador (2003) developed national versions of the methodology.

19.7 Strengths

The methodology is participatory and provides officials of the protected area and many other actors with an opportunity to learn about what has been happening, not only in the protected area but also within its zones of influence, and to coordinate action for the benefit of all concerned (Izurieta 2000b). The strategy has contributed enormously to the identification of optimum scenarios to be reached over a set period of years, although very few protected areas have yet achieved the optimum scenarios (Izurieta 2000b).

19.8 Constraints and weaknesses

The methodology does not strongly relate to protected area values. Outcome evaluation is weak, but the methodology can be complemented by other ways to evaluate outcomes in more detail.

19.9 How the methodology is implemented

The method is implemented through people scoring at a workshop. At first, it was intended to apply the same indicators to all pilot protected areas but experience has shown that there is a need to modify and/or include new indicators, according to the institutional and political realities and the unique management regimes.

The procedure requires initial training of the protected area managers and technical personnel in charge of protected area in the state level. The training sessions allow the evaluators to review each indicator to be monitored and to make sure that they were relevant to their protected area.

There are minimum requirements for the evaluation: 1) the protected area must have a management plan published and approved, with goals, objectives and activities. Protected areas which don't have a management plan yet must, at least, have their goals and objectives established; and 2) there must be a base line to start with the data collection to evaluate protected area management; it is recommended that the area is in operation for at least two years and count with basic equipment for its administration (Corrales 2004c).

The manual includes definitions and justifications for each indicator and also describes the background information required to arrive at a score. Although the question often

appears simple, the participants are asked to provide a lot of information to decide on the current scoring level – the methodology is 'evidence-based' where possible.

19.10 Elements and indicators

The methodology considers three levels of hierarchy. At the highest level, it defines five different scopes (*ámbitos*): social, administrative, resources (natural and cultural), policy/legal, and economic/financial. Each aspect is divided into a set of criteria. Each criterion is divided into a set of indicators.

The initial proposal of the methodology considered 32 indicators, but now they vary according to the national versions. The indicators are the most fundamental part of the evaluation and represent units of information which are measured through time to report changes in specific attributes (Corrales 2004c). PROARCA/CAPAS has identified some additional outcome indicators which should eventually be incorporated in the system, such as: changes in the population of the protected area key species; the presence of rare species; the behaviour, distribution and abundance of species; indicators of the integrity of ecosystems; changes in surface water; impact of global climatic changes; changes in air quality; changes in plant coverage; changes in human activities (Izurieta 2000b).

Table 19: Indicators for the PROARCA/CAPAS methodology

Scope	criteria	Indicator
Social	Communication	Evaluation of communication plan and its execution
	Participation	Participation of Interest Groups
	Information	PA tenure demarcation and information?
	Education planning	Plan of environmental education - planning, implementation and evaluation
Administration	Equipment and infrastructure	Suitable equipment for management
		Maintenance of Equipment - preparation and implementation of a maintenance plan
		Management infrastructure
		Infrastructure maintenance
		Visitor infrastructure and signage
	Personnel	Adequate staff for management
		Personnel trained and capable for management according to capacity plan
		Staff satisfaction with living and working conditions
		Program of volunteers - implementation and evaluation
	Planning	Plan of effective management and implementation
		Operation plan being implemented
		Internal management zoning
		Analysis of threats
Natural and cultural resources	Impact	Impacts of park uses on on the natural resources
	Protection	Plan of Control and Protection (Monitoring) of the protected area
		Impact of the Plan of Control and Protection (Monitoring) of the protected area
		Limits of the protected area declared and demarcated
	Knowledge	Research plan - existence, implementation and periodic implementation
		Systematization of the information
		Connectivity of the area evaluated and documented
		Indicator species Identified and studied
Political-legal	Legal framework	Application of the law
		Decentralization of administration of the protected area
Financial	Self-sufficiency	Plan for long term financing of the protected area
		Base funding
	Goods and services	Goods and services produced by the protected area are identified and valued
		Stakeholders are aware of goods and services
		Groups of interest receive benefits

19.11 Scoring and analysis

A method has been developed to allow the systematization of the results in a database, in the three different levels of hierarchy: indicator, criteria and scope and any of those can have their results assessed in the scales of protected area, protected area category, or system of protected area.

Each indicator is scored on a 1 to 5 scale, where
0 = 0% of the optimum condition (no progress towards effective management)
1 = 25% of the optimum condition
2 = 50% of the optimum condition
3 = 75% of the optimum condition
5 = 100% (the optimum condition)

The steps of the PROARCA/CAPAS methodology are described in the system's manual (Corrales 2004c), as follows:
Obtain the value for each indicator (1 to 5);

a) Obtain the value of each indicator based in a proposed scale of accomplishment (0 to 100%); and
b) Establish the relative weight UCG (Units of Management Quality) of each criteria component of each scope. The relative importance of each criterion is obtained from a subjective judgment. Within the criteria there are indicators, which will be valued according to their relative importance so each one of the indicators has their own UCG (for further details, see the system's manual).
c) Changes in the quality of management can be measured using the UCG obtained in two different evaluations. It is normally done in terms of percentage of change in the UCG, representing improvement or decrease in management quality, depending if the variation is negative or positive.

The management effectiveness is rated as follows:

Levels of Management	**UCG *(Units of Quality of Management)***	
Not acceptable	0	200
Barely acceptable	201	400
Regular	401	600
Acceptable	601	800
Satisfactory	801	1000

19.12 Further reading and reports

(Corrales 2004b; Courrau 1997; Courrau 1999; Izurieta 2000b)

20 WWF-CATIE

20.1 Organisation

Central American Office of WWF and the Agricultural Center of Tropical Investigation and Teaching (CATIE)

20.2 Primary reference

Cifuentes M, Izurieta, A and de Faria, H (2000a) 'Measuring protected area management effectiveness.' (WWF, GTZ, IUCN)

Cifuentes M, Izurieta, A and de Faria, H (2000b) 'Medición de la efectividad del manejo de areas protegidas.' (WWF,GTZ, IUCN)

20.3 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ for accountability/ audit

20.4 Brief description of methodology

The WWF-CATIE methodology is designed to measure protected area management effectiveness on three levels: individual protected areas, systems (or subsystems) of protected areas, and the performance of the protected area administration within its zones of influence. Indicators are chosen across a wide range of management elements concentrating on context, planning, inputs and processes. As the methodology was developed in the 1990s, the IUCN-WCPA Framework is not formally used. The concept used is to measure current status against a defined 'optimum' state. A lot of thought is put into making sure that these measures are consistent across different aspects of management.

'The methodology is neither static nor dogmatic. On the contrary, it has been prepared and validated visualizing a broad spectrum of management situations and categories, for which new indicators, adjusted to the reality of any particular protected area, can be incorporated and evaluated with the same basic tools' (Cifuentes *et al.* 2000a).

20.5 Objectives and application

The tool is designed to improve the management of protected areas in Central America, and to document progress made in management. It was designed to allow a general assessment of management, a comparison of the relative strengths of different aspects of management, and identification of specific aspects of management requiring further attention (Cifuentes *et al.* 2000a).

The methodology has been trialled in a number of parks but there is no record of widespread or repeat applications. However, its ideas have been adapted and incorporated into a number of other methodologies, such as those used in Ecuador.

20.6 Origins

The methodology was developed based on the work of de Faria (1993). The origins of the system are described in detail by Izurieta (2000a) and the following text is extracted from this reference.

‘The WWF/CATIE methodology grew out of several protected area planning exercises, which involved selecting and appraising key indicators for each category of management in a given country or region.’

‘The first study of effective management, undertaken by CATIE in 1993 (de Faria, 1993), under the direction of the WWF-Central American Office, involved a systematic and methodological selection of management indicators. (As part of an academic study) Faria carried out an extensive bibliographic review of the critical components and definitions for management of protected areas. He then developed a survey, which was sent to experts to determine the most important management indicators or variables. The indicators were grouped into management scopes (*ámbitos*): administrative, political, legal, planning, knowledge, present uses, management programmes, biographical characteristics and threats.’ (Izurieta 2000a)

‘The methodology was trialed in Costa Rica and the Galapagos and the procedure was validated in 1997, when it was used to evaluate the management effectiveness of a subsystem of protected areas in the Osa Conservation Area in southern Costa Rica (Izurieta, 1997). It was then applied in Guatemala and private protected areas in Latin America’ (Izurieta 2000a).

20.7 Strengths

The methodology is adaptable and is aimed at the real situations in protected areas. It can be used at several different levels. It was tested and adapted and has a strong academic/ scientific basis. Good guidance is given in the manual and a consistent scoring system is used.

20.8 Constraints and weaknesses

The methodology does not appear to relate to values or to measure outcomes of management. It is relatively complex, especially in the analysis phase. It has not been widely applied, partly because other methodologies developed at the same time were adopted through Central America.

20.9 How the methodology is implemented

The manual outlines steps for implementation of the methodology:

- Selecting the protected area/s to be evaluated;
- Selecting the core evaluation team and key actors from the community;
- Collecting primary and secondary information;
- Defining indicators and optimum scenarios;
- Conducting the evaluation;
- Calculating scores.

‘The evaluation should be carried out by the body in charge of the protected area through its technical, administrative and operation personnel with the active participation of key
actors from the communities surrounding the protected area’ (Cifuentes *et al.* 2000a).

20.10 Elements and indicators

The indicators are grouped into a series of ‘criteria’, each series of criteria are grouped within a series of "factors" and those factors are grouped within five ‘scopes’ (social, administrative, natural and cultural resources, political-legal, and economic-financial). The procedure has recently been modified so that the rating of each indicator is summed, with the percentage of the total optimum value calculated in a process similar to, but less developed than the de Faria procedure (Cifuentes *et al.* 2000a).

- Scopes are indicators of the highest level that reflect broad management activities, characteristics, context, or uses of a Protected Area.;
- Variables are indicators that describe the actions, activities or situations relative to a determined field;
- Sub-variables are indicators of certain specificity, focused on one action or situation relative to a determined variable;
- Parameters are the lowest indicators in the hierarchy and therefore are the most specific in the system, relative to a sub-variable and its respective variable.

The evaluation can include, eliminate or modify indicators according to the characteristics and requirements of each protected area.

Table 20: Indicators for the WWF-CATIE methodology

Scope	Variable	Sub-variable
Administrative	Personnel	• Administrator • Technical Personnel • Administrative Personnel • Operative Personnel • Capacity for additional contracting
	Finances	• Operation budget • Regularity of budget, preparation and delivery • Extraordinary and/or special funding • Capacity to manage own resources • Financial-accounting system (parameters in document)
	Organisation	• Files • Organizational chart • Internal communication • Structuring of activities
	Infrastructure	• Equipment and tools • Facilities for basic management • Facilities for specific management • Condition of facilities • Security of facilities • Boundary demarcation • Access
Policy	Community support and participation	
	Intra-institutional support	• Mother institution • PA system administration
	Inter-institutional support	
	External support	
Legal	Land tenure	• Domain/Possession • Conflicts
	Set of general laws and regulations	• Clarity • Application
	Law creating the PA	
Planning	PA management plan	• Plans exist and are up-to-date • Characteristics of the planning team • Plan implementation
	Compatibility of management plan with other plans and organizations	
	Annual Operation Plan	• Plans exist and are up-to-date • Plan implementation
	Level of Planning	
	Zoning	
	Boundaries	
Knowledge	Socio-economic information	Sub-variables for each variable could be defined depending on the level of available information
	Biophysical information	
	Cartographic information	
	Legal information	
	Research	

Scope	Variable	Sub-variable
	Monitoring and feedback	
	Traditional knowledge	
Management programs	Research	Each program is evaluated according to the following variables: • Design • Implementation • Co-ordination • Follow-up and evaluation
	Environmental education	
	Environmental interpretation	
	Protection	
	Maintenance	
	Outreach to the community	
Illegal uses	Timber extraction	
	Extraction of non-renewable natural resources	
	Extraction of flora and fauna	
	Vandalism of cultural resources	
	Squatting	
	Poaching	
	Agriculture and cattle ranching	
	Fishing	
	Recreation and tourism	
	Building of infrastructure	
Legal uses	Timber extraction	
	Extraction of mineral resources	
	Extraction of flora and fauna	
	Hunting	
	Agriculture and cattle ranching	
	Fishing	
	Recreation and tourism	
	Education	
	Building construction	
Biogeographical characteristics	Shape	
	Size	
	Isolation	
	Vulnerability	
Threats	Visitor impact	
	Pollution	
	Fires	
	Advance of human settlements	
	Migration	
	Exotic species	
	Natural disasters	
	Development infrastructure	
	Subversive political movements or violent conflicts	
	Drug trafficking and related issues	

20.11 Scoring and analysis

The rating scale adopted for the procedure has five rating levels (0-4) associated with a percentage weighting that expresses the level of management from unsatisfactory to very satisfactory (see below). The percentage weighting is adapted from the ISO 1004 standard, tested in the evaluation of quality of services offered by private and public enterprise.

Rating	% of optimum	Significance
0	<35	Unsatisfactory
1	36-50	Minimally satisfactory
2	51-75	Moderately satisfactory
3	76-90	Satisfactory
4	91-100	Very satisfactory

Definition of Scenarios

'To evaluate variables, sub-variables and parameters, an optimum management scenario must be defined for the protected area. This optimum scenario will be compared to the current situation in order to rate protected area functions. The optimum scenario refers to the optimum conditions for a protected area to develop its activities and achieve its management objectives. The current scenario is an "image" of the situation at the time of the evaluation.

The optimum scenario can be determined from the information contained in the management plan and other existing planning instruments. Because the plans frequently do not reflect reality, it is essential that the propositions contained in these documents are reviewed and complemented with information provided by those who know the protected area being evaluated. This ensures that the optimum scenario is an accurate reflection of the best feasible management' (Cifuentes *et al.* 2000a).

Calculating overall effectiveness – the matrix

The management effectiveness is based on analysis of the variables, with the indicators and parameters informing these ratings.

For each variable, and scope, the protected area is rated from unsatisfactory to very satisfactory based on the scale above.

Management effectiveness matrices and bar graphs can then be constructed to show which aspects of management are most in need of attention,. When the methodology is applied across a number of protected areas, the matrices and bar charts can also show relative needs of different protected areas.

21 ParksWatch Park Profiles

Written with Stéphane Pauquet, ParksWatch

21.1 Organisation

ParksWatch in cooperation with local partners

21.2 Primary reference

Website http://www.ParksWatch.org/main.php

21.3 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ to raise awareness and support

21.4 Brief description of methodology

ParksWatch conducts multi-disciplinary evaluations of the state of tropical parks based on an analysis of threats, local socioeconomic conditions, relationships with local, regional and national organizations, and management needs.

The ParksWatch (PW) questionnaire is a detailed survey form composed of approximately 600 questions focused on managerial aspects and pressures/threats to the protected area (considering both direct pressures and threats such as logging or poaching, and less tangible problems such as mismanagement of funds, future development projects, macroeconomic forces, etc). It thus provides both a comprehensive status and threat assessment of the park surveyed which forms the basis of the Park Profile published after each PW evaluation.

With the exception of Outcomes, this methodology covers all the elements of the IUCN-WCPA Framework (context, planning, inputs, process, and outputs). It is based on a scorecard system and structured according to four indices: Intrinsic Sensitivity, Consolidation, Human Pressures and Threats. It also provides a way to compute a composite rating as an indication on the protected area's overall vulnerability status.

In 2006 a GIS component was added to the ParksWatch methodology, in which conservation values are mapped against pressures and threats in order to determine the distribution of environmental conflicts and the geography of management needs across the protected area. Based on brief workshops with park personnel and key experts, this approach forms the basis of a continuous monitoring system, whose results will be accessible on the Web as interactive maps.

21.5 Objectives and application

ParksWatch works through partnerships with individuals and local organizations in seven Latin American countries (Mexico, Guatemala, Venezuela, Peru, Brazil, Bolivia and Argentina) to conduct on-the-ground evaluations of protected areas, assessing their levels of implementation and identifying threats. Results of each evaluation are compiled into cross-disciplinary diagnostic reports called 'Park Profiles'.

Each Park Profile prescribes actions to abate or remove the most serious threats and lists recommendations to improve each area's management. These reports are posted on

the ParksWatch website (www.ParksWatch.org) and printed copies provided to government agencies, conservation organizations, and other park management stakeholders.

Based on the results of their findings, ParksWatch partners undertake a variety of activities to support park management and raise awareness among conservation specialists and the general public. Such activities may include the organization of forums, meetings, and workshops or involvement in media campaigns, production of video documentaries and the publication of news articles in the local press.

In addition, ParksWatch has launched GreenVest, (www.greenvest.org) a program that seeks resources for the parks' most pressing logistical needs by means of an online donation system destined to three broad target audiences: citizens, institutional grantmakers and private businesses.

21.6 Origins

ParksWatch was created in 1999 as a program of Duke University's Center for Tropical Conservation to document the state of protected areas throughout the Tropics. There was very little information available about the values of and threats facing many of these parks.

21.7 Strengths

- Data are presented in a narrative format and illustrated with numerous pictures gathered by in-country partners during field visits – the communication of results is very good and easily available;
- The methodology is easy to apply, trustworthy, rapid and cost-effective;
- Park Profiles provide an insightful description of a protected area's conservation status; and
- It identifies the park's main threats in detail and prescribes recommendations to each of them based on expert advice.

21.8 Constraints and weaknesses

- Park Profiles up to the present were too long and detailed for those in search of quick facts and with no time or patience to process large reports – future publications will include three versions of each profile for all types of audiences, with maps and summary charts.
- It was designed for the Latin American context and may require some adaptations in order to be applied in other regions.
- The use of certain subjective criteria may introduce biases across countries and evaluators.

As a consequence of the objectives pursued at the time of its design, the ParksWatch questionnaire in its initial form did not permit an accurate measurement of trends at a given site. This methodology was indeed mainly conceived as a way to assess the conditions determining – or susceptible to determine – the failure or success of the protected areas evaluated, effectively the substance of PW Park Profiles. It was not an monitoring and evaluation (M&E) approach per se, but rather a preliminary step to the implementation of an M&E framework. The revamped version of the methodology (currently in progress) aims to correct these weaknesses and to implement continuous monitoring of selected indicators at the protected areas.

The methodology is not formally written up and published.

21.9 How the method is implemented

The evaluation process consists of:
Information gathering:

- Literature review
- Structured interviews
- Field data collection (2 to 4 weeks)
- Photographic and video documentation
- Collection of spatially explicit (GIS) data

The questionnaire is completed through both field observations and interviews with the park administration and other stakeholders, such as scientists, consultants, NGO workers, tourists, and local residents, so that the results contained in the final survey reflect the view of a broad respondent base.

Typical PW evaluations involve an average of 2-4 weeks of field work depending on accessibility, size and other features specific to each protected area, of which a significant part is dedicated to filling the survey form, which contains a large number of descriptive fields later used for the creation of the Park Profile. Sufficient and independent information will often imply the interview of a representative sample of the local stakeholder community (including park rangers from all districts), which generally involves field trips and extended stays in stations or communities within and around the park. Therefore, at present assessments are programmed to be conducted every 3-4 years.

Data analyses place a strong emphasis on determining the relationships between management capacity indicators (i.e. budget, staffing, equipment, institutional capacity) and observed trends in the conservation status of selected resources.

Further analyses are generally tailored to specific information needs and to PW's main target audiences (governments officers, NGO executives, donors, etc.). A systematic analysis of the PW database is currently underway, after which full access will be provided to PW's datasets via an online data query system.

Results of PW park evaluations are socialized through a variety of communication channels:

- Park Profiles (Web and print)
- News reports (Web)
- Press articles (print)
- In preparation: online database providing access to all PW raw data
- In preparation: RSS feeds and podcasts on individual protected areas

21.10 Elements and indicators

A long questionnaire is used to gather information – the following table summarizes the indicator groups.

Table 21: Indicators for the Parks Profile methodology (new version)

Category	Indicator
Identification	General administrative information
Characterization	Area and limits Management category Biogeography
Intrinsic Sensitivity	Size Maturity of ecosystems Genetic isolation Landscape diversity Number of threatened species Human footprint Resilience Watershed integrity Natural hazards / Climatic changes
Consolidation Index (similar to WWF/WB Tracking Tool)	Ownership Management agency PA objectives PA design Personnel (numbers and training) Personnel management Management infrastructure Management equipment Maintenance of equipment and facilities Budget Financial plan Financial security Management of Budget Management plan Annual operational plan Enforcement activities Controlling access and use Stakeholder engagement Education and awareness-raising PA boundary Zoning Legal status National policies PA regulations Judicial system response Knowledge on the PA Research Monitoring and evaluation Visitor facilities Fees
Human Pressure Index	Research, conservation and development projects Tourism Human settlements and invasions Hunting (legal hunting and poaching) Fishing (legal and illegal) Firewood Collection Non-Timber Forest Products (NTFP) Collection Agriculture Livestock raising Fires Logging Mining Oil exploration/extraction Infrastructure development Industrial activity Pollution Military activity Invasive species
Threat Index	Exposure to human influence Access to PA Transit Inside PA Legal conflicts Negative Political Interests Positive Strategic Importance Threats

21.11 Scoring and analysis

Information from the questionnaires is entered on the ParksWatch database. Descriptive reports with recommendations are written for each park and these are available on the internet.

Sub-indicators and indicators are rated according to a logarithmic scale (0-3) similar to that used in most scorecard-based methodologies (TNC Scorecard, Tracking Tool, RAPPAM, etc). When relevant, sub-indicators are subject to two measurements: Intensity and Extent.

Intensity is the more important measurement because it measures the gravity of human impacts on the park's resources. Regardless of the Extent value, if the Intensity score is 0, the impact is not significant. However, extent gives extremely important information that can be followed in order to see how the impact is evolving over time.

Each score has a specific descriptor, assembled in a logical framework meant to minimize the subjectivity inherent to human judgment.

Overall, data is used to rate the park according to a scale based on IUCN's system for classifying threatened species.

Score	Park Status	Description
0	**Currently not threatened**	The area has been evaluated and does not satisfy the criteria for any of the anterior categories. There is no evidence that gives reason to believe that the protected area will fail to protect and maintain biological diversity in the near future.
1	**Vulnerable**	There is a tangible risk that the protected area will fail to protect and maintain biological diversity in the medium term future. Monitoring is needed.
2	**Threatened**	There is a high risk that the protected area will fail to protect and maintain biological diversity in the near future. Remedial action is needed.
3	**Critically threatened**	The protected area is currently failing to protect and maintain biological diversity; or, there is an extremely high risk that the protected area will fail to protect and maintain biological diversity in the immediate future. Urgent solutions are needed.

21.12 Further reading and reports

All reports are available from the website http://www.ParksWatch.org/main.php

22 Rapid Evaluation of Management Effectiveness in Marine Protected Areas of Mesoamerica

22.1 Organisation

MBRS Mesoamerican Barrier Reef System Project; a World Bank, CCAD and Global Environment Facility Project.

PROARCA/APM, Protected Areas and Environmentally Sound Products components of the Regional Environmental Program for Central America, a USAID, CCAD and The Nature Conservancy project.

22.2 Primary references

Corrales L (2004a) 'Manual for the Rapid Evaluation of Management Effectiveness in Marine Protected Areas of Mesoamerica.' PROARCA/APM, USAID, TNC, Guatemala City, Guatemala.

Corrales L (2004b) 'Manual para la Evaluación Rápida de la Efectividad de Manejo en Áreas Protegidas Marinas de Mesoamérica.' PROARCA/APM, USAID, TNC, Guatemala City, Guatemala.

Website: http://www.mbrs.org.bz/dbdocs/tech/Effective.pdf

22.3 Purposes

✓ **to improve management (adaptive management**)

22.4 Brief description of methodology

The methodology consists of a scorecard, which measures indicators covering each element of the IUCN-WCPA Framework. It is designed to be a rapid tool. It also includes a framework for measuring outcomes, including ecological integrity, and this is a values-based section, which could be applied in depth if resources and information are available.

In addition to the core indicators, a set of additional recommended indicators is included. Indicators are rated on their ease of collection, so that assessors are better able to estimate which indicators they are able to include.

22.5 Objectives and application

The methodology is aimed to assist with adaptive management of marine protected areas.
'The purpose of this tool is to help marine-coastal protected area managers to determine the state of their administrative management. It is a short instrument which has the objective of making a rapid revision of the state of management effectiveness and makes it possible to improve protected area conservation and management.' (Corrales 2004a)

22.6 Origins

This instrument was developed on the basis of the recommendations and conclusions of the technicians' workshop on monitoring and evaluation of the National Systems of Protected Areas of Mexico, Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama, held in Guatemala City in February 2004, using as the basis the document "Recommendations of Methodologies for Management Effectiveness

Monitoring of Marine Protected Areas for Central America" originally proposed by PROARCA and developed and adopted by the countries in the Central American region, and the proposal "Management Effectiveness Measurement in Marine Protected Areas" of the WWF, IUCN, WCPA and NOAA.

According to Staub and Hatziolos (2004), the methodology was based on the Marine Park Score Card, methodologies of PROARCA and on the WCPA-Marine/WWF Management effectiveness Guidelines, and tailored to the field needs in the area..

22.7 Strengths

- The methodology is designed to be rapid, but is also adaptable according to the resources of the assessment agency.
- It has been specifically tailored for the region with participation of locally-based organisations, so is relevant.
- It is built on the IUCN-WCPA Framework and measures all the elements, but also addresses the major scopes of management. The matrix of elements and scopes means that the data can be analysed in a number of useful ways.

22.8 Constraints and weaknesses

The methodology assumes equal weighting to each indicator, which in effect elevates the governance indicators in importance by sheer volume. Weighting might be appropriate.

The purpose of this tool is to rapidly evaluate management effectiveness in a marine protected area based on certain reference data: it should not be used as a substitute for already existing, more elaborate and detailed tools.

22.9 How the methodology is implemented

The manual does not provide advice on implementing the system in the field.

22.10 Elements and indicators

All elements in the IUCN-WCPA Framework are measured, but are arranged according to major headings of socioeconomic, governance, and biophysical. Overall scores for each of these dimensions are calculated.

Table 22: Indicators for the Mesoamerican MPA methodology

Field	WCPA element	Indicator
Socioeconomic	Context	Employment depending on marine resources
		Practices and intensity of local use of marine resources
		State of service infrastructure
		Identification of stakeholders
	Process	Distribution of formal knowledge to the community
		Stakeholder participation
	Impacts	Practices and intensity of local use of marine resources
		Employment in activities related to marine resources
		Local actors leading MPA management
		Stakeholder group participation
Socioeconomic - recommended	Context	Identification of conflicts and resolution mechanisms
		Perception and appraisal of marine resources based on local culture
		Quality of life
	Process	Level of users' knowledge about human impacts on natural resources
		Users' understanding of regulations and standards
		Maintenance of sustainable use of natural, cultural and archaeological resources based on traditional use
	Impacts	Local perception of the state of marine resources
		International, national and local appraisal of non use

		Economic income related to products and services from the MPA
		Quality of life
		Added value of products and services from the MPA
		Condition of historical-cultural-archaeological sites
Governance	Context	Legal status
		Demarcation of limits
		Legal and administrative instruments which establish MPA regulations
		Identification of threats
	Planning	Compliance with area objectives
		Area management personnel
		Management Plan
		Operational Plan
		Environmental education program
		Communication program
		Long term funding plan
		Monitoring and evaluation program
		Control and surveillance program
	Inputs	Research program
		Budget
		Infrastructure
		Equipment
		Signs and/or labels
		Necessary personnel
		Trained personnel
		Volunteer program
	Process	Maintenance of infrastructure and equipment
		Mechanisms for registering illegal actions
	Results	Level of personnel satisfaction
		Implementation of the management plan
		Mechanism for obtaining income
	Impact	Level of social participation
Governance - recommended	Context	Integration of the MPA within a broader management framework for coastal zones
		Systematization of information
		Local, national and international acknowledgement
	Planning	Mechanisms for stakeholder group participation in the management process
		Promotion of institutional coordination mechanisms
	Process	Enforcement of the law
		Level of information dissemination for furthering the compliance of actors involved
	Results	Level of satisfaction of MPA stakeholder groups
	Impacts	Level of conflicts over the use of resources
		Illegal behaviour of users
		Recognition of the value of the areas
Biophysical	Impact	Climate
		Temperature
		Salinity
		Turbidity
		Inorganic dissolved nitrogen
		Coverage of hard corals
		Coverage of macro-algae
		Size and mortality of coral
		Abundance of focal fish species
		Density of seagrass shoots
		Density of mangrove stalks and pneumatophores
		Ecological attributes as listed for particular area

22.11 Scoring and analysis

Each indicator has five choices of responses, rated from one (no progress/ very little progress/ poor condition) to five (ideal condition).

For each of the evaluation elements in the protected area management cycle, the protected area receives a final score, which corresponds to the points obtained in each question, and this can be expressed as a percentage of the potential points. If add additional indicators proposed are used, potential additional points are added to the corresponding element.

23 Degree of Implementation and Vulnerability of Brazilian Federal Conservation Areas (WWF Brazil)

23.1 Organisation

WWF Brazil, in partnership with IBAMA (the Brazilian Federal Environmental Agency)

23.2 Primary reference

Lemos de Sá RM, Ferreira, LV, Buschbacher, R, Batmanian, G, Bensusan, NR and Lemos Costa, K (1999) 'Protected Areas or Endangered Spaces? WWF Report on the Degree of Implementation and the Vulnerability of Brazilian Federal Conservation Areas.' WWF Brazil.

23.3 Purposes

✓ **to assist in prioritisation or resource allocation**
✓ to improve management (adaptive management)
✓ for accountability/ audit
✓ to raise awareness and support

23.4 Brief description of methodology

This approach evaluated protected areas in Brazil according to two major themes: level of implementation and vulnerability. The analysis is based on responses of protected area managers (park heads) to a questionnaire composed of eight questions related to the protected area implementation and five questions about their degree of vulnerability (see indicators list). With the average levels of implementation and vulnerability, a risk matrix is built where the protected areas are placed into four groups (see Scoring and analysis), according to the level of overall risk, defined as the correlation between the extent of implementation and the vulnerability of the area. The greater the vulnerability and the lower the level of implementation, the higher the risk faced by the protected area in question. The risk matrix is proposed as a planning instrument that will help indicate priorities for the application of human and financial resources to Brazilian protected areas.

23.5 Objectives and application

The objective of the study was to assess the status of the Federal Protected Areas for Indirect Use (IUCN Category I), determine the scale of existing problems, and offer guidelines for the prioritization of actions to complete implementation and diminish the vulnerability of these protected areas (all federal areas more than six years old were evaluated).

The WWF report on the degree of vulnerability and implementation in Brazil's national parks and reserves is the first qualitative and quantitative assessment of the country's conservation areas. WWF worked with IBAMA (the Brazilian Federal Environment Agency) to develop the assessment methodology, which can be adopted by the Ministry of Environment in future studies on the status of federal parks and reserves. The method would also work well at the state and municipal level.

23.6 Origins

In 1998, WWF-Brazil prepared this methodology designed to meet the unique needs of Brazil. Due to concern about the deterioration of natural resources and biodiversity in

Brazil, WWF, together with IBAMA, set out to evaluate 86 protected areas, using a methodology that was simple and inexpensive to apply, would gather precise information, and would generate results quickly.

The project also aimed to call attention to the so-called 'paper parks', and to press the government to vote on, and pass a Bill to create a national system of protected areas (*Sistema Nacional de Áreas Protegidas* – SNUC). The bill had been in the House of Representatives since 1992, but had never been voted on (Lemos de Sá *et al.* 1999).

23.7 Strengths

Most of the items included in the questionnaire were quantitative, thus minimising opinions or subjective responses and consequently permitting a standardised analysis of the data collected.

The study was the first attempt of standardised analysis of the real situation in Brazil's federal protected area, generating data that could serve as guidelines for concrete action to conserve Brazil's biodiversity and assist monitoring of these protected areas if similar surveys are performed in future. The same methodology could also be used for state and municipal protected areas, thereby extending the scope of the study.

23.8 Constraints and weaknesses

This study does not consider relevant issues such as ecosystems representatives, protection of flagship or endangered species, and biodiversity patterns within the protected areas. The reason for it is that information is not uniformly available on these issues in all protected areas and could only be obtained by investing a large amount of time and resources to collect data systematically.

Several questions in the questionnaires had been left blank or filled in with the phrase 'no data' and complementary data had to be obtained from the protected area department (IBAMA) databases.

23.9 How the method is implemented

The methodology used in this study was the result of two workshops involving technical staff from WWF and IBAMA as well as invited specialists. The information in the report was collected in April 1998 by questioning the protected area supervisors. Some of the questions were answered with 'no data' and then IBAMA was asked to supply the information. It is important to note that some data supplied by the protected area supervisors conflicted with IBAMA's official data. Whenever this occurred, preference was given to the protected area supervisor's responses and only items left blank or filled in with the phrase 'no data' were supplemented.

23.10 Elements and indicators

The procedure identifies a total of 13 questions/indicators: 8 elements important for evaluating the level of implementation and 5 elements important for evaluating vulnerability.

Table 23: Indicators for Brazil MEE methodology

A . Implementation	Status of land tenure of the PA Existence of management tools Types of use of PA (inside the area) Percentage of financial resources required that were available for the PA in 1997 Percentage of total PA area requiring demarcation by survey monument that is not demarcated (excluding rivers and coastlines) Hired personnel as proportion of staffing requirements (from the federal institution or others) Availability of transportation and communication infrastructure (internal and external), including permanent equipment and consumable materials Infrastructure available (Ecological Stations and Biological Reserves: researcher accommodation, laboratory, multipurpose building – National Parks: visitor centre, trails, signposts – In common: administrative building)
B. Vulnerability	Degree of isolation of PA from surrounding natural habitat matrix: percent of natural vegetation cover in buffer zone, in a 10 km radius of the PA Percentage of degraded areas within the PA Illegal natural resources exploitation within the PA Predominant land use in the PA's buffer zone Occurrence of neighbouring development projects conflicting with PA objectives

23.11 Scoring and analysis

A. Responses: each question, except questions 2 and 3 (see note below), was rated from 0 to 4, where the optimum condition is 4, as follows:

(a) 4 points for response 1
(b) 3 points for response 2
(c) 2 points for response 3
(d) 1 point for response 4
(e) 0 for response 5

As questions 2 and 3 had 6 possible answers, the scoring scheme was as follows: 4 points for response 1; 3.17 points for response 2; 2.34 points for response 3; 1.51 points for response 4; 0.68 points for response 5; 0 points for response 6.

B. Implementation: the extent to which the protected area had been implemented was defined as the average score of the responses to questions 1 to 8, on scale from 0 to 4:
(a) precarious situation – 0 to 1.99
(b) minimum implementation – 2.0 to 2.99
(c) reasonable implementation – 3.0 to 4.0

C. Vulnerability: average of the responses to questions 9 to 13, as follows:
(a) low vulnerability – 0 to 1.99
(b) medium vulnerability – 2.0 to 2.9
(c) high vulnerability – 3.0 to 4.0

D. Risk: with the average levels of implementation and vulnerability, a risk analysis was carried out and a matrix was built where the protected area were placed into one of the four groups:
(a) extreme risk: precarious implementation and high vulnerability
(b) high risk: minimum or reasonable implementation and high vulnerability
(c) medium risk: PA with medium vulnerability that haven't been implemented
(d) normal risk: minimum or reasonable implementation and low to medium vulnerability

The *t* test was used to verify differences between mean scores on implementation and vulnerability and variance analysis was used to correlate: (1) the extent of the protected area against the Brazilian biomes; (2) implementation and vulnerability against the geographic region; and (3) the implementation against the region for the protected area open and closed to visitors.

24 AEMAPPS: Análisis de Efectividad de Manejo de Áreas Protegidas con Participación Social

Prepared with assistance and comments from Sandra Valenzuela
(svalenzuela@wwf.org.co)

24.1 Organisation/ Affiliation

Parques Nacionales Naturales de Colombia/WWF Colombia

24.2 Primary reference

Medina, M. (2005) Análisis de Efectividad del Manejo de Áreas Protegidas con Participación Social. Editorial WWF. Parques Nacionales Naturales de Colombia, Subdirección Técnica, WWF. Colombia.

Parques Nacionales Naturales, WWF Colombia. (2007) Informe Nacional de Resultados de la Metodología "Análisis de Efectividad del Manejo de Áreas Protegidas con Participación Social". Ciclos de Aplicación 2004 – 2006. Colombia.

24.3 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ for prioritisation and resource allocation
- ✓ to raise awareness and support

24.4 Brief description of methodology

The AEMAPPS is based on an evaluation of management planning, processes and outcomes with social participation. Indicators assess management in the short, medium and long term.

The AEMAPPS methodology consists of a questionnaire that looks at individual protected areas and cannot be used to compare parks. It has been used to develop priorities across parks and understand needs and gaps depending on 'parks types'. It is based on an evaluation of management planning, processes and outcomes with social participation. Indicators assess management in the short, medium and long term.

AEMAPPS is a methodology designed to support UAESPNN (the Colombian Park Management Agency), its field operations and other actors in protected area management, in the assessment of the processes of planning and implementation, and the verification of the fulfilment of objectives, desired outcomes and impacts, under the direction of the perspective of social participation in the conservation. Consolidation of the management processes should be achieved over time. The analysis is designed from a critical perspective that it tries, from a documented exercise of reflection, to include/understand the present management situation and to guide it towards the desired management situation. The system approaches the measurement of conservation objectives of by means of a socially legitimized process (Planning Group SUT - WWF 2004).

24.5 Objectives and application

The process seeks to create better opportunities for involvement and communication with Indigenous and Afro-Colombian communities. In addition, the methodology aims to include the assessment of outcomes obtained based on the participatory approach that the parks' agency is promoting. Over the time, the parks' agency can evaluate how

effective the involvement of key stakeholders was in achieving the conservation or ecological integrity of the protected area.

The methodology was trialled in one park in 2000, then applied in 90% of protected areas in 2004. It was repeated in all areas, including marine parks, in 2006 (WWF Colombia 2006). According to WWF (WWF Colombia 2006), the 2004 survey has resulted in improved management. From the evaluation of 44 parks in 2004, there is an appreciation of overall weaknesses and strengths of management and this has been an input to protected area management at national, regional and local scales (Cracco *et al.* 2006). The national strategy of monitoring and ecological integrity was developed based on the AEMAPPS of 2004.

The specific purposes of the methodology are:

1) to identify strengths and weaknesses;
2) to show management tendencies in the national level;
3) to define the basic lines of strategic, administrative and operation processes;
4) to incorporate monitoring and evaluation processes to the institutional culture of the National Natural Parks;
5) to update management plans; and
6) to analyse advances on management compared to the previous period evaluated.

After the first application, the methodology was improved and included different variables to analyse different protected areas context and a specific indicator to measure in the long term the overall ecological integrity of the park and to identify if the conservation targets included in the protected area are been preserved. The language was simplified to reduce the complexity and promote the broader public understanding.

24.6 Origins

AEMAPPS was developed by Parks Colombia and WWF in 2000, based on several other methods, especially the Tracking Tool. It was further updated on 2003, 2004 and 2005. It was tested several times – through a trial and error process. Once the draft was developed, it was applied in the protected areas. With comments from the participants the methodology was adjusted and modified to be applied again.

24.7 Strengths

- It has been internalized and institutionalized by the Colombian government.
- It acknowledges the three levels of SPNN. It is flexible and transparent.
- It includes variables of social participation and armed conflict.
- It differentiates between efficacy and efficiency with weighting percentiles for each variable that generate results in percentages of advance and the prioritisation of the weaknesses and strengths of the management according to the indicators.
- It covers the six elements of the IUCN-WCPA Framework and it can be applied with low cost (Cracco *et al.* 2006), among many other variables.
- The built-in excel tools for scoring, and analysis and presentation of results are simple to use but are very useful.

24.8 Constraints and weaknesses

- It needs to include a complementary methodology for the regional analyses.
- The language is too technical for the institution in general.
- There are information gaps that generate subjectivity in some cases Cracow 2006

24.9 How the methodology is implemented

For each score, comments and sources of information are recorded. With the AP work team each variable is analyzed, considering the management plan, and giving scores from 1 to 5, according to the management situation, with a justification in the observations' column. Some variables, e.g. administrative and coherence and synergy of the planning structure, require an analysis supported by matrixes. At the end of the procedure, a general analysis is made through graphs generated by the Excel workbook software.

24.10 Elements and indicators

Indicators are divided into three timeframes (short, medium, long term) and contribute to two indexes: efficiency and effectiveness. The indexes are based on indicators which assess the changes in management over time. Each indicator includes a set of variables to be measured according to different situations of the protected area.

Each variable represents a percentage of the indicator. In other words, each indicator and variable has a different 'weight' when compared (see information on scoring below).

Also included in the workbook are detailed worksheets to calculate the requirements versus actual resources for personnel and equipment and a survey on labour conditions and occupational standards and health, as well as support matrixes for certain variable of medium term planning. This is useful as all the information is embedded in the one file for future reference.

Table 24: Indicators for the AEMAPPS methodology (2006)

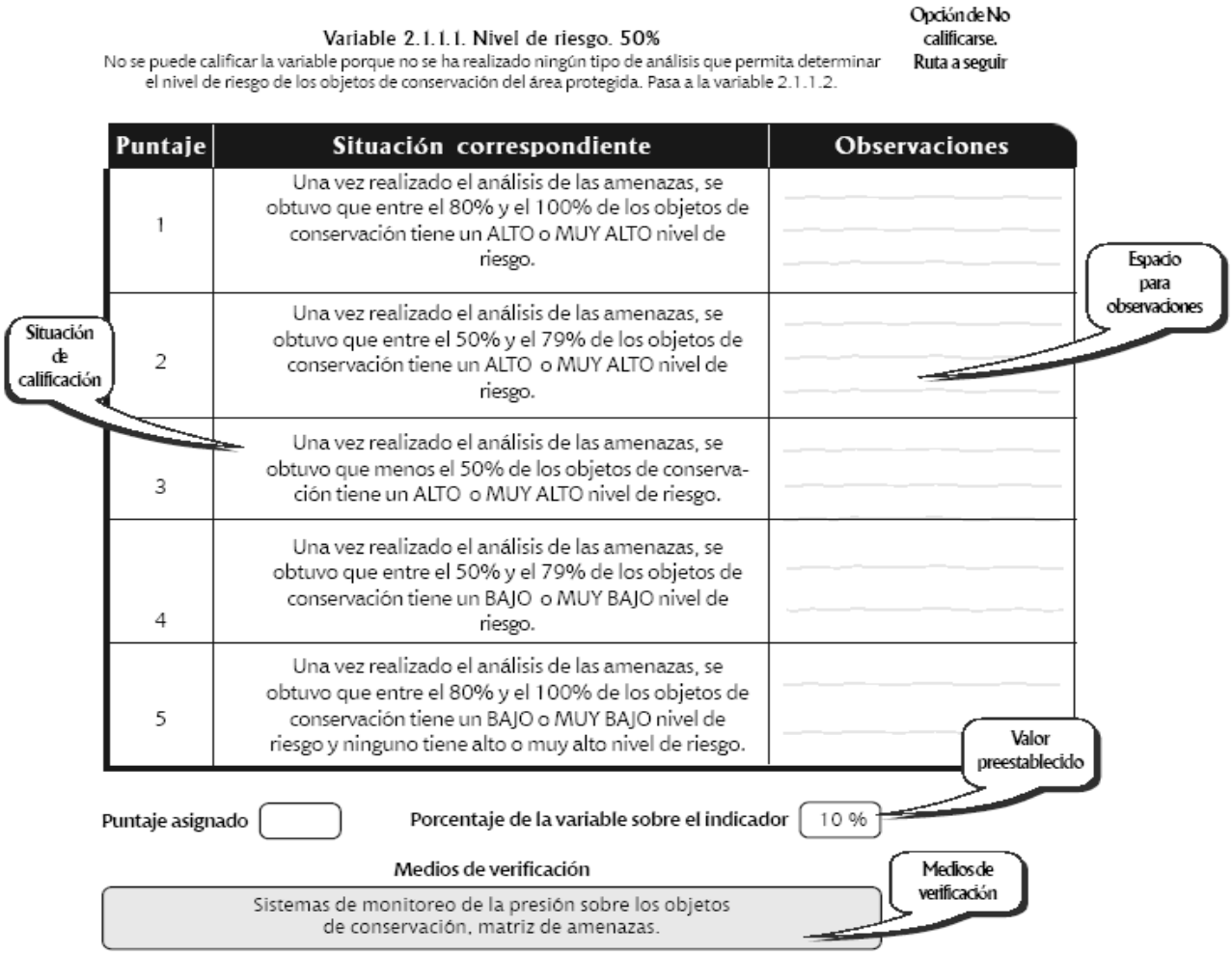
Index	Indicator	Variable
1. Long term effectiveness		
1.1. Long term effectiveness: level of achievement of the objectives of conservation of the PA	1.1.1. Status of the conservation targets	1.1.1.1. Status of conservation of the conservation targets regarding biodiversity, goods and services and culture
		1.1.1.2. Level of conversion of the ecosystems, habitats or land cover within the PA
2. Medium term effectiveness		
2.1. Effectiveness in the medium term: potential of management of the PA	2.1.1. Favourability of the management situation	2.1.1.1. Level of risk
		2.1.1.2. Level of possibility of success
	2.1.2. Degree of social legitimacy	2.1.2.1. Social recognition of the objectives of conservation
		2.1.2.2. Social recognition of the public function of conservation of the responsible authorities
		2.1.2.3. Social recognition of the existence of the PA as a figure of public protection
		2.1.2.4. Cultural meaning of the PA or of some of its values
	2.1.3. Level of coherence between the objectives of conservation and the characteristics of the PA, by itself and in a regional context	2.1.3.1. Coherence between the design of the PA and the objectives of conservation
		2.1.3.2. Complementarities between the objectives of conservation of the PA and the design of the regional system of PA
		2.1.3.3. Complementarities between the objectives of conservation and the other areas of the UAESPNN
2.2. Medium term efficiency: quality of the strategic planning	2.2.1. Quality of the diagnostic of the current situation	2.2.1.1. Advance in the diagnostic of the current situation
		2.2.1.2. Coordination with social processes
		2.2.1.3. Updating of the diagnostic of the current situation

Index	Indicator	Variable
		2.2.1.4. Coverage of the current situation diagnostic
	2.2.2. Quality of the management strategies	2.2.2.1. Advance of the zoning processes
		2.2.2.2. Level of intervention of the PA management in the conservation of the conservation targets
		2.2.2.3. Coherence and synergy of the planning structure
		2.2.2.4. Coordination with social processes
		2.2.2.5. Continuity of the strategies
		2.2.2.6. Coverage of the strategies
		2.2.2.7. Plan of financial sustainability
		2.2.2.8. Agreements protocol
3. short term effectiveness		
3.1.Short term efficacy: level of governance	3.1.1. Area in which a effective control takes place	3.1.1.1. Percentage of the PA managed by some responsible authority
		3.1.1.2. Degree of coordination between responsible authorities for control activities in the PA and the buffer zone
		3.1.1.3. Degree of accomplishment of the land uses defined in the management zoning
		3.1.1.4. Degree of accomplishment of the regulation of the activities of the PA research, ecotourism...
		3.1.1.5. Degree in which the PA and its buffer zone is affected by armed conflict
3.2.Short term efficiency: quality of the operation management	3.2.1. Quality of the operation planning	3.2.1.1. Advances in the operation planning
		3.2.1.2. Coherence of the operation plan in relation to the management objectives
		3.2.1.3. Coherence of the work plans in relation to the operation plan
		3.2.1.4. Coordination of the operation plan formulation with social processes
		3.2.1.5. Coverage of the operation plan
	3.2.2. Quality of the processes of implementation	3.2.2.1. Accomplishment of the goals of the operation plan
		3.2.2.2. Coordination with social processes during the execution
	3.2.3. Quality of the monitoring processes	3.2.3.1. Advances in the monitoring processes
		3.2.3.2. Coordination of the monitoring with social processes
		3.2.3.3. Continuity of the monitoring processes
		3.2.3.4. Coverage of the monitoring
		3.2.3.5. Feedback of the monitoring to the programming
	3.2.4. Quality of the monitoring of management	3.2.4.1. Inputs to the operation plan by the 'UAESPNN' and the social and institutional interest groups
		3.2.4.2. Periodicity of the monitoring of work plans
		3.2.4.3. Coordination of the monitoring with social processes
		3.2.4.4. Inputs of the monitoring to the planning processes
	3.2.5. Quality of the administrative processes	3.2.5.1. Status of the material and financial resources
		3.2.5.2. Resources and projects management
		3.2.5.3. Human resources management
		3.2.5.4. Status of the human resources

24.11 Scoring and analysis

Scoring range for each variable is 1-5, where 1 is a very low score and 5 is a desirable situation. A description of 'corresponding situation' for the scores is supplied for each variable. Scores for the variables are weighted and then added to produce the score for the indicator. The percentage of the possible score is calculated, and the score is rated as very low, low, medium, high or excellent (see the diagrams below).

The indicators are then weighted and added to calculate a score and percentage of possible score for the index, and the process is repeated to assess the overall performance in the long-term, medium term and short term. A matrix of prioritisation of management necessities is calculated, allocating priorities of very high, high, medium and low to a range of action related to each indicator.



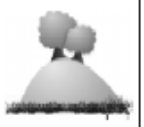
Rango	Significado	
1 – 1.7	La situación de manejo es MUY POCO FAVORABLE y tiende a empeorar en el corto plazo. Está en serio peligro la viabilidad de la misión de conservación del área protegida. Urge actualizar el análisis del contexto y redireccionar las estrategias de manejo.	
1.8 – 2.5	La situación de manejo es POCO FAVORABLE y tiende a empeorar en el corto plazo. Está en peligro la viabilidad de la misión de conservación. Urge revisar el análisis del contexto y redireccionar las estrategias de manejo.	
2.6 – 3.3	La situación de manejo es MEDIANAMENTE FAVORABLE. Si no se toman correctivos a partir del análisis del contexto para el ajuste y realimentación de estrategias, se pondrá en peligro la viabilidad de la misión de conservación del área protegida.	
3.4 – 4.1	La situación de manejo es FAVORABLE. Se debe mantener actualizado el análisis del contexto y el ajuste y realimentación de estrategias para tener cada vez mejores niveles de favorabilidad de la situación de manejo.	
4.2 – 5	La situación de manejo es ALTAMENTE FAVORABLE. Se debe mantener actualizado el análisis del contexto y la realimentación de estrategias para conservar los niveles de favorabilidad de la situación de manejo.	

Tabla de ponderación del índice de eficacia a mediano plazo

2.1. Potencial de manejo del área protegida

Número y nombre del índice

Número del indicador

Indicador	Puntaje	Relación Porcentual		Valor del puntaje total	% Total
2.1.1		30%			
2.1.2		50%			
2.1.3		20%			

Puntaje del indicador

Relación porcentual de la variable sobre el índice

Figure 9: Example of the scoring and weighting system – AEMAPPS (Planning Group SUT - WWF 2004)

25 Ecuador MEE: Indicadores para el Monitoreo y Evaluación del Manejo de las Áreas Naturales

25.1 Organisation/ Affiliation

Instituto Equatoriano Florestal y de Areas Naturales y Vida Silvestre (Ecuador Institute of Forest, Natural Areas and Wildlife).

25.2 Primary reference

Valarezo V., Andrade R., Díaz R., Celleri Y., Gómez, J. (1999) Informe sobre la Evaluación de la Eficiencia de Manejo del Sistema Nacional de Áreas Naturales Protegidas del Ecuador. Instituto Ecuatoriano Forestal y de Áreas Naturales y Vida Silvestre. Dirección Nacional de Áreas Naturales y Vida Silvestre/Proyecto de Protección de la Biodiversidad. Unidad Técnica de Planificación para Áreas Naturales Protegidas. Quito, Ecuador.

25.3 Purposes

✓ **for accountability/ audit (internal)**

25.4 Brief description of methodology

The methodology was developed to evaluate the management of Ecuador's national system of protected areas (SNAP), according to the objectives, legislation and regulations in the country. Themes, variables and parameters were adjusted to suit the country's conditions, and the indicators were grouped in three major areas: required resources, products achieved in the administration, and compliance of objectives, which allowed the introduction of the concepts of efficiency and efficacy.

Each aspect comprises several themes:

- Required resources: organization, cognition, knowledge, political, economic and technical-administrative
- Products achieved: ordering of the SNAP, organization, protected area protection, participation in the management and benefits and self-management.
- Compliance of objectives: according to the national conservation objectives establish in the strategy for the SNAP Ecuador.

Every theme has variables and every variable has indicators, so the methodology comprises four levels of organization.

The methodology encourages the involvement of all sectors related to the protected area management and the identification of key actors and informants through a thorough process to ensure the information is impartial and reliable.

25.5 Objectives and application

The methodology was developed for Ecuador, with the objectives to identify the degree of compliance to the objectives and actions planned on the 1976 and 1989 Conservation Strategies and to understand the status of the SNAP administration as a basis to define the actions of the new Strategic Plan of the SNAP.

The methodology was applied in 1999 to 24 protected areas in Ecuador.

25.6 Origins

The methodology was adapted from the methodology developed by de Faria (1993), Izurieta (1997) and the Manual for Assessing Management Effectiveness of the National Park of Galapagos (Cayot & Cruz 1997).

25.7 Strengths

The methodology encourages the involvement of all sectors related to the protected area management and the identification of key actors and informants through a thorough process to ensure the information is impartial and reliable (Valarezo *et al.* 1999).

25.8 How the methodology is implemented

Valarezo (1999) recommends that follow-up is needed to further improve the methodology and to establish ways to verify information through automatic systems and other available tools such as Geographic Information Systems. He also recommends that the monitoring should be done periodically and should involve all interest groups.

25.9 Elements and indicators

Every theme has variables and every variable has indicators, so the methodology comprises four levels of organization. In Valarezo *et al.* (1999), Annex 1, there is list of 11 themes, with a total of 33 variables and 124 indicators.

25.10 Scoring and analysis

The score varies from 0 (absence or deficiency) to 4 (optimal condition) for each indicator, with the following percentages:

Level 1	0 to 30%;
Level 2	31 to 50%
Level 3	51 to 70%
Level 4	71 to 90%
Level 5	91 to 100%

26 Manual para la evaluación de la Eficiencia de Manejo del Parque Nacional Galápagos – SPNG

26.1 Organisation/ Affiliation

Servicio Parque Nacional Galápagos – SPNG (Galapagos National Park Service)

26.2 Primary reference

Velásquez M, Guerrero, P and Villegas, T (2004) 'Parque Nacional Galápagos. Evaluación de la Efectividad del Manejo (1996-2004).' Ministerio del Ambiente, Parque Nacional Galápagos.

Cayot,L and Cruz,F (1998). Manual para la evaluación de la Eficiencia de Manejo del Parque Nacional Galápagos. Servicio Parque Nacional Galápagos. Instituto Ecuatoriano Forestal y de Áreas Naturales y Vida Silvestre. Puerto Ayora, Islas Galápagos.

26.3 Purposes

✓ **to improve management (adaptive management)**

26.4 Brief description of methodology

The methodology used in the Galapagos in 2004 uses a matrix developed from the WWF-CATIE methodology for the first evaluation of the Galapagos (Cayot and Cruz 1998), which was adapted to include variables, sub-variables and indicators of ecological, social and economical integrity, in order to follow the IUCN-WCPA Framework. New indicators were included and others were adapted from other places they have been applied, such as those used by Cifuentes *et al*. (2000a) and Courrau (1999). The methodology was also improved to incorporate workshops with the community and park's users, instead of only interviews with the members of the community (Velásquez *et al.* 2004).

26.5 Objectives and application

The evaluation methodology was used as a first step for the revision of the Galapagos National Park's (GNP) management plan in 1995, as well as to strengthen the technical-administrative management processes of the protected area and to obtain feedback with community participation. It was then used to evaluate the implementation of management between 1996 and 2004.

In the report of the 1996-2004 evaluation, Velazquez *et al*.(2004) highlights the following objectives:
1) to know if the GNP management objectives have been reached;
2) to identify and external and internal factors which interfere with the management capacity of the park's team;
3) to improve planning and connectivity of the projects and the protected area in general;
4) to provide the needed inputs to the GNP's adaptive management;
5) to elaborate a key tool for the park's accountability enabling transparency for the community, the authorities and other interest groups.

26.6 Origins

'The de Faria method was used successfully in the Galapagos National Park in 1995, as a preliminary step to revising the park's management plan' (Cayot et al., 1998). The general procedure was administered in its entirety, including the establishment of new indicators and modification of the originals, tailored to the conditions and intrinsic needs of Galapagos National Park and including the participation of key actors from the community in the park evaluation process. The macro-indicators (fields) evaluated in the Galapagos National Park were: bio-geographic, legal, political, administrative and planning characteristics, knowledge, management programs, threats, and current illegal and legal uses' (Cifuentes *et al.*, 2000).

Before its application in the Galapagos, the de Faria methodology was further developed to broaden the variables to be evaluates and building a system capable of involving the local interest groups of the province (Cayot & Cruz, 1998).

The park's second evaluation (1996-2004) applied a methodology resulting from the revision and compilation of three different methodologies: Cayot y Cruz, 1998; Courrau, 1999; Cifuentes, 2000; and Hockings, 2000 (Velasquez *et al.*, 2004).

26.7 How the method is implemented

The procedures to evaluate the management effectiveness include the following steps:
1) establishment of a technical team;
2) revision and adaptation of the themes, variables, sub-variables and weighting criteria;
3) information collection;
4) evaluation of the themes, variables and sub-variables by the technical team;
5) application and evaluation of the questionnaires to the groups of interest/communities;
6) comparison of the results of the technical team evaluation with the results of the community questionnaires;
7) interpretation of the results; and
8) application of the results in the protected area planning process.

26.8 Elements and indicators

To reflect discussions in the Vth World Parks Congress, variables, sub-variables and indicators were included to reflect ecological integrity, and social and economic factors. Scopes of evaluation were:

1. Biophysical
2. Legal
3. Governance
4. Social
5. Knowledge
6. Administration
7. Planning
8. Management Programs
9. Threats
10. Legal Uses
11. Illegal Uses

See (Velásquez *et al.* 2004)) for the complete list of variables, sub-variables and indicators and the rating system.

26.9 Scoring and analysis

The evaluation of each variable, sub-variable and indicator results in a score, which allows rating management according to the following scale, based on the ISO 10004 used by de Faria:
Value 4: 90-100% of accomplishment (very satisfactory)
Value 3: 76-89% of accomplishment (satisfactory)
Value 2: 51-74% of accomplishment (moderately satisfactory)
Value 1: 36-50% of accomplishment (less satisfactory)
Value 0: 0-35% of accomplishment (unsatisfactory)

27 Monitoring and Assessment with Relevant Indicators of Protected Areas of the Guianas (MARIPA-G)

27.1 Organisation/ Affiliation

WWF Guianas

27.2 Primary reference

Courrau, José. (2005) Monitoring and Assessment with Relevant Indicators of Protected Area of the The Guianas MARIPA-G. Guianas Forests & Environmental Conservation Project WWF-GUIANAS. 66 pages.

27.3 Purposes

✓**to improve management (adaptive management)**

27.4 Brief description of methodology

The system was designed by adapting the PROARCA/CAPAS model to be applicable and relevant in the Guianas. It works by first selecting indicators and defining an optimum level for each, then scoring the current situation against the optimal.

The site level assessment system generated as a product of a workshop (see below) contains the following components: the desired scenario for the protected area, scopes of analysis and the indicators for each scope.

The MARIPA-G indicators have been developed to represent the six components of the IUCN-WCPA Framework.

27.5 Objectives and application

There are no records of the application of the system at this time except for a trial in Iwokrama in 2005, but Courrau makes the following recommendation for its implementation:

a. Field tests of the management effectiveness assessment process in all the countries;
b. Define the periodicity of implementation of the management effectiveness system in each country;
c. Seek official recognition for the protected area management effectiveness tool (MARIPA-G) for each country;
d. Proceed with management effectiveness assessments in a set of pilot sites or all sites in each country, whichever is considered more appropriate;
e. In order to assess biodiversity outcomes and ecological integrity, develop standardized protocols for biodiversity monitoring and ecological integrity assessments across the Guiana shield; and
f. Incorporate results from assessments into the protected area management.

27.6 Origins

The methodology is based on the PROARCA/CAPAS initiative which began in Central America. This version of the system was reviewed, analysed and improved by many people, especially officials from the protected areas of the Guianas, during workshops organized and carried out in Cayenne, French Guiana (April 23-25, 2003); Paramaribo, Suriname (May 4-6, 2004); and Iwokrama, Guyana (March 1-6, 2005), by the Guianas Forests & Environmental Conservation Project, managed by the WWF-GUIANAS.

27.7 Strengths

The system was designed to be simple, applicable and affordable. It is also participatory and was produced through workshops with relevant people to be locally relevant. The matrix of WCPA elements and dimensions of management would make flexible analysis possible.

27.8 Primary constraints and weaknesses

The methodology needs more field testing and adaptation.

The scoring needs to be more structured.

Feedback from the field was concerned that the methodology '… is time consuming, as there are 86 indicators to evaluate and each requires supporting evidence, which also has to be verified. There is a cost involved in conducting the assessment, however, this may be relative to the PA size and budget. Apart from the time staff would have to invest in conducting the assessment, the verification exercise would incur cost. The exercise would require site visits, social surveys carried out by independent consultants, meetings with key stakeholders, and preparation of plans (management, business, education, etc.)' (Indarjit Ramdass, *pers. comm.* 2007).

27.9 How the methodology is implemented

The methodology starts with the definition of an optimum scenario for the protected area. During the optimum scenario session each one of the indicators is reviewed and consensus is reached among stakeholders to assign the level of each indicator to each of the years of the period of time of the optimum scenario. In order to be able to determine the level of each indicator for each year is necessary to detail what each indicator level means for the protected area. Ideally, this exercise would be comprised of a work session involving all stakeholders who participate in the management, planning and decision-making of the protected area.

Generally, protected areas with a good quality management plan already have a good projection of what is needed to accomplish their objectives in a mid-term period, or at least have a source of information to build their optimum scenario. However, many protected areas do not have management plans or any other source of mid-term management planning. Therefore, once the management effectiveness team of the protected area has defined the level of compliance of all the indicators (baseline or first assessment), it is necessary to carry out an exercise in which the optimum scenario is defined.

It is highly recommended that the protected areas have a permanent management effectiveness team. This team will be in charge of organizing the management effectiveness sessions as well as ensuring that the protected area has the necessary evidence for reviewing each indicator and providing the necessary follow-up for the results of each measurement.

27.10 Elements and indicators

The indicators are organised in the five scopes of the PROARCA/CAPAS methodology: administrative and operation, social, natural and cultural resources, political-legal and economic-financial. Each one of those has indicators defined in the system's manual. The manual also provides details of how each indicator should be measured.

Table 25: Indicators for the MARIPA-G methodology

Scope	Indicator
The Political-Legal Scope	Legal status of the protected area
	Compliance of the law associated to the protected area
	Commitment and Support of Authorities
	Customary Law into Account in the Regulations of the Protected Area
	Compliance with the national policy guidelines on protected areas management
The Administrative and Operation Scope	Internal access for the management of the protected area
	Equipment for the management of the protected area (ideal)
	Equipment maintenance and operation of the protected area
	Physical infrastructures for the management of the protected area
	Maintenance and operation of the installations of the protected area
	Appropriate signs in the protected area
	Indicator: Personnel necessary for the management of the protected area
	Protected area with a training program
	Personnel trained for the management of the protected area - version 1
	Personnel trained for the management of the protected area - version 2
	Level of satisfaction of the personnel of the protected area
	Personnel rotation in the protected area
	Type of contract of core staff
	Local community representation in the staff and the management team
	Volunteers and internship in the protected area
	Management plan for the protected area
	Operational plan for the protected area
	Management Effectiveness Assessments Implemented and Incorporated into the Management of the Protected Area
	Protected area zoned to enable park management
	Threat analysis prepared for the protected area
	Safety and operational guidelines and standards
	Accident and emergency evacuation plan
The Social Scope	Protected area with a communications plan (or program)
	Environmental education plan (or program) of the protected area
	Stakeholder analysis
	Stakeholders satisfaction
	Participation of stakeholders in the in the decision-making concerning the management of the protected area
	Participation of local stakeholders in the Field Management of the Protected Area
	Information on Land tenure within the protected area
	Satisfaction of the visitor to the protected area
Sub-Scope: Local Populations	Impact of the Protected Area on Population Dynamics
	Taking the Use of Natural Resources within the Protected Area into Account in the management plan in order to ensure to local population their traditional way of life
	Impact of the Protected Area on the Transmission of Knowledge
	Impact of the Protected Area on Employment and Income for Local Populations
	Increased well-being accrue to local communities
	Local community empowered to manage resources outside of protected area
	Training and Education Carried Out within the Framework of the Protected Area
	Taking the Gender Division of Labour into Account in the Management of the Protected Area
	Taking Cultural Heritage into Account: Material Culture (Architecture, Archaeology) and Oral Memory
	Role of the Protected Area in the Integration of Local Communities in the Surrounding Environment and Role of Civil Society
	Impact of the Protected Area on Commercial Activity and Indirect Income
	Role of Protected Area in supporting Health Programs for AIDS, Malaria, Alcoholism, etc.
	User Compliance with Regulations
	Role of Protected Area in supporting Leisure and Recreational Activities for Visitors and Local Populations
	Impact of the Protected Area on Social Structures
	Impact of the Protected Area on Conflict Management

	How the Protected Area is Perceived by the Local Populations
	Impact of the Protected Area on helping local people to make choices on their future and their Access to Consumer Goods and Services
	Role of the Protected Area in Intercultural Relations between Communities
	Positive activities impacts on communities related to the protected area
	Negative activities impacts on communities related to the protected area
The Natural and Cultural Resources Scope	Types of activities compatibles with the protected area
	Types of activities incompatibles with the protected
	Positive activities impact on the natural resources of the protected area
	Negative impact on the natural resources of the protected area
	Impacts of activities which are external to protected area
	The impact of human activities on the protected area's ecology
	An adequate research program for the protected area
	Research with regulation and follow-up
	Gathering and sharing systematic information on the protected area
	The protected area values (focal management targets) are assessed and monitored
	Physical connections of protected areas are evaluated and documented
	Baseline data of biotic and abiotic components of the protected area systems are available
	Water pollution factors and indicators
	Maintenance of Ecological Integrity
	Buffer zone identified and demarcated
	Student Accommodation and Training Capacity
	Buffer zone management plan
The Political-Legal Scope	Law enforcement plan for the protected area
	Effectiveness of the protected area's law enforcement plan
	Administrative authority of the protected area
	Institutional Framework
	Appropriateness and adequacy of legislation of the protected area
	Co-management agreement of the protected area
	Boundaries of the protected area are declared and demarcated
The Economic-Financial Scope	Long-term financing plan and financial mechanism of the protected area
	Availability of generated funds
	Area with goods and services, amenities, identified and valued
	Stakeholders recognize and appreciate goods and services of the protected area
	Stakeholders receive benefits
	Marketing Plan of the protected area

27.11 Scoring and analysis

Each indicator is measured in a scale of accomplishment and scored from five (5= ideal situation) to one (1= lower level of accomplishment), as in the PROARCA methodology. To each one of the scores an accomplishment scale in percentages is defined in the system's manual: those percentages vary according to the indicator.

28 Belize National Report on Management Effectiveness

28.1 Organisation

Forest Department Belize

28.2 Primary references

Young R, Wolfe, L and Mc.Farlane, V (2005), 'Monitoring Management Effectiveness in Belize's Protected Areas System. Report prepared for the National Protected Areas Policy & System Plan Task Force (NPAPSP).' University Research and Evaluation and Galiano Institute for Environmental and Social Research.

Wildtracks (2006) 'National report on management effectiveness: management effectiveness in Forestry Department administered protected areas in Belize.'

28.3 Purposes

✓ **to improve management (adaptive management)**
✓ for prioritisation and resource allocation

28.4 Brief description of methodology

The protocol developed under the National Protected Areas Policy and System Plan – the Monitoring Package for Assessing Management Effectiveness of Protected Areas (Young et. al, 2005) – provides a framework to report on progress of protected area management towards achieving the national objective of a functional protected area system, through effective management of the protected areas.

Young et. al. suggest that management effectiveness can be assessed at two levels – outcomes and management functions:
1. Outcomes: Achieving management goals towards the broad goals of Belize's protected areas:

- the conservation of biodiversity (species, ecological communities, ecosystems, environmental services);
- the preservation of cultural assets (archaeological sites); and
- the provision of sustainable socio-economic benefits.

2. Management Functions: Getting the work done that is necessary to achieve the desired outcomes.

'Young *et. al.* (2005) make the assumption that if an organization achieves all management functions, this will automatically result in the desired outcomes (barring unforeseen problems), and that strengthening management functions should improve effectiveness, and therefore the possibility of achieving the desired outcomes. He does, however, acknowledge that many external factors may also affect management effectiveness, over which managers have no control, such as the size and location of the protected area and its vulnerability to hurricanes'(Wildtracks 2006).

28.5 Objectives and application

- To assess all parks in Belize national system of protected areas for management effectiveness.

28.6 Origins

The methodology was developed in a consultancy under the National Protected Areas Policy and System Plan - the Monitoring Package for Assessing Management Effectiveness of Protected Areas (Young *et al.*, 2005). The developers reviewed other methodologies including PROARCA, the PIP Site Consolidation Scorecard, and WWF-CATIE, How is Your Marine Park Doing, TNC-CAP, and the IUCN-WCPA Framework and incorporated aspects of these methodologies. It was then trialled through another consultancy working with the Forest Department in 2006 in 44 of the 48 protected areas in Belize (Wildtracks 2006).

28.7 Strengths

The report using this methodology appears to make many useful conclusions and recommendations for protected area management. The authors are able to analyse the data in several ways including through the IUCN-WCPA Framework and their analyses provide a good model for future use of data.

In the opinion of the report authors, 'The Monitoring Package is considered to be quite strong in the areas of assessing the context of management: the legal status, availability of baseline information, the presence of organizational structure. It covers most aspects of community participation relatively well, and also adequately assesses the development of management processes quite well – the process of whether management plans, operational plans, education strategies, etc., have been adequately developed' (Wildtracks 2006).

28.8 Constraints and weaknesses

Wildtracks (2006) make a number of comments relating to the weaknesses and constraints of the methodology as a result of the first trial. These include:

- Weakness in assessing the actual implementation of management (rather than processes and intentions): the need for additional wording or additional indicators to assess implementation;
- Little outcome-based assessment, as the 5-S system was recommended but is considered to be too difficult and unwieldy to implement in the field;
- The fact that the methodology was not directly based on the IUCN-WCPA Framework;
- Lack of advice on the analysis of data.

28.9 How the method is implemented

The methodology has been implemented once, in 2006, through three workshops, which were organised to ensure as much participation as possible from the Forest Department and partners. The monitoring package was distributed to participants in advance. Six potential co-management organisations participated in the assessment, but as they are not yet directly involved in management, their assessments were not included in the analysis (Wildtracks 2006).

The authors of the 2006 study (Wildtracks 2006) make numerous comments and recommendations for improvement of the system, including adjustments to many indicators.

28.10 Elements and indicators

The management effectiveness assessment is structured in two sections. The first provides the background information on the protected area (establishment details, biodiversity importance etc.) and outlines threats to the biodiversity.

The second section is divided into seven distinct categories:

- Resource Information
- Resource Administration, Management and Protection
- Participation, Education and Socio-Economic Benefits
- Management Planning
- Governance
- Human Resources
- Financial and Capital Management

Each has a series of indicator areas and a total of 58 indicators.

Table 26: Indicators for the Belize MEE methodology

Category	Indicator
1. Resource Information	1.1 Inventory: Physical Environment 1.2 Inventory: Biotic Environment 1.3 Inventory: Cultural and Archaeological Resources 1.4 Inventory: Social, Cultural, and Economic Context 1.5 Inventory: Resource Use and Occupancy 1.6 Inventory: Tenures and Claims 1.7 Site Assessment: Conservation Target 1.8 Site Assessment: Systematic Threat Assessment 1.9 Traditional Knowledge 1.10 Information Management Systems 1.11 Environmental Monitoring Activities 1.12 Functional Research Activities
2. Resource Administration, Management and Protection	2.1 Legal: Legal Status 2.2 Legal: Boundary Survey and Demarcation 2.3 Legal: Registration, Permit, and Approval Processes 2.4 Tenure and Claim Conflict Resolution 2.5 Guidelines and Best Management Practices 2.6 Protection: Surveillance Activities 2.7 Protection: Enforcement Activities 2.8 Visitor and Tourism Management Activities 2.9 Visitor and Tourism Monitoring Activities
3. Participation, Education, and Socio-Economic Benefits	3.1 Communication Activities 3.2 Educational Activities 3.3 Dissemination of Knowledge and Information 3.4 Participation: Level of Participation in Management 3.5 Participation: Local Actors Leading Management 3.6 Participation: Volunteer Activities 3.7 Participation: Strength of Social Capital 3.8 Participation: Capacity Building Work 3.9 Benefits: Socio-Economic Benefits Program 3.10 Benefits: Extent of Local Economic Benefits 3.11 Benefits: Recognition of Protected Area Benefits
4. Management Planning	4.1 Management Plan Implementation 4.2 Operational Plan Implementation 4.3 Regulation and Zoning Implementation 4.4 Guidelines and Best Management Practices 4.5 Long Term Management Needs Identification 4.6 Program Monitoring and Evaluation
5. Governance	5.1 Protected Areas Objectives 5.2 Co-Management Arrangements 5.3 Administrative Autonomy 5.4 Operating Procedures: Advisory Committee 5.5 Operating Procedures: Board 5.6 Interorganizational Mechanisms
6. Human Resources	6.1 Site Manager Preparation 6.2 Site Manager Availability 6.3 Admin Staff Availability 6.4 Technical, Scientific, and Professional Staff Availability 6.5 Operations Staff Availability 6.6 Human Resource Surveys 6.7 Training and Development

Category	Indicator
7. Financial and Capital Management	7.1 Funding Adequacy 7.2 Revenue Generation 7.3 Financial Management 7.4 Infrastructure Adequacy 7.5 Equipment Adequacy 7.6 Internal Access Adequacy 7.7 Signage Adequacy 7.8 Maintenance Adequacy

28.11 Scoring and analysis

In the study by Wildtracks (2006), each indicator was scored from zero to four, and the results were then grouped and analysed in a number of different ways, both for individual protected areas and for the protected area system as a whole. Groupings were:

- The original categories proposed in the methodology (as in Table 26);
- WCPA elements; and
- 'Categories' or management dimensions:
  - Socio-economic indicators
  - Administrative indicators
  - Biophysical indicators

The results for each WCPA evaluation element and indicator group were then analysed using the following scale:

Very poor management effectiveness	<25%
Poor management effectiveness	25% - 50%
Moderate management effectiveness	51% - 75%
Satisfactory / Good management effectiveness	76% - 100%

Results are presented as tables and graphs comparing across parks and across different aspects of management, and areas of greatest strength and weakness are recorded.

29 Metodología de Evaluación de Efectividad de Manejo (MEMS) y SMAP del SNAP de Bolivia

Information on this methodology has not been confirmed.

29.1 Organisation/ Affiliation

SERNAP – Servicio Nacional de Áreas Protegidas (Protected Areas National Service)

29.2 Primary references

Guachalla MCZOP and Zegada, JA (2001) 'Metodología medición de la efectividad del manejo del SNAP (MEMS).' Ministerio de Desarrollo Sostenible, Servicio Nacional de Áreas Protegidas de Bolivia (SERNAP), La Paz, Bolivia.

Guachalla MCZOP, Zegada, JA and Cadima, FM (2002) 'Metodología medición de la efectividad del manejo del SNAP (MEMS).' Ministerio de Desarrollo Sostenible, Servicio Nacional de Áreas Protegidas de Bolivia (SERNAP), La Paz, Bolivia.

DMA-SERNAP (2005) Sistema de Monitoreo de Areas Protegidas.

29.3 Purposes

- ✓ **to improve management (adaptive management)**

29.4 Brief description of methodology

SERNAP Bolivia has established two interlinked systems for monitoring and evaluation of protected areas:

- The MEMS methodology measures management effectiveness by evaluating certain aspects of the protected areas consolidation. It is not specifically about the conservation and management measures of a specific program, project or donor. It does not measure the success of a protected area in biodiversity conservation, threat reduction, or other critical aspects of conservation. MEMS is part of the integrated monitoring system discussed below (Oetting 2006).

- The Integrated Monitoring System for the Conservation of the Protected Areas – SMAP (Sistema de Monitoreo Integral para a Conservación en Áreas Protegidas) has five components:
  1) conservation targets;
  2) human activities;
  3) socio-economic dynamics;
  4) socio-political conflicts; and
  5) protected area management.(MEMS).

Each component has its set of indicators which are meant to be easy and possible to monitor, useful and of low cost (DMA-SERNAP 2005).

The integrated monitoring system is a tool to support protected area management. It allows information to be organised according to priorities and the users. It is a model for monitoring environmental processes and the interactions between society and environment and classifies the environmental problems in terms of cause and effect. The general objective of the system is to provide a tool to monitor the dynamics of protected areas to support the achievement of their objectives.

Threats define the monitoring priorities. The model pressure-state-response to monitor the interactions between natural resources and socio-economic activities is used to structure the indicators.

29.5 Objectives and application

According to Cracco *et al.* (2006), the objective of MEMS is to provide a rapid revision of the level of consolidation of some relevant themes of the management of the protected areas of the national system and identify priorities to work with in the system level.

The methodology has been applied to parks in Bolivia in 2001 and 2002 (Guachalla and Zegada 2001; Guachalla *et al.* 2002). Changes in individual protected areas were observed over time.

29.6 Origins

The MEMS methodology consists of annual evaluation of the protected area management consolidation level. It is part of the national protected area system, and guided by a score table or scorecard. SERNAP designed a score table which is an adaptation of the Parks in Peril Site Consolidation Scorecard and defined evaluation criteria according to the Bolivian protected area system. The adaptation adds other indicators and develops sub-indicators adapted to the Bolivian conditions(Oetting 2006).

The first evaluation took place in 2000, as an self-assessment of the protected area management by their own staff. The methodology evolved with the improvement and complementation of the indicators in the period 2001-2002, to make the tool more objective, adding indicators of inter institutional coordination, integration of the protected areas management with municipality governments, financial management effectiveness and a more specific description of the ranking of value of the indicators.

29.7 Strengths

MEMS is based on the Site Consolidation Scorecard so shares its benefits. It is specifically adapted to the Bolivian protected area management context.

- The information generated helps to assess each protected area management, identifying progress since the protected area consolidation;
- Identifies the critical aspects on the management of the SNAP (Protected Areas National System); and
- Identifies financial gaps on each protected area management and on the system of protected areas.

According to (DMA-SERNAP, 2005), the Integrated Monitoring System has the following advantages:

- it helps to make the protected area management a dynamic process
- it is a permanent process to evaluate the objectives and results of planning periodically and take corrective measures whenever appropriate
- it strengthens the image of the protected area with the local population by allowing to visualize the information.

If regular evaluations can integrate the two systems, it will achieve a comprehensive and systematic evaluation of management effectiveness.

29.8 Constraints and weaknesses

- Its implementation requires long time and staff dedication and since the information is qualitative, it complicates in part its automatic entry.
- The information is generated at a macro level, without discussing the quality of the assessed elements and its contents.
- It measures a group of protected areas with same parameters, without differing the particularities of each protected area management.

(Cracco *et al.* 2006)

The system is not yet completely institutionalised.

29.9 Elements and indicators

MEMS is based on indicators and sub-indicators which are averaged in function of the scoring established in a rank. The rank varies from 1 to 5 and each level of the rank is related to a percentage. Table 27 shows the indicators (sub-indicators are not shown).

Table 27: Indicators for the MEMS methodology

	Indicator
A. Basic protection activities	Infrastructure and Equipments
	Institutional Capacity
	Capacity
	Land Tenure
	Threats analysis
	Legal Status
B. Long-term management	Protection Plan
	Biodiversity inventory
	Biodiversity monitoring system
C. Long-term financial management	Operational budget
	Regularity of resources
	Capacity for financial management
	Capacity for long-term financial planning
D. Social participation	Established and ongoing management committee
	Levels of coordination among institutions
	Relationship with municipal governments
	Relationship with the "Prefecturas Departamentales"

29.10 Scoring and analysis

The scoring levels vary from 5 (optimum level) to 1 (deficient level). The scores are determined as follows:
Level 5: 81 – 100% (optimum level)
Level 4: 61 – 80% (good level)
Level 3: 41 – 60% (regular level)
Level 2: 21 – 40% (non-satisfactory level)
Level 1: 0 – 20% (deficient level)

30 Padovan 2002

Written with editorial input from Maria Padovan

30.1 Organisation

IPEMA – Instituto de Pesquisas da Mata Atlântica (Atlantic Rainforest Research Institute)

30.2 Primary reference

Padovan, M.P (2002c)Parâmetros e procedimento para a certificação de unidades de conservação. In: III Congresso Brasileiro de Unidades de Conservação. Anais. Pp 33-43.

30.3 Purposes

- ✓ **to improve management (adaptive management)**

30.4 Brief description of methodology

This methodology was developed to improve management of protected areas and to help to identify management weaknesses as well as ways to overcome them. It has a wide application and is flexible, allowing protected area representatives to suggest changes to the indicators used. This system uses both primary and secondary information obtained from different sources.

The management effectiveness assessment is based on the use of a hierarchy of scopes, principles, criteria and indicators. It is based on comparing the current status with defined 'optimum management'.

30.5 Objectives and application

This methodology aims to improve gradually the management conditions through periodic assessments. These assessments will help to identify management weaknesses and potentialities and also to define the means to overcome the weaknesses.

The methodology was used for the assessment of the National Monument Guayabo and the Biological Reserve Monteverde, in Costa Rica; the National Park Tikal, in Guatemala; and the Biosphere Reserve Rio Plátano, in Honduras (Padovan 2001). In Brazil, the method was applied on the assessment of the National Forest of Tapajós, in the state of Pará (Padovan 2004) and in 12 protected areas in the state of Espírito Santo.

30.6 Origins

This system is based on the combination of the methodologies developed by Cifuentes *et al.*, 2000; on the adaptation of the method for the development of standards of CIFOR (Prabhu *et al.* 1999) and the Hierarchical Framework developed by Lammerts Van Bueren and Blom (1997).

30.7 Strengths

One of the main strengths of this methodology is that it potentially has a wide application – it can be applied in protected areas of various management categories through the use of common standards for all areas.

Also, it is a 'flexible' methodology, i.e., the standards are not fixed and can be adapted, eliminated or new ones can be included according to the needs and the interest of the protected areas representative. The method allows a rapid collection of the results as the assessment standards can be applied in a short period of time.

30.8 How the methodology is implemented

The assessment cross-checks the information obtained from various sources such as technical documents, field observations, interviews with people involved with protected area management, staff, local community, community leaders, school teachers, visitors, researchers and representatives of local social organizations.

The first stage is to select and train the technical assessment team. The selection of those involved is based on their theoretical knowledge and expertise in the protected area management. Also, the assessment team has to be multidisciplinary, including professionals with different backgrounds. In order to consider different points of view and reduce the subjectivity of the process, it has also to involve people with experience in the public and private sector as well as with NGOs.

The methodology is then applied through three steps: data collection, consensus meetings and report development, for each protected area assessed. The data collection is based on the review or the available secondary information, interviews with representatives of sectors directly or indirectly related to the protected area management as well as field observation. The consensus meetings are held after each assessment and at the end of the process, in order to giver uniformity to the results.

30.9 Elements and indicators

This system uses four levels of analysis: scope, principles, criteria and indicators. The scopes are defined based on the sustainability triangle: environmental, social and economical. It also considered the relevance of the institutional aspects, adding this other scope to the assessment process.

The principles are the fundamental laws that need to be respected so the area can meet its conservation objectives. A total of seven principles were established which encompass the necessary conditions for the achievement of management sustainability.

The seven principles were organised in 25 criteria – nine environmental, one social, six economic, and nine institutional. The criteria correspond to the essential elements for meeting the principles. The measurement of these criteria is made through the use of indicators.
The indicators present the characteristics or attributes that allow the measurement of the criteria. Therefore, they have to be relevant, measurable, reliable, efficient and available. A total of 64 indicators for the established criteria were defined in this system, as Table 28 shows:

Table 28: Indicators in the Padovan methodology

Scope	Principle	Criteria	Indicators
Environmental	1. The management category was designated based on an adequate technical analysis.	1.1. There is coherence between the intrinsic characteristics, the conservation objectives and the management categories.	1.1.1. Correspondence of the management categories with the area characteristics 1.1.2. Compatibility between the management objectives and the area characteristics 1.1.3. Correspondence between the management objectives and the defined management category.
		1.2. The PA uses are compatible with its category.	1.2.1. Compatibility between the PA uses and the management category

Scope	Principle	Criteria	Indicators
	2. The area conserves biological and cultural diversities relevant to the region.	2.1. The area conserves representatives samples of the ecosystems relevant to the region.	2.1.1. The relevant ecosystems are found within the PA. 2.1.2. The ecosystems found within the PA are not representatives.
		2.2. The area conserves natural and cultural attractions that are relevant for the region.	2.2.1. The natural and/or cultural attractive are conserved within the PA.
		2.3. The area contributes to biodiversity conservation.	2.3.1. Indicators species are identified and monitored 2.3.2. Species of special interest for conservation are protected by the PA
	3. The area has appropriate conditions to keep ecological viability.	3.1. The spatial characteristics of the PA favour the ecological viability.	3.1.1. Total optimum PA surface 3.1.2. Adequacy of PA shape to favour ecological viability. 3.1.3. Connectivity between the PA and other areas with the same characteristics. 3.1.4. The PA zoning favour the ecological viability.
		3.2. The ecosystems have their health or vitality improved or maintained.	3.2.1. The vegetal coverage or other fundamental ecosystem structure is maintained. 3.2.2. The degraded ecosystems can recover themselves with time.
		3.3. The uses of the PA don't prejudice the ecological viability.	3.3.1. The practices and the intensity of use don't prejudice the environmental viability.
		3.4. The threats to the ecosystem health and vitality are identified and controlled.	3.4.1. The threats to the ecosystems or habitats are prevented and controlled. 3.4.2. The PA limits are well known and respected.
Social	4. There is integration between the area and the population within and surrounding it.	4.1.There are strategies and these are applied to integrate communities to the PA management.	4.1.1.The Pa has a management board that facilitates the integration of the civil society with the PA management. 4.1.2. Strategies for integration of the population and the PA. 4.1.3. The strategies incorporate different social actors and their particularities. 4.1.4. The target population is kept informed and involved with the strategies' implementation. 4.1.5. The PA and the local communities administrate joint actions. 4.1.6. There are positive manifestations towards the PA management and its surrounding areas.
Economic	5. The PA has positive influence on the economic development of the population that live inside and surrounding it.	5.1. The population that live inside or surrounding the PA receive benefits, either monetary not, direct or indirect, from the PA.	5.1.1. The PA contributes for the improvement of local people's income. 5.1.2. The Infrastructure or services of interest of local people are being provided by the PA. 5.1.3. The community development projects are being promoted by the PA administration.
		5.2. There are effective measures for mitigating or compensating the economic negative impacts that are originated by the PA management activities.	5.2.1. Mechanisms for effective mitigation and compensation of negative impact originated by the PA management activities.
	6. The PA receives enough financial resources for its management.	6.1. The real costs of the PA management are well known.	6.1.1. Mechanisms for organising the financial information.
		6.2. The PA receives enough financial support to cover the management costs.	6.2.1. The money received by the PA covers the management costs.
		6.3. The sources of funding are adequate and diverse enough to ensure a long term management.	6.3.1. Strategies for obtaining enough financial resources. 6.3.2. Sell of goods and services provided by the PA. 6.3.3. Sell of environmental services.
		6.4. The mechanisms for financial management are adequate and efficient.	6.4.1. Institutional financial management capacity 6.4.2. Transfer of financial resources is adjusted to what requested. 6.4.3. The resources generated are applied on the improvement of the PA management. 6.4.4. Audit and control mechanisms.

Scope	Principle	Criteria	Indicators
Institutional	7. The PA has institutional conditions for its effective management.	7.1. The complementary mechanisms for the PA planning on the different levels are adequate.	7.1.1. The strategic PA planning relates to the policies established for the PA system.. 7.1.2. Coherence between the necessary plans and projects. 7.1.3. Monitoring, assessment and adjustment.
		7.2. The management plan is adequate.	7.2.1. Existence and update of the management plan. 7.2.2. The management plan considers the initiatives for local or regional development. 7.2.3. Execution of the management programmes.
		7.3. The PA staff is qualified enough to pursue the management activities.	7.3.1. Optimum staff quantity 7.3.2. Optimum staff quality
		7.4. The area offers adequate working conditions.	7.4.1. Adequate security and hygiene conditions. 7.4.2. Competitive salary scales and other benefits.
		7.5. The existing structure, infrastructure and equipments satisfies the PA management needs,	7.5.1. The existing structure corresponds to the management objectives. 7.5.2. The structure characteristics and conditions are adequate. 7.5.3.The infrastructure is adequate. 7.5.4. The accesses are adequate to achieve the management objectives. 7.5.5. The equipments and tools are enough and effective.
		7.6. The PA administration receives necessary political support for its management.	7.6.1. Intrainstitutional support 7.6.2. Interinstitutional support
		7.7. The legislation, technical norms and administrative dispositions are being fulfilled.	7.7.1. Legal status of the PA creation. 7.7.2. Rules for natural resources use. 7.7.3. Rules for financial management. 7.7.4. Administrative rules. 7.7.5. Laws related to PA planning and management.
		7.8. The mechanisms for solving conflicts related to domain, land tenure and use of natural resources are effective.	7.8.1. Effective strategy for solving conflicts related to the use of the PA resources.
		7.9. The PA has an organizational structure adequate for its management.	7.9.1. Organizational structure. 7.9.2. Definition of positions and roles. 7.9.3. Clear and functional internal communication system. 7.9.4. Mechanisms for information organization and register.

30.10 Scoring and analysis

The methodology considers five levels of rating (from 0 to 4), where the highest value corresponds to the 'optimum management'. The definition of this 'optimum' management scenario is based on the management category, on the biophysical characteristics and the management conditions in the regional context. The 'optimum' scenario has to be achievable. The scale used is specific for each indicator, but the values correspond to those presented in the following table.

The scoring system used on the assessment process (based in de Faria, 1997) is:

Score	% of the 'optimum'	Meaning
0	0 < 35	Unsatisfactory
1	36-50	Barely satisfactory
2	51-75	Regular
3	76-89	Satisfactory
4	90-100	Very Satisfactory

A relative weight is assigned to all indicators, i.e., the method considers that all assessed aspects have the same level of importance for a good management.

The final management rating is defined based on an arithmetic average of the values obtained for each scope. The scope score is the result of the arithmetic average of the values obtained by the criteria. To evaluate the value for each criterion same procedure is used based on the scores of the indicators.

The interpretation of results considers the same rating scale used for the indicators qualification.
Here, indexes equal or lower than 35% of the optimum are considered as unsatisfactory management, which indicates that the protected area does not have the minimum resources to ensure its basic management. Its long-term permanence is not guaranteed and with such conditions it is not possible to meet the protected area's conservation goals.

Values between 36 – 50% correspond to the 'little satisfactory' management conditions, i.e., the protected area has certain resources fundamental for its management, although still not minimally acceptable. The protected area is highly vulnerable to internal and external factors and its long term permanence is not guaranteed.

Results between 52-75% of the total optimum represent regular management conditions. This means that the area is provided with minimum requirements for its management but still has essential deficiencies that undermine an effective management. The management conditions can compromise the integrity of the resources and the fulfilment of the management objectives might be partial.

Management conditions between 76-89%, or satisfactory management, indicate that the management activities are adequately being met. The permanence of the protected area is guaranteed with these conditions.

Values between 90 – 100% are considered as a very satisfactory management, i.e., the area is currently receives all support necessary for its efficient management. Also, it ensures that the protected area can deal with future requirements without compromising the resource conservation.

30.11 Further reading and reports

(Cifuentes *et al.* 2000a; Lammerts Van Bueren and Blom 1997; Padovan 2001; 2002a; b; c; Prabhu *et al.* 1999)

31 Scenery matrix

Written with editorial input from Helder de Faria

31.1 Organisation/ Affiliation

São Paulo Forestry Institute (IF-SP), Secretaria de Meio Ambiente do Estado de São Paulo

31.2 Primary reference

De Faria, Helder Henrique (2004) Eficácia de Gestão de Unidades de Conservação Gerenciadas pelo Instituto Florestal de São Paulo, Brasil. Tese de doutoramento. Depto. Geografia. UNESP. Presidente Prudente, SP. 401p.

31.3 Purposes

✓ **to improve management (adaptive management)**

31.4 Brief description of methodology

The Scenery Matrix methodology is designed primarily to assess systems of protected areas. It is simple to be applied and potentially could be widely used. The data is collected through a participatory process and is flexible, as it allows the protected area representatives to propose their own set of indicators according to the protected area current situation and optimum scenario. By making use of a standardised scoring scale, management efficiency is then measured by comparing an 'optimum protected area scenario' with the current situation.

31.5 Objectives and application

It was developed to assess protected area management efficiency and is appropriate for the assessment of a large number of protected areas. This system is based on the use of pre-selected indicators (in accordance with the protected area management objectives) and the design of an optimum scenario for each indicator, which is associated to a standard scale. To trial the indicators, this methodology was tested by the author in 1998 in a total of 12 protected areas in the same state (de Faria 1998). It was applied on 59 protected areas in the state of São Paulo (southeast of Brazil) from 2000 to 2004.

31.6 Origins

The Scenery Matrix was conceived as an academic exercise (PhD thesis) and was developed using as basic reference the methodology originally developed by de Faria (1993), which was later improved by other researchers and published as a manual by Cifuentes, Izuerieta and de Faria (2000a).

31.7 Strengths

The data is collected through participatory processes (workshops). The indicators are flexible: the protected area representatives may propose other indicators and their respective scores. This system can allow, to some degree, an institutional assessment, which generates a wide understanding of the organisational factors influencing protected area management. The methodology is simple and has a wide use. It is appropriate to generate rapid information for policy decision makers and those who have influence on protected area management.

31.8 Constraints and weaknesses

It is necessary to invest time with protected area representatives on the description and explanation of certain criteria used by the assessment, especially for those indicators that encompass technical-scientific concepts related to conservation and to management of protected areas of strict protection. There is also a need to build capacity on subjects related to conservation biology and landscape management.

31.9 How the methodology is implemented

The methodology is based on application of questionnaires filled out by protected area representatives in workshops, on interviews with the protected area directors, on visits to the protected areas and on review of secondary data from different sources.

31.10 Elements and indicators

This methodology is based on the use of indicators, which are defined in accordance to the management objectives of the protected areas, and the definition of optimum and current scenarios for each indicator and their association to a standard scale.

Indicators are scored based on pre-defined scenarios, criteria established for indicator assessments, and a standardized scale, where the higher score corresponds to the 'optimum scenario' and the lowest one to the worst possible situation. For each indicator the protected area representative has to choose one alternative that represents the situation in the protected area. If the alternatives available do not represent the situation, the representative could describe the current and the 'optimum' scenario of the protected area and suggest new descriptors which would be then integrated to the questionnaire used on the assessment**.** The indicators are described below. They were used as a basis for further discussion in collective assessment meetings and field analysis.

Table 29: Indicators in the Scenery Matrix methodology

Administration	Administrator	Staff body Quantity Staff Quality Staff Motivation Attitudes Presentation
	Financing	Operational Financing Extra Financing Regularity on resource delivery
	Resources Generation / Organisation	Archive Organogram Internal communication Normatisation
	Infrastructure	Basic infrastructure Special Infrastructure Salubrity Security
	Equipment and Materials	
	Limits demarcation	
Planning	Management Plan	Existence and update Planning team Method Plan execution
	Planning level	Annual operational plan
	Area zoning	
	Resource use compatibility (legal and illegal)	Recreation Tourism Education Fishing Logging

		Agriculture Cattle ranching Others
	Management programmes (Existence and execution)	Public use Research Protection Maintenance
Politic-legal	Community support and participation	
	Intra-institutional support	
	Inter-institutional support	
	Creation diploma	
	Tenure situation	
	Support to staff	
	Capacity-building	
	Norms application and fulfilment	
Resource quality	Size	
	Shape	
	Insulation	
	Altered areas	
	Integrity of catchments	
	PA resource exploitation	
	Compatibility between the use of surrounding areas and PA objectives.	
	Threats	
Knowledge	Socio-economic information	
	Biophysical information	
	Cartographic information	
	Legal information	
	Researches and projects	
	Monitoring and feedback	
Forest Management (State PA)	Continuous management	
	Inventory	Existence, update and use
	Improved forests	
	Productivity	
	Phytosanity	

31.11 Scoring and analysis

Determination of management efficiency is obtained by integrating and comparing the results, synthesised in a double entrance matrix. The sum of the highest possible scores for each indicator (value 4) results in a 'total optimum', which corresponds to 100% of the possible value. The sum of scores obtained from the analysis of the indicators' current situation results in a value defined as 'total achieved'. A comparison between these two sums generates a percentage value that is then correlated to an evaluation scale, which defines the quality of management. For protected area system assessments, the same process can be used to determine the degree of policy application and institutional management efficiency. The protected area situation is described by attributing a value from 0 to 4:

Score	Relationship between the optimum and the current indicator situation	Quality of indicador
0	0 – 35%	Unsatisfactory or a very inferior standard
1	36 – 50%	Barely satisfactory or inferior standard
2	51 – 75%	Moderately satisfactory or medium standard
3	76 – 90%	Satisfactory
4	91 – 100%	Very satisfactory or excellent standard

32 PA Consolidation index

All the information below is extracted from Pauquet (2005)

32.1 Organisation

Conservation International, Museo de Historia Natural Noel Kempff Mercado

32.2 Primary reference

Pauquet, S. (2005) 'Field-testing of Conservation International's management effectiveness assessment questionnaire in seven protected areas in Bolivia.' ParksWatch.

Urioste A (nd) Monitoreo de Resultados de Conservación del Corredor Vilcabamba - Amboró.

32.3 Purposes

✓ **to improve management (adaptive management)**

32.4 Brief description of methodology

The Protected Area Consolidation Index is a purely quantitative evaluation system procuring an alternative to the mostly subjective approaches that have been applied in the region to date, and which all seem to fail to provide sufficiently precise and objective metrics to satisfy the need for inter-site comparisons.

This approach is based on the idea that there exists an optimal situation for each protected area (in terms of administration, finances, planning, etc) that can be quantified and therefore used as a precise benchmark against which to assess the area's situation at any given time. As indicated in its name, this methodology also results in the computation of a single value, or set of composite values, supposed to convey all the information requested about the site under study. But above all, the Consolidation Index and derived statistics are meant to be fully comparable across protected areas and their evolution over time supposed to allow an accurate interpretation of the situation on the ground and guide the selection of appropriate corrective measures.

32.5 Objectives and application

This method assesses the administration and consolidation of protected areas. Its basic characteristic is its quantitative nature. It was specially developed for its use in the protected areas of the Vilcabamba Amboro Corridor by the Museum of Natural History Noel Kempff Mercado and the Critical Ecosystem Partnership Fund of Conservation International (CI).

Specifically, the categories for evaluation and comparison include: personnel, infrastructure, equipment, budget, investments, finance and local participation. The components (for example, for personnel this includes number, qualification, level of formal education, incentives) of this index are percentage values based on the comparison between 'present' and the configuration of the 'hypothetical optimal ideal' or of the categories. The values are arranged according to their relative importance (for example, qualification versus level of formal education).

A comparison can be quickly made of the key component of the indices, for example, the present versus the optimal and, in addition, between protected areas. The optimal state for any protected area is defined by the Index as:

(a) the management needs for the total area;
(b) management needs for the Zone of Human Impact (ZIH); and
(c) the impact of the population density in the PA.

This optimal situation is determined through a GIS analysis of the administrative necessities and through interviews and workshops with the directors and guards of the PA.

The analysis of the results is made quantitatively through percentage values (for example for community participation it analyses the composition of the management committee and the origin of guards) and through absolute numbers (for example, number of tourists visits, number of ecotourism facilities, and shelters, etc.). GIS analysis defines the zone of human impact (ZIH) that exerts critical pressure on the protected area, that is defined as well by the access (roads and observed deforestation) (Adapted from (Cracco *et al.* 2006).

32.6 Origins

The methodology was developed through revision of several existing tools: TNC (Parks in Peril Scorecard), RAPPAM/WWF, CATIE initiatives and others (Killeeen and Urioste 2003; Urioste nd)

32.7 Strengths

The methodology was designed to be quantitative, objective, repeatable, flexible and helpful for management.

Provided homogeneous conditions, such as the ones that may be observed among protected areas of the same biogeographical region within the same country, the use of this strictly quantitative approach provides undeniable benefits with respect to more subjective methodologies, especially to decision-makers in need of standard and precise measurements on which to base their investment choices. By expressing indicators as the difference between an actual and an optimal situation and using a specific scale for each variable, it allows to draw more accurate conclusions concerning the reasons behind observed performance levels and to establish a clearer causality between the factors at play. Also, final results can be significantly affected by minute changes that would not have been perceived by a more qualitative approach, conferring the fine-grained analysis capacity that tends to be foregone with the use of scorecards (Cracco *et al.* 2006).

32.8 Constraints and weaknesses

Pauquet (2005) believes that the main shortcoming of this methodology is that the subjectivity avoided by the use of strictly quantitative indicators is reintroduced by using a weighting system to set the relative 'importance' of different sub-variables (e.g., attributing a higher different weight to the park director than to a park ranger), an approach which becomes arbitrary when applied similarly across parks and countries.

Participants at the Andes workshop also commented that the methodology needs statistical knowledge, and that it doesn't evaluate impacts (Cracco *et al.* 2006).

32.9 Elements and indicators

The choice of indicators used by this method is based on four criteria:

(i) ease of access of information;
(ii) relevance to protected area management;
(iii) usefulness for planning purposes; and
(iv) potential for tangible social benefits.

Table 30: Indicators for the PA Consolidation Index methodology (Source: (Urioste nd)

Administration	Staff	Staff Number
		Staff Training courses followed
		Staff Education level
		Staff Incentives provided
	Infrastructure	Infrastructure Management
		Infrastructure Protection
		Infrastructure Public access
	Equipment	Equipment -Transport
		Equipment - Communications
		Equipment Security
		Equipment -Other
Financial management	Budget	Budget Operations
		Budget Maintenance
	Investment	Investment - Infrastructure
		Investment Equipment
	Revenue	Revenue- Number of sources
Community relations	Local participation	Local participation Number of people involved
		Local participation Number of organizations involved
		Local participation Other
	Tourism	Tourism Number of tourist
		Tourism Number of ecotourism projects
		Tourism Other
Ecosystem integrity	Roads	Road type
	Deforestation	Number of ha deforested
		Deforestation rate% of total cover
	Human Impacts	Human impacts- Various

32.10 Scoring and analysis

The site's current situation is expressed as a function of the installed capacity and the resources available at the time of evaluation, while the optimal situation is defined by placing numerical values on the following aspects (via participatory assessments):

(i) management needs for the entire protected area;
(ii) management needs considering only areas under human impact; and
(iii) purported impact of human occupation and activities within the protected area.

An extract from the Excel spreadsheet used for the computation of this Index is presented in Table 31 below.

Table 31: Example of calculation of personnel index Source: (Urioste nd)

AREA PROTEGIDA: BAHUAJA SONENE / TAMBOPATA
CATEGORIA DE MANEJO: PN

A. PERSONAL		PESO (%)	Índice de Consolidación
Cantidad		50	**30,0**
Capacitación		25	**37,8**
Nivel de instrucción		10	**24,2**
Incentivos		15	**5,3**
Total Index Componente I		**100**	**97,2**
A. PERSONAL	**Item Actual**	**Item Optimo**	**Indice (%)**
A.1. Totales Cantidad	**33,0**	**55,0**	**60,00**
A.2.1. GPs con capacitación básica	**24,0**	**24,0**	**100,00**
A.2.2. GPs con mayor experiencia	**25**	**49**	**51,02**
A.3.1 Nivel de Instrucción Personal Ejecutivo	**32,5**	**30,0**	**108,33**
A.3.2. Nivel de Instrucción Personal Operativo	**20,0**	**15,0**	**133,33**
A.4. Totales Incentivos	**6**	**17**	**35,29**

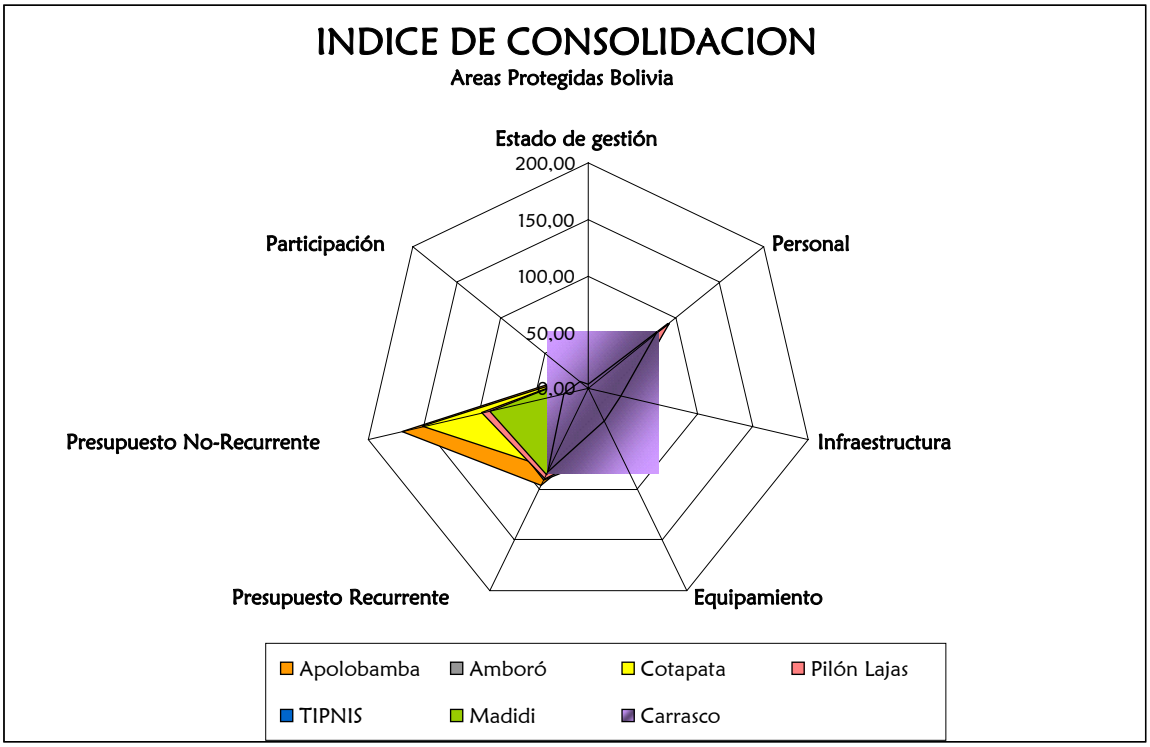


Figure 10: example of overall results from one protected area. Source: (Urioste nd)

33 Valdiviana Ecoregion Argentina

Information on this methodology was extracted from Rusch (2002)

33.1 Organisation

WWF/Fundación Vida Silvestre Argentina

33.2 Primary reference

Rusch V (2002) 'Estado de situación de las areas protegidas de la porción Argentina de la ecoregión Valdiviana'.

33.3 Purposes

- ✓ to assist in prioritisation or resource allocation
- ✓ to raise awareness and support

33.4 Brief description of methodology

The methodology was developed by Fundación Vida Silvestre Argentina and WWF to assess the status of the protected area of the Valdiviana Ecoregion, based on the application of questionnaires and interviews to the protected area managers and staff. It also includes a literature review and field survey (Rusch, 2002).

33.5 Objectives and application

The stated objectives are:

a. to offer to the community an independent and objective tool to evaluate the advances in the implementation of the protected areas of the region and
b. to offer a mechanism to direct policies, efforts and conservation actions on the part of responsible state and/or private organisations which administer the parks, to improve their management.

In addition, the results of this analysis will contribute to generate awareness of the state and the objectives of the parks, and will allow the establishment of action priorities within the conservation organisations that decide policies, and implement or finance programs of protected areas (international organisations, national, provincial, municipal governments and NGOs). Objectives such as to improve particular aspects of management efficiency within each area are secondary in this study.

33.6 Origins

'Through its Global 2000 Program, WWF identified the Valdiviana Eco-region or the Temperate Valdiviana Forests of Argentina and Chile as one of the high-priority sites for conservation of world-wide diversity (Dinerstein *et al.* 1998). All agree that a proportion of the protected areas of the Valdiviana region are 'Paper Parks', due to little or no implementation (of park management). When analysing the percentage of land protected in each subregion, or each type of vegetation, the numbers seem reassuring, but when the lack of implementation is considered, this the situation is not so promising, Therefore evaluation of the state of implementation of the Protected Areas is one of the high-priority actions to guarantee its conservation (Laclau 1998; 2002; Vila *et al.* 2000).

33.7 Strengths

The methodology enables the evaluator to summarize and compare the state of implementation of diverse types of protected areas.

33.8 Constraints and weaknesses

In the course of the work apparent contradictions in the assigned values were detected, so the report recommend that conclusions are not drawn only from the summarized final values of each element or the final value of a single global indicator.

Variability in the score of some indicators depended on who was involved in management. For example, technical staff were more optimistic when evaluating planning aspects, while protected area staff and managers gave it lower scores due to the lack of knowledge about planning tools.

The fulfilment of the objectives of creation of the Forest Reserves can lead to a false idea of their implementation due to their limited objectives regarding the conservation aspect.

All indicators have the same weight and this can be questionable, for example, when comparing equipment and staff capacity. Some variables are partially included in others, such as political support, which is present in almost all other aspects.

33.9 How the method is implemented

Risk matrixes were built (Lemos de Sa *et al.,* 1999) where each protected area was positioned in squares corresponding to the degree of implementation/management on one axis and the degree of threats/vulnerability on the other.

Data was collected through four steps: literature review, questionnaires, interviews, and field survey.

33.10 Elements and indicators

The selection of indicators was based on work by de Faría (1993) and Cifuentes and Izurieta (2000a) and on the IUCN-WCPA Framework. The WWF Score-card scheme, developed for the Paranaense Forest Eco-region (Chalukian, 1999), based on the 1999 Brazilian survey (Lemos de Sá *et al.* 1999) was also used, to allow comparison with protected areas of other regions of the country.

There are indicators of management, implementation, and threats. The fist two refer to six elements: legal; administrative; design and planning; political; research, knowledge and education; and actual use. The indicators of threats relate to the degree of isolation and conflicting activities or projects within or outside the protected area.

Another independent indicator was analysed: the significance of the area for conservation, which was considered extremely important to evaluate the state of implementation and management and the vulnerability of the protected area regarding its importance to the conservation of the region.

The degree of threat has been corrected using the factor of vulnerability, considering the actual PA area, as the degree of threat increases with the decrease in PA area.

Table 32: Indicators for the Valdiviana methodology

Aspects (broad)	Aspects	Indicators
A. Management and implementation	Legal	Land tenure Legal status (legal instrument of creation or support) Limits demarcation
	Administrative	Field staff (involved in activities of control and protection, legal action, socialization, communication, extension and education) Administration: assigned staff and sufficient staff Technical staff (existence or not) Infrastructure Equipment and materials Financing and budget (permanent and external funding)
	Design and Planning	Design of the system and the PA Planning tools PA Zoning
	Political	Context (institutional support) Local participation and attitude regarding the PA objectives
	investigation, knowledge and education	Existence of information Research Management of information about natural and cultural resources Monitoring and evaluation Environmental education, extension and communication programs
	Actual use	Actual use of the PA
B. Threats and vulnerability	Buffer zone situation	Buffer zone (existence or not) Degree of isolation Predominant land use in the buffer zone Conflicting projects (regional development plans)
	PA situation	Percentage of altered area within the PA Water system protection Illegal activities Use of resources
	Importance of the area	Significance (for conservation)

The indicators are also grouped according to the scheme of Hockings *et al.* (2000):
Context: significance; internal and external threats; vulnerability and context
Planning: legislation and policy; design of the system and of the PA; management planning
Inputs: funds; field, administrative and technical staff; equipment and infrastructure
Processes: planning implementation; research; information management; monitoring and evaluation; staff training and capacity; environmental education; resources management; participation.

33.11 Scoring and analysis

Each indicator varies in a 5-point scale, from 0 to 4. When there is no information the indicator is annulled. The determination of aggregate values is calculated as the average of the individual values. Although most of the information is expressed as scores (from 0 to 4), in some cases it is expressed as a percentage of the optimum. The value "4" always represents the optimal value for both threat and management indicators.

For the PA degree of implementation, the following percentage scale was used:
- unsatisfactory: less than 35% of the optimum
- minimally satisfactory: 36–50%
- moderately satisfactory: 51–75%
- satisfactory: 76–90%
- very satisfactory: 91– 100%

34 Venezuela Vision

34.1 Organisation

FUDENA (Fundación para la Defensa de la Naturaleza) and INPARQUES (Instituto Nacional de Parques – Venezuela)

34.2 Primary reference

FUDENA/INPARQUES (2001)Visión 2001: Situación Actual del Sistema de Parques Nacionales de Venezuela. Caracas.

34.3 Purposes

- ✓ **to assist in prioritisation or resource allocation**

34.4 Brief description of methodology

The methodology was developed to analyse the risk situation of protected areas in Venezuela, based on the 'sensitivity' of the area as well as the incidence of. It aims to establish protected area management priorities and to show which areas are most in need of management interventions (FUDENA/INPARQUES 2001).

It includes scoring of context (sensitivity, threats), design and inputs (personnel, funding, equipment and information) and does not address other aspects of management (processes, outputs or outcomes).

The methodology can:

- Define and consider a group of criteria which allow to estimate the sensitivity to use of every management unit (protected area);
- Carry out an evaluation, based on these criteria, to establish the relative sensitivity of each protected area by group consensus; and
- Evaluate every protected area considering its level of sensitiveness as a specific weight and submitting it to the pressure of permitted and non permitted uses and to other forms of influence to detect those in critical situation or danger.

(Cracco *et al.* 2006)

Once the sensitivity has been determined using a matrix, the resulting value is the protected area specific weight. A comparison is made using a comparative matrix with the various uses and factors of disturbance of the protected area.

Criteria of sensitivity include the size (very large protected areas are less vulnerable than small ones) and isolation (from human activity). Examples of permitted uses in the matrix are public recreation, agriculture and existence of traditional populations.

The result of this evaluation is a numerical ordering of protected areas, from the most affected or in danger to the least affected with fewer problems.

34.5 Objectives and application

By rating the intrinsic *sensitivity* of each National Park or Natural Monument as well as the incidence of the *pressures* or factors of legal and illegal use on these protected natural areas, the evaluation can be used to establish management priorities and power to focus activities towards parks with the greatest needs. The information generated by this methodology allows problems to be solved according to the importance order and makes the management more efficient. As the methodology demands and allows the

interaction of many people and is based on consensus of opinion, the results are better understood and accepted by the group.

It has been used for two system-wide evaluations in Venezuela: for 35 national parks in 1991 and for 43 national parks and 21 natural monuments in 2001. This has enabled comparative ratings both throughout the park system and over time in some protected areas.

34.6 Origins

The original work applying this methodology is one of the first references to evaluation of protected area management in the literature. It was developed and first applied in Venezuela in 1991 in 35 national parks. The system called 'Numeric Methodology to Evaluate Protected Area Systems' was published in 'Parks' in 1992 (Rivero Blanco and Gabaldon 1992). FUDENA and INPARQUES considered it important re-evaluate the condition of fragility of the 43 National Parks and 21 Natural Monuments, 10 years later, to direct research, conservation and restoration projects.

34.7 Strengths

- Rapidity, consensus and simplicity: the system is successful because it has allowed the government agency to confidently justify actions and programs based on these results.
- Most of the participants are or have been experts in the management of those areas.

(Cracco *et al.* 2006)

34.8 Constraints and weaknesses

The Andes workshop on MEE considered that the methodology is relatively subjective and has other weaknesses, including expense, the need for experts, and the lack of impact evaluation (Cracco *et al.* 2006).

34.9 How the method is implemented

The 2001 project, leaded by the researchers Carlos Rivero Blanco and Edgard Yerena, involved the participation of 35 experts, representatives of INPARQUES, National Parliament, FUDENA, Audubon, UNELLEZ and Fiscalia.

34.10 Elements and indicators

Indicators are of sensitivity (park size, design etc), some inputs, and pressures/ uses

Table 33: Indicators for the Venezuela Vision methodology 2001

	Criteria
A. Sensitivity	1. PA size (area) 2. Distance from human influence 3. Genetic isolation 4. Landscape diversity 5. Degree of intervention 6. Regeneration capability 7. Control of catchments 8. Land tenure 9. Plan and regulations 10. Staff 11. Technical staff 12. Equipment 13. Facilities 14. Control and vigilance 15. Access 16. Political interest (for development projects and use) 17. Strategic importance

	18. Knowledge of the area 19. Natural risk
B. Pressure (use and other factors)	20. Recreation intensity 21. Scientific use 22. Therapeutic or cultural use 23. Use of the image of the area 24. Use as water reserve 25. Deforestation 26. Fire 27. Agriculture 28. Hunting 29. Grazing 30. Commercial or sport fishing 31. Traditional populations 32. Neighbouring populations 33. Roads and electrical cables 34. Gas and water systems 35. Port and other uses 36. Mining 37. Communication antennas 38. Navigation routes

34.11 Scoring and analysis

The weighting of these criteria and the evaluation of the management units are based upon the consensus of a group of experts, who assign them numeric values ranging from 1 (highest) to 5 (lowest).

35 Peru MEE

Extracted from information provided by Juan Chang and Cynthia Cespedes and from Chang et al. (2006) and Vásquez (2006)

35.1 Organisation

Peru National Insitute for Natural Resouces (Instituto Nacional de Recursos Naturales - INRENA) with assistance from USAID

35.2 Primary reference

Vásquez, P. (2006) Un poco de historia: Efectividad de manejo en Peru. In 'Fortalecimiento de la Efectividad de Manejo en los Andes. Análisis comparativo de herramientas existentes'. (Eds M. Cracco, J. Calvopiña, J. Courrau, M.M. Medina, I.Novo, I. Oetting, J. Surkin, R. Ulloa y P. Vásquez.). (UICN: Quito, Ecuador.)

Chang, J. and Workshop participants (2006) 'Fortalecimiento de la Efectividad de Manejo de Áreas Protegidas en los Andes MEMORIAS DEL TALLER NACIONAL DE PERU "Desarrollo participativo de una caja de herramientas para la evaluación de la efectividad del manejo de las áreas naturales protegidas en Perú".' CI, CDC/UNALM, INRENA, IUCN-SUR.

35.3 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ for prioritisation and resource allocation
- ✓ for accountability/ audit

35.4 Brief description of methodology

1) Matriz de Monitoreo de la Gestión de las Áreas Naturales Protegidas
2) Matriz de monitoreo de manejo efectivo de las ANP del SINANPE: Updated version developed by INRENA, based on the IUCN-WCPA Framework. It includes one indicator from RAPPAM about pressures and threats.

Two types of monitoring and evaluation are recognised: those related to management of the system and of each national park, and those relating to the status of biodiversity.

35.5 Objectives and application

- To monitor the current conditions of a natural protected area and its changes on time in order to improve decisions and to reach an effective management.
- It guides SINANPE and protected area administration thorough an effective management.
- It identifies the needs and priority actions, especially of protected areas without management plans.
- Determines the current conditions of a natural protected area.
- Helps to elaborate operational plans with a better approach.

35.6 Origins

Management effectiveness in Peru has been evolving since the mid-1990s, especially in conjunction with the assistance from USAID to the protected area system. The critical tool 'Plan Director' was formulated between 1993 and 1995 and recognised that the processes of planning, implementation, monitoring and evaluation must be integrated

and that feedback was essential to improve management. A matrix of indicators was developed and applied to 14 protected areas on four occasions between 1996 and 2000, with the process led by international agencies and consultants.

This work served as a basis for INRENA to develop its own system of MEE in cooperation with WWF. A matrix of management requirements was developed and indicators developed, improved and validated by protected area managers between 2001 and 2003. This methodology is known as the 'Matriz de Monitoreo de la Gestión de las Áreas Naturales Protegidas'. It has been applied across the protected area system every year since 2001.

This methodology is now being updated and will be known as 'Matriz de monitoreo de manejo efectivo de las ANP del SINANPE'.

35.7 Strengths

The methodology is embedded in the management agency with assistance from international bodies and NGOs.

According to the workshop on MEE in the Andes (Cracco *et al.* 2006), the methodology is simple and participative, easily applicable, has low cost, is flexible and accepted by protected area managers.

The revised methodology is compatible with the IUCN-WCPA Framework.

35.8 Elements and indicators

Three scopes are used:

- Administrative,
- Legal/Institutional, and
- Protected area management.

All of them have the same weight. There are 10 variables and 26 sub-variables: based on the idea of defining an expected situation with indicators as verification instruments.

35.9 Scoring and analysis

Each expected situation has four alternatives (0-3).

36 Mexico SIMEC – System of Information, Monitoring and Evaluation for Conservation

36.1 Organisation

National Commission of Protected Areas of Mexico (CONANP)

36.2 Primary methodology reference

Comisión Nacional de Áreas Naturales Protegidas (CONANP). Resumen Ejecutivo del Sistema de Información, Monitoreo y Evaluación para la conservación – SIMEC. México, 2007.

36.3 Brief description of methodology

The methodology is a rapid assessment based on a scorecard questionnaire. The scorecard includes all six elements of management identified in the IUCN-WCPA Framework (context, planning, inputs, process, outputs and outcomes), but has an emphasis on context, planning, inputs and processes. It is basic and simple to use, and provides a mechanism for monitoring progress towards more effective management over time. It is used to enable park managers and donors to identify needs, constraints and priority actions to improve the effectiveness of protected area management.

The system has been built with strategic indicators to measure the performance in the application of public policy designed for the conservation of the Priority Conservation Regions in the country, which encompass Mexico's protected areas.

36.4 Purposes

- ✓ to improve management (adaptive management)
- ✓ for accountability/ audit

36.5 Objectives and application

The general objective of the SIMEC is to establish a system to integrate biological, geographic, social and economical indicators to allow the analysis of management effectiveness and impact of public policy in the priority conservation regions of Mexico.

The system is based in three main streams: information, monitoring and evaluation, organised as sub-systems with differentiated activities, interacting with each other. The interaction between information and evaluation enables an understanding of institutional goals, according to the strategic indicators in the Working Programs (2001-2006 and 2007-2012). Evaluation and monitoring are combined to show the impact of the institutional programs in conservation, through the actions established in the biological, environmental, ecosystems and social monitoring projects. Finally, the crossing of information and monitoring is used to analyse species population tendencies and ecological and social processes, through the use and analysis of databases.

36.6 Origins

The design of the system started with the revision and analysis of several methodologies (IUCN, The Nature Conservancy, WWF, and de Faria) used to measure management effectiveness in other countries of Latin America, and the establishment

of an internal consultation network in the planning phase, with representatives of the PA central offices. Indicators and their relationships were established and so were the annual goals for each indicator. Existing information was compiled and the information and evaluation tool was socialized internally in the National PA Commission (CONANP).

36.7 How the methodology is implemented

At the start of 2004, CONANP's Evaluation and Monitoring Directorate organized an internal workshop to revise its Strategic and Operation Plans of each Process and Project included in the 2001-2006 Program of Work. The workshop was based in the assessments made in 2002 and 2003 of each process and project and, as a result, the 53 indicators used were classified in four different categories:

- impact, referring to the efforts to mitigate environmental degradation;
- results, related to changes in the environment (biotic, abiotic, and human) resulting from actions of projects or programs;
- management, used to measure the accomplishment of the institutional objectives and to relate the results with the demands of the society; and
- administrative and/or support, to determine the performance and technical capabilities of the human resources in the achievement of goals and activities assigned to a certain administrative unit.

As a result of the workshop, the indicators have been reduced to a total of 28: 16 are related to processes and the other 12 refer to projects, both defined in the CONANP's program of work (see list in the next section).

The SIMEC is used to assess every one of the Regional Units of the CONANP every trimester and at the end of the year the results are summarized in an annual evaluation.

As part of the development of the SIMEC, the country has also been working on a gap analysis of priority regions for conservation and in the analysis of CONANP's capabilities, in order to contribute to improve protected area administration and management, and the conservation of ecosystems and biodiversity.

As part of the diagnosis of capabilities, the RAPPAM methodology was adapted and applied in seven workshops, encompassing all Mexican states, resulting in the collection of information for 103 federal and 40 state protected areas. Based in the identification of pressures, threats and weaknesses, an analysis of the necessary capabilities to be developed in the regional and national levels was carried out. Additionally, 400 questionnaires were applied to the CONANP staff and civil organizations in the country and a work group developed recommendations and strategies to strengthen the institutional capabilities and the professional development of the protected area managers.

The results of the RAPPAM analysis (not available yet) have been combined with the results of the SIMEC (System of Information, Monitoring and Evaluation for Conservation) to obtain quantitative and qualitative information.

36.8 Elements and indicators

There are 28 indicators related to the evaluation of management of the Federal System of PA in Mexico, listed bellow. The first 16 indicators are related to processes and the other 12 indicators refer to projects defined in the CONANP program of work.

1. Investment in the PA from alternate sources (millions of Pesos per year)
2. Number of PA with at least one economic tool or mechanism to encourage conservation
3. Number of PA with national and international cooperation projects
4. Percentage of the PA surface in the process of active or passive restoration
5. Number of permissions issued (for commerce, tourism, recreation, film)
6. Number of programs of conservation and management finished
7. Number of projects of conservation of priority species in curse
8. Area of the Conservation Priority Region with sustainable management
9. Number of work days contracted per year (related to conservation building or soil restoration)
10. Percentage of the Conservation Priority Region with sustainable management (what is the difference between this and 4.1?)
11. Total number of appliers for support (related to producer's training)
12. Number of government bodies which participate in conservation initiatives
13. Number of bodies participating in projects of conservation and/or management of ecosystems (related to social participation)
14. Medium or high level staff accomplishing with their individual training program
15. Total area of PA created per year
16. Total area of the PA with conservation certificates (accredited?)
17. PA with strategic communication materials to create a conservation culture
18. Number of events which contribute to create a conservation culture
19. Number of PA with ecotourism initiatives
20. Number of PA with personal, material and financial resources for its basic operation
21. PA with a program of control and vigilance in coordination with the "PROFEPA"
22. PA with effective co-administration of initiatives and resources with the local government and/or the civil society
23. Percentage of the Conservation Priority Region with initiatives to strengthen social and institutional participation
24. Number of communities in the Conservation Priority Region participating in conservation initiatives
25. Fundraise (millions of Pesos per year) – not clear if it is related to the access fees or general)
26. Number of PA which monitors at least one flag species population
27. PA with research initiative taken by other bodies
28. PA where the rhythm of conversion of natural ecosystems is maintained or reduced

36.9 Scoring and analysis

The indicators in the PA system evaluation receive a score related to the general goals set by theme or activity as well as to the yearly goal in the program of work.

36.10Further reading and reports

http://www.conanp.gob.mx/dcei/simec/

OCEANIA METHODOLOGIES

37 NSW State of Parks (Australia)

37.1 Organisation

NSW Department of Environment and Conservation and the University of Queensland

37.2 Primary references

Hockings, M., Carter, R.W., Cook, C. and James, R. (in prep.) Accountability, Reporting or Management Improvement? Development of a State of the Parks Assessment System in New South Wales, Australia.

NSW National Parks and Wildlife Service (2005) State of the Parks Proforma and Guidelines. NSW Department of Environment and Conservation.

37.3 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ to raise awareness and support
- ✓ for accountability/ audit
- for prioritisation and resource allocation
- to support budget submissions to government for increased funding.

37.4 Brief description of methodology

The methodology consists of a proforma which addresses each of the six elements of the IUCN-WCPA Framework. The proforma is designed to be completed for all or most protected areas in a system to provide data for compilation of a State of the Parks report. It is designed to be completed by small groups of staff involved in the management of each protected area in a small workshop setting. Assessments can be completed on a periodic basis (annually or every 2-3 years). Results from assessments can be used to track progress in individual sites over time, or analysed across a group of parks or the entire park system to provide data relevant to planning and decision making. Results across the entire park system can be used to develop a periodic State of the Parks report.

The proforma consists of four sections incorporating both quantitative and qualitative assessment items. Part A covers descriptive information about each reserve such as size, location, legal designation, IUCN Protected Area Category designation, and relevant legal and contextual information such as designation under international agreements (e.g. World Heritage or Ramsar Conventions). Part B compiles information on staff time and financial inputs into management of each reserve. Part C collects information on the existence and status of a plan of management and other plans (e.g. reserve or regional weed or fire management plans) that helped to direct management of the reserve and identifies the most important reserve values, most significant threats and key stakeholder groups and issues. Part D contains 30 assessment items that required staff to rate performance in a variety of aspects of park management against a four level ordinal scale. In all cases, where a qualitative assessment was required from staff, a justification for the assessment given and/or the sources of information used in making the assessment is required (NSW National Parks and Wildlife Service 2005).

37.5 Objectives and application

The NSW SoP system is designed to provide an overview of management effectiveness in parks and to identify factors that influence conservation outcomes on parks. The SoP system aims to:

- improve the understanding of the condition of and pressures on the parks system;
- evaluate the effectiveness of management activities against objectives and planned outcomes;
- inform planning and decision-making at all levels of management from statewide to the park level, leading to more effective management;
- act as an induction resource for staff new to a park;
- assist in the allocation of funding and resources; and
- promote effective communication of our management performance to communities (i.e. through the State of the Parks report).

37.6 Origins

The starting point for the design of the system was a review of existing management effectiveness evaluation systems around the world, focusing particularly on those systems that had been designed using the IUCN-WCPA Framework. The basic structure of the NSW State of the Parks system was built around adaptations of components taken from:

- the World Bank/WWF Alliance Management Effectiveness Tracking Tool (Stolton et al 2003), for identification of reserve values and qualitative assessment of management performance;
- WWF Rapid Assessment and Prioritisation of Protected Area Management (Ervin 2003), for assessment of threats; and
- UNESCO/IUCN Enhancing our Heritage Workbook (Hockings et al. 2001).

Additional features were added to improve the reliability and credibility of the staff assessments. These additions particularly focused on providing additional justification for assessments and documentation of sources of information used in making assessments.

37.7 Strengths

The NSW SoP system provides a relatively rapid and comprehensive methodology for assessing effectiveness of management for large numbers of protected areas. It has been applied to over 700 reserves in New South Wales. It provides information to support adaptive management, planning and decision making at the site level, across regional groups of reserves or across and entire system of protected areas. It also provides information for accountability and reporting at a system level through State of the Parks reporting.

It is designed to provide a consistent assessment across a system of protected areas in which individual parks may have very different levels of underlying monitoring data available to support the assessment. It combines quantitative data and qualitative assessments with the qualitative assessments being justified and supported by monitoring data where this is available. It addresses all six elements of the IUCN-WCPA Framework. Data can be analysed across the park system to identify key factors influencing management effectiveness.

The methodology is readily adaptable to other protected area systems and the can be used with the approval of the NSW Department of Environment and Conservation.

37.8 Constraints and weaknesses

The qualitative assessment items may vary in reliability depending on the knowledge and training of staff completing the assessment. This methodology shares this limitation with almost all other assessment systems (except those few, resource-intensive systems that rely on quantitative data). However, the NSW SoP system goes to considerable lengths to minimise any possible bias with extensive guidelines and collection of justification information. It also identifies underlying monitoring or research data used to support assessments where this is available.

37.9 How the method is implemented

The proforma has been used as both an Excel spreadsheet and as an online web-based form. The following method has been used in NSW and is recommended for any adaptation of the evaluation method to another protected area system (Hockings *et al.* in prep.):

1. Workshop indicators with staff to ensure that the methodology covers the most important aspects of management for the system being assessed and that the indicators reflect appropriate performance standards for the agency.
2. Revise indicators and guidance notes (if necessary) based on the results of the workshop(s).
3. Train staff in application of the methodology.
4. Assemble relevant information for each site in preparation for the assessment (budget information, results of monitoring programs being conducted in the protected area etc).
5. Conduct assessments for each protected area using a small working meeting of key staff involved in and other knowledgeable people (working session to complete the assessment normally lasts one day).
6. Compile and analyse results across the system of protected areas.
7. Feedback results to the protected area agency staff.
8. Periodically prepare State of Parks report (perhaps every 5-6 years).

37.10 Elements and indicators

Criteria and indicators are classified according the WCPA elements as well as their functional area.

Table 34: Indicators for NSW SoP methodology

WCPA Element	Criteria	Indicator
Context	Values	Top 5 values for which park is managed
		Significance of values (international, national or local)
	Threats	Top 5 current threats to values with assessment of impact and extent of threat
		Top 5 emerging threats to values with assessment of likely impact and extent of threat
	Stakeholders	Five primary stakeholders/issues with assessment of the nature of relationship between agency and stakeholder group
Planning	Plan of management	Existence and age of plan of management
	Subsidiary plans	Type, status, age and influence on management of other plans (e.g. fire management invasive species, visitor management)
	Planning and decision making	Identification and use of reserve values in management decision making
		Existence of clear management directions
Inputs	Budget	Recurrent budget by function (various aspects of natural resource management, visitor management, cultural heritage management administration etc)

WCPA Element	Criteria	Indicator
		Capital works budget by function (various aspects of natural resource management, visitor management, cultural heritage management administration etc)
		Revenue raised from park user and other fees
Inputs	Staff time and other labour inputs	Staff time and other labour input by function (natural resource management, visitor management, cultural heritage management, administration etc)
	Information availability	Adequacy of natural resource information to support decision making
		Adequacy of historic heritage information to support decision making
		Adequacy of indigenous heritage information to support decision making
		Adequacy of information about park visitors to support decision making
Processes	Natural resource management	Existence and adequacy of planned approach to weed management
		Existence and adequacy of planned approach to pest animal management
		Existence and adequacy of planned approach to fire management (in relation to both natural and cultural resources)
		Existence and adequacy of planned approach to threatened species management
	Social/cultural management	Existence and adequacy of planned approach to visitor impact management
		Existence and adequacy of planned approach to indigenous heritage management
		Existence and adequacy of planned approach to historic heritage management
	Law enforcement	Existence and adequacy of planned approach to law enforcement
	Infrastructure/asset maintenance	Adequacy of maintenance program
	Consultation with stakeholders	Adequacy of consultation processes with indigenous communities
		Adequacy of consultation processes with local and general communities
	Monitoring	Existence of a planned approach to monitoring and evaluation
Outputs	Visitors, visitor facilities and information	Visitor numbers
		Adequacy and appropriateness of visitor facilities
		Adequacy and appropriateness of visitor information and signage
		Existence and adequacy of planned approach to interpretation and visitor awareness/education
	Implementation of plans and work programs	Extent of implementation of management directions
		Existence and extent of implementation of work program for park
Outcomes	Natural resource management	Extent to which weed impacts on park values are being controlled
		Extent to which pest animal impacts on park values are being controlled
		Extent to which fire is being managed to meet ecological and cultural heritage management objectives for park
		Condition of threatened species in park
		Condition of nominated principal natural resource values
		Whether change in condition of natural resource values can be attributed to management actions

WCPA Element	Criteria	Indicator
		Condition of nominated wilderness resource values
		Whether change in condition of wilderness resource values can be attributed to management actions
	Social/cultural management	Extent to which visitor impacts on park values are being controlled
		Extent to which impacts on indigenous heritage values are being controlled
		Extent to which impacts on cultural heritage values are being controlled
		Condition of nominated principal indigenous heritage values
		Whether change in condition of indigenous heritage values can be attributed to management actions
		Condition of nominated principal historic heritage values
		Whether change in condition of historic heritage values can be attributed to management actions
	Other values	Condition of other nominated park values
		Whether change in condition of other park values can be attributed to management actions
	Law enforcement	Extent to which impacts of illegal activities on park values are being controlled
	Visitor information	Extent to which visitor and information needs are being met through awareness/education programs

37.11 Scoring and analysis

The methodology uses a mix of quantitative and qualitative indicators. Most qualitative indicators are scored on a four point ordinal descriptive scale. In addition to the rating on this scale, information is collected on the justification for the rating that is given, the sources of information used in making the assessment, the proposed actions to be taken in relation to the issue over the coming twelve months, and the extent to which actions for the previous twelve months had been achieved.

Analysis can be conducted on individual sites or, more commonly, on groups of sites or the whole system of protected areas. Performance can be reported on a site or area basis (i.e. the number of sites performing at a specific level or the percentage area of the total estate in different performance categories. Correlation and pattern analysis across a dataset for a protected area system can identify possible factors influencing park management performance.

38 Victorian State of Parks (Australia)

38.1 Organisation

Parks Victoria, Australia.

38.2 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ to raise awareness and support
- ✓ for accountability/ audit
- ✓ for prioritisation and resource allocation
- ✓ to support budget submissions to government for increased funding.

38.3 Brief description of methodology

This methodology was developed to provide information to prepare a State of the Parks report. The methodology consists of a proforma that addresses each of the six elements of the IUCN WCPA Management Effectiveness Framework. The proforma is designed to be completed for all or most protected areas in a system to provide data for compilation of a State of the Parks report. It is designed to be completed by park staff in a workshop setting under the direction of a trained facilitator. A single workshop covers a group of geographically related parks. Results from assessments can be used to track progress in individual sites over time, or analysed across a group of parks or the entire park system to provide data relevant to planning and decision making.

38.4 Objectives and application

The Parks Victoria SoP system is designed to provide an overview of management effectiveness in parks and to identify factors that influence conservation outcomes on parks. The SoP system aims to:

- promote effective communication of our management performance to communities (i.e. through the State of the Parks report)
- improve the understanding of the condition of and pressures on the parks system;
- evaluate the effectiveness of management activities against objectives and planned outcomes; and
- inform planning and decision-making at all levels of management from statewide to the park level, leading to more effective management.

38.5 Origins

The system has developed from an original State of the Parks report prepared in 2000 that was a more descriptive account of the park system and pressures on individual reserves. Additional elements have been added to incorporate data from existing research and monitoring programs and agency databases. Qualitative assessment items were incorporated based on items from the NSW State of the Parks methodology.

38.6 Strengths

The Parks Victoria SoP system provides a relatively comprehensive methodology for assessing effectiveness of management for large numbers of protected areas. Incorporation of data from diverse sources means that it is less rapid than the NSW State of the Parks system. It has been applied to 400 reserves in Victoria. It provides information to support adaptive management, planning and decision making at the site level, across regional groups of reserves or across and entire system of protected areas.

It also provides information for accountability and reporting at a system level through State of the Parks reporting.

It is designed to provide a consistent assessment across a system of protected areas in which individual parks may have very different levels of underlying monitoring data available to support the assessment. It combines considerable quantitative data together with qualitative assessments. Qualitative assessments information is justified and supported by monitoring data where this is available. It addresses all six elements of the IUCN-WCPA Framework. Data can be analysed across the park system to identify key factors influencing management effectiveness.

38.7 Constraints and weaknesses

The qualitative assessment items may vary in reliability depending on the knowledge and training of staff completing the assessment. This methodology shares this limitation with almost all other assessment systems (except those few, resource-intensive systems that rely on quantitative data). However the Parks Victoria SoP system goes to considerable lengths to minimise any possible bias by using a facilitated workshop to complete assessments and collection of justification information for any ratings. It also identifies underlying monitoring or research data used to support assessments where this is available.

38.8 How the method is implemented

The proforma is developed as an Access database. The following process was used in applying the system:

1. Train facilitators in application of the methodology.
2. Assemble relevant information for each site in preparation for the assessment (information from agency databases, results from research and monitoring programs being conducted in each protected area etc).
3. Conduct assessments workshops of key staff involved in management of a group of parks in an administrative region.
4. Compile and analyse results across the system of protected areas and incorporate data from corporate databases in
5. Feedback results to the protected area agency staff
6. Prepare State of Parks report (planed for every 5-6 years).

38.9 Elements and indicators

The elements and indicators are similar to the ones from the NSW State of Parks.

38.10 Scoring and analysis

The methodology uses a mix of quantitative and qualitative indicators. Most qualitative indicators are scored on a four point ordinal descriptive scale. In addition to the rating on this scale, information is collected on the justification for the rating that is given, the sources of information used in making the assessment, the proposed actions to be taken in relation to the issue over the coming twelve months, and the extent to which actions for the previous twelve months had been achieved.

Analysis can be conducted on individual sites or, more commonly, on groups of sites or the whole system of protected areas. Performance can be reported on a site or area basis (i.e. the number of sites performing at a specific level or the percentage area of the total estate in different performance categories. Correlation and pattern analysis across a dataset for a protected area system can identify possible factors influencing park management performance.

39 Tasmanian World Heritage MEE (Australia)

39.1 Organisation/ Affiliation

Tasmanian Parks and Wildlife Service

39.2 Primary reference

Parks and Wildlife Service (2004) State of the Tasmanian Wilderness World Heritage Area – an evaluation of management effectiveness, Report No. 1 Department of Tourism Parks Heritage and the Arts, Hobart, Tasmania.

Jones, G (2000); Outcomes-based evaluation of management for protected areas – a methodology for incorporating evaluation into management plans, in The Design and Management of Forest Protected Areas, (eds.) D Rana and E Edelman, WWF International, Gland: 341-349

39.3 Purposes

- ✓ to improve management (adaptive management)
- ✓ for accountability/audit
- ✓ for prioritisation and resource allocation
- ✓ to raise awareness and support

39.4 Brief description of methodology

The methodology is based on assessment of the achievement of the key desired outcomes specified in the Tasmanian Wilderness World Heritage Area Management Plan. Actions in each section of the plan specify associated monitoring and evaluation criteria with more than 230 monitoring and assessment items listed in the 1999 version of the plan.

The evaluation report provides evidence of management performance against each of the objectives of management or key desired outcomes (KDOs) in the plan where data from monitoring programs is available or based commentary from staff within the Agency.

While the general approach is transferable to other protected areas, the specific indicators are not easily transferable as they relate to the specifics of the KDOs in the plan. There is no consolidated list of indicators available in the 2004 evaluation report.

39.5 Objectives and application

The objective of the system is to provided structured information on the performance in management against the KDOs established for management of the site. This information is intended to both provide feedback to improve management in the future as well as to meet public accountability requirements. The report consists of presentation of evidence from monitoring and research programs as well as qualitative assessments from staff and stakeholders.

39.6 System origins

The system for evaluating management performance for the Tasmanian Wilderness World Heritage Area was developed by an evaluation consultant working closely with Agency staff to identify key desired outcomes of management and potential

performance indicators. This approach was integrated into the (10 year) statutory management plan for the area which also prescribes requirements for monitoring and regularly reporting on management.

39.7 Strengths

The primary strengths of the methodology are the tight alignment of the evaluation approach with the management plan and the incorporation of quantitative data from monitoring programs where this is available. The emphasis on adaptive management and use of the results of the assessment to improve management practices and systems is another strength.

39.8 Primary constraints and weaknesses

The extent of monitoring and assessment envisioned in the management plan prescriptions would be beyond the capacity of most management agencies if quantitative data was to be collected and presented for all KDOs.

39.9 How the methodology is implemented

The evaluation report was assembled by dedicated evaluation staff over a number of years, accessing information from field staff, reviewing monitoring and research reports, auditing management plan implementation and conducting stakeholder surveys and interviews.

39.10 Elements and indicators

There is no standardised or consolidated list of specific indicators used in the assessment report. Performance is reported under the following headings.

Aspect of plan	Reporting areas
General Management and Arrangements	• Achievement of desired outcomes of management. • Balance of management effort across responsibilities. • Community acceptance of TWWHA management. • Legislation, law enforcement and compliance. • Accordance of management with legal instruments and conservation agreements. • Management of controversial issues. • Land tenure, boundary and adjacent area management. • Transmission of knowledge and ability to future generations. • Community engagement with the TWWHA. • Management arrangements for Aboriginal heritage. • Integration of TWWHA management with local and regional planning. • Public health and safety in the TWWHA. • Management of property and assets. • Standard and practice of management. • Performance evaluation and adaptive management.
Identification and understanding of the natural and cultural heritage	• Identification and definition of the natural and cultural values. • Knowledge of the natural and cultural values. • Social and cultural values affecting management. • Adequacy of knowledge for sound management.
Protection of the natural and cultural heritage	• What is the natural and cultural heritage of the TWWHA? • What are the main threats to the natural and cultural heritage? • Management of identified threats and adverse impacts, 1992-19999. • Cessation or reduction of damaging activities and practices. • Wildfires.

	• Plant diseases and dieback. • Weeds and other introduced plants. • Introduced animals. • Tourism and visitor activities and use. • Development of new facilities and other infrastructure. • Coastal erosion of Aboriginal heritage sites. • Lack of maintenance or active conservation of historic heritage. • Regulation of river flows by hydroelectric power generating operations.
Conservation and rehabilitation of the natural and cultural heritage	• Condition of natural diversity and processes. • Wilderness quality. • Environmental quality. • Landscape quality. • Condition of Aboriginal and historic heritage. • Monitored condition of significant values (including degraded values).
Presentation of the natural and cultural heritage	• Community awareness and support for the TWWHA. • Popularity and effectiveness of information and education products and services. • Visitor facilities, use and sustainability. • Visitor satisfaction with facilities, services and their experience of the TWWHA.
Stakeholders' assessments of management performance	• How were stakeholders' assessments gathered? • Overall management performance. • General management and arrangements. • Identification and understanding of values. • Protection and conservation of values. • Presentation values.

39.11 Scoring and analysis

There is no structured scoring system or consistent form of analysis across the assessment. Information in relation to each topic is usually presented on:

- Key desired outcomes addressed
- Management actions undertaken
- Results
- Outcomes
- Commentary on management performance
- Key factors positively contributing to management performance
- Key factors limiting or threatening management performance
- Suggestions for improving management effectiveness
- Sources of information and comment

40 Queensland PA Integrity Statements (Australia)

40.1 Organisation/ Affiliation

Queensland Parks and Wildlife Service – QPWS (Australia)

40.2 Purposes

- ✓ **to improve management (adaptive management)**
- ✓ for accountability/ audit
- ✓ for prioritisation and resource allocation
- ✓ to raise awareness and support

40.3 Brief description of methodology

To assess whether management is actually protecting the unique values of each protected area and as an 'early warning' system for emerging threats and impacts, QPWS has developed a monitoring and reporting framework which can be used for ecological integrity, cultural integrity and presentation (community relations and visitor management). The evaluation tools can be totally integrated into management planning and periodic reporting.

This methodology is based on the identification of values and indicators and helps managers assess current status and activities, identify gaps and develop future programs on a strategic basis. The development of indicators from a values based approach allows strategic direction setting that is not solely reactionary to current threats. Directions for monitoring can be adapted to changing situations including the availability of funding and research partners very quickly.

40.4 Objectives and application

The 'integrity statements' are aimed primarily at assessing the status of values of protected area and should be used as tools for adaptive management. By 'rolling up' results across a district they are also useful for setting priorities for monitoring, research and management interventions, and thus for allocating resources on an informed and logical basis. In addition, they provide useful information for public communication and awareness raising. They are designed to be used in combination with a 'rapid assessment' scorecard which assesses the adequacy of input and processes.

By 2007, approximately 90 Integrity statements had been completed for protected areas in the Southern region of Queensland. These reserves ranged from national parks of 150,000ha to very small conservation parks of less than 30ha. The method is not fully adopted throughout the parks system.

40.5 Origins

The methodology was originally developed as a commitment in the protected area system Master Plan (Queensland National Parks and Wildlife Service 2001), with ideas based on the 'ecological integrity' approach taken in Canada. A workshop of staff and other experts in 2000 defined the categories of values – both ecological and cultural - which should be assessed throughout the parks system, and recommended that while some common factors should be measured in all locations, individual key values defined for each protected area should be the basis for monitoring and reporting

systems. Due to the large number of protected areas and the paucity of recorded information in most cases, it was recognized that an integrated system of monitoring and reporting should be used to:

- Ensure that information from all sources (scientific, traditional, community, expert opinion and anecdotal) should be recorded in a consistent and easily accessible form; and
- Set priorities for future monitoring and research in the protected area system.

To maximize the accessibility and usefulness of evaluations to all field staff, an excel spreadsheet was designed to capture the information for natural, cultural and presentation values, and these automatically generate documents suitable for public distribution.

Over time, further ideas from a range of sources including Parks Canada (Parks Canada Agency 2005), The Nature Conservancy (Parrish *et al.* 2003) and the Enhancing our Heritage toolkit (Hockings *et al.* 2007) have been incorporated and the spreadsheets can now be used to generate monitoring priorities.

40.6 Strengths

- The methodology focuses on outcome assessment and is thus useful for evaluating the key questions as to how well protected areas are working;.
- Monitoring plans for protected areas and focal values are produced as part of the process;
- It provides relatively rapid reporting, and can produce written material even where published or formal scientific information is scarce, as a 'best estimate' of current status and a benchmark for the future;
- Existing scientific knowledge is better integrated into management;
- The process, especially the workshop, focuses protected area staff and others on key outcomes and provides a opportunity for them to exchange information and to reflect on the real effectiveness of their work;
- Workshops also provide an incidental 'peer review' for management of natural and cultural resources;
- Integrity spreadsheets provide vital data for management planning and review and can be fully integrated with planning, business planning and reporting systems.

40.7 Primary constraints and weaknesses

- The spreadsheets can take time to fully complete, and there is often not sufficient information to fill in all fields. Some staff find the concept of relatively rapid assessment, the recording of existing information, and the need to make decisions on acceptable thresholds difficult to accept.
- Many assessments are only partially finished, especially in relation to cultural values.
- The method is not yet fully institutionalized and results are not yet available to the public.

40.8 How the methodology is implemented

The spreadsheets are usually completed by planning or natural resource management staff from regional or district officers. People with broad knowledge of natural and cultural systems of the area, as well as good recording and facilitation skills, are needed. Some training in the methodology and its aims is necessary beforehand.

Stage one: preliminary gathering of base protected area data (including plans, reports and papers), and drafting the key values, directions and threats where this information is available. Effective work at this stage reduces staff time at workshops and increased the credibility of the assessor.

From the often vast array of possible values, key values are identified. This is usually done through qualitative judgment, but can be further quantified if necessary Criteria for key values (natural, cultural and presentation) include:

1. representativeness and extent;
2. rarity and irreplacability (e.g. rare and threatened species; most important habitat for an endemic species, only remaining example of building type);
3. level of threat;
4. level of importance to the local or wider community and to park visitors (e.g. landscapes with traditional importance; animals recognised as special by visitors, even if common species);
5. importance to functioning of ecosystem;
6. usefulness as indicator of park integrity, climate change, or other critical factor; and
7. current target for monitoring and research.

Stage two: workshops with protected area staff and other experts to confirm or add to the list of key values, an to estimate the desired and current status of the defined values and any management issues associated with their conservation, as well as threats to the protected area. Information is based on the knowledge of these people as well as any written information, monitoring records, photographs and remote sensing imagery, protected area journals etc. Data is recorded directly onto computer and projected for group consensus.

These workshops can usually cover at least one protected area in a day, or more depending on the complexity of the protected area, the number of people involved, and the amount of information available. In some case these workshops are held on-site and field conformation may be included, but generally existing knowledge is used and workshops can be conducted in district offices.Follow-up workshops or extended workshops are needed to complete the monitoring plan with decisions on attributes, measurable indicators, monitoring methods and acceptable threshold levels.

Stage three: Information and write-ups are completed and confirmed, further expert opinion may be sought, and summaries produced, and the completed sheets are returned to field staff for their review and use.
Follow-up assessments should be completed every three to five years to reveal trends and emerging issues.

40.9 Elements and indicators

Table 35: List of value and threat categories

Natural Values	
Significant landscapes and regional ecosystems	Scenic values Significant regional ecosystems Significant landscapes Research values
Significant plants and animals	Rare and threatened plants
	Rare and threatened animals
	Species of special significance
	Research values
Ecosystem services	Catchment protection
	Landscape function
	‘ benchmark’ value
	Air quality

	Other
Reserve in Context	Surrounding land uses
	Impact of these on the park
Threats to natural values	Climate change Pollution from adjacent areas Impacts from park management Siltation/erosion Increasing fragmentation of habitat in the region Internal Fragmentation Pest Plants Pest Animals Inappropriate fire regimes Visitor Impacts Hydrological modification Other
Natural values - potential	Vegetation and habitat extension and corridors Improved environmental management of park Improved environmental management off Park Other
Cultural values	
Indigenous	Known values and significance to Indigenous people
	Indigenous material culture
	Stories and histories
Non-indigenous culture	Material culture
	Social values
	Aesthetic values
	Cultural landscapes
	Other
Threats to cultural values	Fire
	Vegetation
	Erosion
	Weathering (wind and water)
	Pests (termites)
	Inappropriate use of cultural sites or buildings
	Recreation impacts
Cultural values – potential	Potential for cultural tourism
	Community partnerships - management or presentation
	Interpretation potential
	Research Potential
	Other
Key values - presentation/ interpretation	Geology/ landscape
	Plants/ vegetation
	Animals
	Culture/ heritage
	Others
Major recreation values/ opportunities	List activities
	Landscape settings
Threats to presentation values	Pest Plants / Weeds
	Pest Animals
	Erosion / siltation
	Over usage / visitation pressure
	Vandalism or unauthorised use
	Conflict between user groups
	Management limitations

Table 36 : Example of threat evaluation

Type of threat: Pest plants	**Current impact**	**Potential impact in 10 yrs under current management regime**
Extent of Impact	0.2 (Very Low	4 (Moderate)
Severity of Impact	1.7 (Very Low)	3 (Low to moderate)
Details		
noogoora burr	drought is keeping low, but big seed bank - comes down with water from adjacent property. Restricts wildlife access to water; depletes feeding grounds around lakes; dominates habitat	after drought, could be major outbreak here and further down catchment
other weeds	all being monitored - small scattered areas - control measures implemented as needed. Oil line has been source of some weeds	needs continual vigilance to maintain current status

40.10 Scoring and analysis

Scoring for condition, trend and threat level for individual protected areas follows the system used by TNC (TNC 2002) and is accompanied by qualitative information for adaptive management. Spreadsheets are constructed so that results can be summarized over a number of protected areas, so regional totals can be obtained.

Table 37: example of preliminary assessment of values, condition and trend

Key values (summary)	Management goals for value	condition and trend 2005	notes on condition threat and opportunities	data
Rare and threatened plants				
Acacia ammophila - the largest known	to maintain viable populations across the park – prevent damage from stock and feral goats	Very good ↑	Condition has improved since park gazettal - removal of grazing has improved recruitment. .Drought threatens new seedlings; Stock and feral goat incursion potential problem	A – See publication by Smith et al 2005
rare and threatened animals				
Freckled duck (formerly up to 20 resident pairs) and other waterbrids	Restore population of freckled ducks	Poor ↓	Only one pair of freckled ducks has been seen for past five years, since land to west of park was cleared Domestic and feral animals, especially cats and foxes are threats	D - anecdotal report by ranger B – records of local birdwatcher
Indigenous cultural heritage				
Significance as refuge convergence site and food source Significant places including good examples of tool and stone types and hearths. .	Places of Aboriginal cultural heritage value are identified and areas of significance are protected.	Good ↑	Some knowledge and connection to the area remains with local traditional owners, but there is potential for them to further re-establish ties with the park. Materials could potentially be lost through vandalism and souveniring, but there are no records of this occurring.	B – information held by traditional owners

KEY TO RATINGS	(Source TNC methodology – see Parrish 2003)
Very good (optimal)	ecologically desirable condition, requires little human intervention
Good (OK)	Within acceptable range of variation; requires some intervention
Fair (significant concern)	Outside acceptable range of variation but with intervention can be restored
Poor (imminent loss)	Outside acceptable range of variation; requires major intervention

KEY TO DATA CERTAINTY
A - published data or very high standard of scientific certainty
B - recorded in formal diary; monitoring program or photographic record or opinion from one or more expert
C - observation with high degree of confidence from one or more 'lay person'; written record
D - anecdotal information or 'best guess'

41 Parks Canada Ecological Integrity Assessment

41.1 Organisation

Parks Canada

41.2 Primary methodology reference

Parks Canada Agency (2005) 'Monitoring and Reporting Ecological Integrity in Canada's National Parks Volume 1: Guiding Principles.' Parks Canada Agency Ottawa.

Parks Canada Agency (2007) 'Monitoring and Reporting Ecological Integrity in Canada's National Parks Volume 2: A Park-Level Guide to Establishing EI Monitoring.' Parks Canada Agency Ottawa.

http://www.pc.gc.ca/progs/np-pn/eco/eco3_e.asp

41.3 Brief description of methodology

Parks Canada's ecological integrity (EI) monitoring program is to provide relevant and timely advice on the state of the park EI (condition assessment) and the effects of management actions on it (management effectiveness monitoring).

PCA Executive Board has also directed the program to focus on answering the following two questions:
1. "What is the state of park EI?, and
2. "What are we doing to improve it?"

Condition monitoring is aimed at answering the first question – "What is the state of park EI?" It provides medium or long-term monitoring data for reporting overall park EI. It is summarized in 6-8 EI indicators which are comprised of a small suite of EI measures selected to measure ecosystem biodiversity, processes, and stressors. The current condition and trend of these measures will be tracked by the monitoring program.

Management effectiveness monitoring is designed to look at the ecological impact of planned management actions thus answering the second question – "How do our management actions affect EI?" It will look at EI measures specific to a project before and after a management action and will provide data to report on the ecological effectiveness of these actions.

PCA has a legislated mandate to report on the condition of EI in national parks. This is accomplished by a national overview called the State of the Protected Heritage Areas Reports (SoPHARs) and park specific State of the Park Reports (SoPR). The SoPHAR is developed every 2 years and is used to communicate the state of EI in the overall national park network. The SoPR is developed every 5 years to identify the key ecological issues facing each individual park.

Data generated by park EI monitoring programs will be used as the basis for the SoPR. It reports on assessments of the current condition and trend of the ecological indicators

and on the effectiveness of individual management actions taken. The SoPR will also include assessments of Visitor Experience, Public Education the condition of historic resources within the National Park.

41.4 Purposes

- ✓ **for prioritisation and resource allocation**
- ✓ to raise awareness and support
- ✓ to improve management (adaptive management) – at system level
- ✓ to ensure memorable visitor experiences and effective public education.

41.5 Objectives and application

The principal aim of the PCA ecological integrity (EI) monitoring program is to provide park managers with relevant and timely information on the state of park EI (condition monitoring) and the effects of management actions on it (management effectiveness monitoring).

The program is being applied across the protected area system, with two of the three manuals for the methodology now available (Parks Canada Agency 2005; 2007)

41.6 Origins

The term 'ecological integrity' was first introduced into Parks Canada policy in 1978 and gained legal status by inclusion in the National Parks Act in 1988 (McCanny and Henry 1995). The emphasis on park EI as an important management objective was solidified in the Canada National Parks Act (2001) which states that managing for ecological integrity is the '…first priority of the Minister…', and that Parks Canada is legally responsible for demonstrating that the ecological integrity of national parks is either being maintained or restored. Direction from the National Parks Action Plan also makes it very clear that visitor experience and education is the key to maintaining or restoring EI over the long term.

After earlier work by Woodley and others for specific parks, the role of ecological integrity monitoring in national parks was brought into clear focus through the recommendations of the EI Panel Report (Parks Canada Agency 2000). The EI Panel clearly recognized the important role of ecological integrity monitoring in implementing an adaptive management approach, and recommended that accountability be linked to results obtained from EI monitoring. Other recommendations included the adoption of ecological integrity monitoring framework (Table 38), and using that framework to evaluate and improve existing programs for each national park.

Proposed program elements for implementing EI monitoring across the PCA network were presented to PCA Executive Board in November 2003.

41.7 Strengths

The Parks Canada EI methodology is an integrated system which ties together planning, monitoring, effectiveness evaluation and actions. It has a strong scientific underpinning but is relevant to protected area staff and can be communicated to the public. Through clear links it can provide information at very general or detailed level depending on the need and the audience.

The commitment of the agency to the methodology and to its implementation in all protected areas is also a major advantage.

41.8 Constraints and weaknesses

The methodology requires a high level of expertise and resources. However, if the system works as planned, it means that the resources available are used effectively and that far less information is 'lost' to the system than has previously been the case.

41.9 How the methodology is implemented

The vision for the program is to develop park EI monitoring and reporting programs so that each park has an effective program. Park monitoring programs will be directly linked to park EI vision expressed in the park management plan, communicated through the development of ecosystem conceptual models, and assessed and reported through a small suite of carefully selected EI indicators that report the state of park EI. Monitoring and reporting programs will be designed to reflect the financial and human resources committed to deliver them, and will optimize those resources through bioregional cooperation among parks, careful consideration of the most cost-effective suites of measures, and by working cooperatively with partners and stakeholders to develop and sustain regional scale monitoring initiatives. Information generated by park monitoring programs will form the basis for State of Parks Reports, and for assessing and reporting the effectiveness of park management actions in the context of park ecological integrity**.**

41.10 Elements and indicators

The Executive Board has provided directions that the program must express EI in six to eight indicators per park to easily communicate the state of EI. These indicators should be the same across a bioregion with a cooperative monitoring program developed.

EI *measures* are combined into indices using statistics and models to generate 6-8 *EI indicators* for each park in a bioregion. All parks in a bioregion will report on the same suite of EI indicators, although the EI measures and field measurements may differ among parks. EI indicators will provide consistency in EI reporting, and are used for two key purposes – to provide a focus for the assessment of park EI, and to provide clear statements about park EI and how it is changing. As for EI measures, the levels of EI indicators are compared to monitoring targets and thresholds to express levels of the EI indicator in relation to established ecological reference values and park management objectives for ecological integrity.

Monitoring thresholds are levels of the EI indicator or measure that are determined to represent boundaries between high, medium and low levels of ecological integrity. If, for example, the level of a measured songbird population that was in a high EI category drops below a relatively conservative pre-determined level (implementing a precautionary approach), then a 'warning bell' will sound, and a number of management actions may occur, such as: re-analysis of the data, reconsideration of the threshold, comparisons of this decline with data collected on the same species by other agencies or other parks in the bioregion, or expanded research to analyze the issue. This work may lead to the identification of a stressor that can be relieved through active management, and the measure can then be used to show the effectiveness of the management action invoked.

A *monitoring target* is that level of an EI indicator or measure that represents full ecological integrity, i.e., a healthy and viable lake fish population level, an acceptable degree of trail braiding, or a level of tree productivity typical of regional rates of growth for that ecological site.

The monitoring target and thresholds for an EI indicator or measure will require careful ecological analysis and wide consultation and/or research and experimentation. In the short term, assessments of EI indicators will be based on existing program data supported by a narrative (expert opinion) that relates the condition of the various apects of the indicator to park EI vision. In the long term, levels of the EI indicators will be based on data from a small suite of long, medium and short term EI measures, from which a semi-quantitative index (the EI indicator) will be developed.

A *monitoring baseline* is the level of the EI measure or indicator at the onset of Monitoring. If the EI measure/indicator has a high level of EI at the outset of measurement, then the monitoring baseline will be the same as the monitoring target.

Table 38: Teminology used by Parks Canada

Term	Definition	Examples
Field measurements	the fundamental data collected through a monitoring project and which contribute to the suite of EI measures that make up an EI Indicator	fish condition assessment, creel census data, game fish population estimates, electro-fishing; pH, BOD, nutrients, heavy metals; chlorophyll a
EI Measure	monitoring data that contribute to an EI indicator, that are collected over time following a strict protocol, to measure present condition and change since the last measurement; an EI measure may be a single ecological field measurement, or may combine field measurements into an index; all EI measures will have targets and thresholds	*fish population measure* (an index developed from a small suite of fish field measurements such as fish condition index, game fish population estimates, creel census data, electro-fishing sampling) *water quality measure* (a water quality index developed from a suite of water quality field measurements such as pH, metals, nutrients, dissolved oxygen) *chlorophyll a measure*
EI Indicator	one of 6-8 indices, comprised of an internal suite of EI monitoring measures, that are combined through semi-quantitative models to provide a clear message on a key park EI element; all EI Indicators will have targets and thresholds	lake EI Indicator (LEI): in this example, values of the indicator range along a gradient derived from an index that ranges from 0-35
Threshold	levels of an EI indicator or EI measure that represent high, medium and low ecological integrity; trends that cross thresholds invoke a pre-described management response	lake EI > 22 – high EI; LEI 11-22 – medium EI; LEI < 11 – low EI for the lake EI indicator (EI measures will also have thresholds)
Target	desired condition of the EI indicator or EI measure, i.e., the level of the EI indicator or EI measure that represents high EI	target lake EI = 24-28 for the lake EI indicator(EI measures will also have targets)
Baseline	level of an EI indicator or EI measure at the onset of monitoring measurement	lake EI = 25 for the Lake EI Indicator(EI measures will also have a baseline)

The park EI monitoring and reporting program is defined in three interconnected components:

a) link EI monitoring and reporting to the park management planning process;
b) develop and implement EI measures, targets and thresholds; and,
c) analyze, assess and report monitoring results.

For most of the regions of Canada, the main indicators are the ecosystem types found there, as shown in Table 39 (Parks Canada Agency 2007)

Table 39: EI indicators for Canada's bioregions. Source (Parks Canada Agency 2007)

EI Indicators					
The North	Pacific Coastal	Interior Plains	Great Lakes	Quebec Atlantic	Montane Cordilleran
Forest	Forest and woodlands	Forest	Forest	Forest	Terrestrial ecosystems
Tundra	Non-forest	Grasslands	Non-forest	'Barrens'	
Wetlands	Lakes and wetlands	Wetlands	Wetlands	Wetlands	Aqautic ecosystems
Freshwater	Streams and rivers	Lakes	Lakes	Aquatic	Native biodiversity
Glaciers	Islets/ shorelines	Streams	Streams	Coast	Geology and landscapes
Coastal	Inter-tidal		Great Lakes Shore	Marine	Climate and atmosphere
Marine	Sub-tidal				Support for EI

Each park is required to develop conceptual models for these ecosystems and to document the key relationships between ecosystem components. The manual, gives detailed advice as to how to establish condition and trend scores for the various measures involved.

42 US State of Parks

Written with assistance from James Nation: text largely reproduced from the NPCA website

42.1 Organisation/ Affiliation

National Parks Conservation Association (NPCA)

42.2 Primary references

http://www.npca.org/stateoftheparks/

National Parks Conservation Association State of the Parks Program (2005) Cultural Resources Assessment Methodology. National Parks Conservation Association, downloaded from http://www.npca.org/stateoftheparks/methodology2.pdf

National Parks Conservation Association State of the Parks Program (no date) State of the Parks: Natural Resources Assessment and Ratings Methodology. National Parks Conservation Association, downloaded from http://www.npca.org/stateoftheparks/methodology1.pdf

42.3 Purposes

- ✓ to raise awareness and support
- ✓ to improve management (adaptive management)

42.4 Brief description of methodology

The NPCA is a non-government organisation which works towards advocacy and awareness of national parks in the USA. To help inform their advocacy work, they conduct detailed assessments of national parks using a consistent methodology and produce "State of the Parks' reports available on the internet. The reports present qualitative ratings backed by in-depth but readable descriptions of the strengths and weaknesses of management.

To develop the park assessments, researchers interview park staff, examine resource conditions on the ground with park rangers and park friends groups, consult with National Park Service experts, and analyse publications and documents in the park's library, from on-line sources, and from the scientific literature at large. The resulting data are processed through a set of more than 200 questions and discrete metrics, which produce numerical scores for natural and cultural resource conditions. Because scores for each park are based on the same set of metrics, this system allows comparison of the scores of one park with another as well as changes in an individual park's score through time. Once data are analysed and resource conditions are determined, the results are communicated to the public, decision-makers, and the National Parks Service.

42.5 Objectives and application

The stated objectives of the State of the Parks Centre of the NPCA are:

- "To identify and understand those park-specific and system-wide issues and threats that challenge both the immediate and long-term integrity of park resources.
- To foster and promote awareness of national park resource conditions within NPCA and among policy makers, the public, and the National Park Service.

- To provide a credible and defensible basis upon which NPCA can organize constituencies and strategies to effectively address identified concerns and promote the National Park Service's capacity to contain or mitigate them.
- To help achieve positive, measurable change in the condition of resources in our national parks." (NPCA 2008)

By June 2008, 54 reports were available for a range of park types, with 23 in preparation. The Center's goal is to complete a strategically selected sample of 160 park units (40 percent of the 391 park units in the U.S. National Park System) by 2014.

42.6 Methodology origins

NPCA launched its State of the Parks program in July 2000. The process was initially developed with Colorado State University to devise the general topic areas desired for a resource condition assessment. This draft was applied sequentially in four "test" parks of different resource types. After each assessment was conducted, an evaluation was made on the process and the methods, and changes were incorporated for the next park with assistance from park staff and other report reviewers. In addition, the process was further guided by a 12-person advisory council comprised of experts in many of the disciplines that are included in the methodology (Peterson 2003)

These standardized and peer-reviewed methodologies provide consistent, reproducible frameworks for examining and scoring natural and cultural resource conditions. The state of stewardship capacity is also assessed.

As the State of the Parks program has developed and gained more expertise and broader insights into park resource conditions, its role has expanded to also include research aimed at better understanding system-wide conditions, including such things as primary threats to resource integrity and the relationship between funding and resource protection. In 2005, the program became a formal center within NPCA, and is now known as the Center for State of the Parks' (NPCA website http://www.npca.org/stateoftheparks/about.html).

42.7 Strengths

The methodology produces detailed but attractive and readable reports using a consistent methodology. These reports provide solid information and arguments for advocacy in relation to increasing resources and strengthening protection and presentation of the parks. The independence of its authors and publishers means this methodology is more robust, objective and 'fearless' than methodologies that rely on self-assessment and pre-existing information.

42.8 Constraints and weaknesses

The detailed nature of the methodology means that considerable resources, time and expertise are needed to undertake each evaluation.

42.9 How the methodology is implemented

The evaluations are conducted in 5 basic steps:

- *Background investigation*. Research park context and background information according to methodology, including key park planning documents and legislation.
- *Workshop*. Conduct a 1-day workshop at the park with key cultural and natural resource staff and other resource experts from academia, NGOs, etc. to explain program purposes, approach, to obtain a collective viewpoint on park threats,

issues, accomplishments and priorities (staff often have different perceptions) and to identify natural resource communities and representative species that will serve as indicators for ecological integrity and investigation.

- *Research and analysis.* Using a selected sample of specific park natural communities and species identified at the workshop, and the mostly qualitative questions for cultural resource assessment, collect existing information called for in the methodology and develop a draft report.
- *Review of draft report.* Review and comments on the draft report are solicited from workshop participants, and other interested parties.
- *Release final report.* Release the report to the media, key members of Congress, the National Park Service, select publics and other stakeholders (Peterson 2003).

42.10 Elements and indicators

Indicators are explained in detail in two publications, dealing with natural resources (National Parks Conservation Association State of the Parks Program no date) and cultural resources (National Parks Conservation Association State of the Parks Program 2005).

The natural resource assessment is based upon the Nature Conservancy's 5-S planning and evaluation methodology. The rating reflects assessments of more than 120 discrete elements associated with environmental quality, biotic health, and ecosystem integrity. Environmental quality and biotic health measures address air, water, soils, and climatic change conditions as well as their influences and human-related influences on plants and animals. Ecosystems measures address the extent, species composition, and interrelationships of organisms with each other and the physical environment.

The scores for cultural resources are determined based on the results of 90 indicator questions that reflect the National Park Service's own Cultural Resource Management Guideline and other Park Service resource management policies.

Stewardship capacity refers to the Park Service's ability to protect park resources, and includes discussion of funding and staff levels, park planning documents, resource education, and external support. Indicators for natural and cultural assessments are summarized in Table 40

Table 40: Indicator groups for natural and cultural assessments

Natural resource assessments

I. Park and resources context

A. Bio-geographic and physical setting
- I. Park location, size/area
- Ii. Climatic regime
- Iii. Geology and land forms
- Iv. Hydrologic overview
- V. Ecological and habitat classifications

B. Regional and historical context
- I. Land use history
- Ii. Adjacent land use

C. Unique park resources and designations
- I. Aesthetic resources
- Ii. Unique features
- Iii. Special designations

D. Park science and resource management
- I. Management plans
- Ii. Research and monitoring
- Iii. Education and outreach

Ii. Assessment criteria

Cultural resources assessments

Index One: History
Index Two: Archaeological Resources
Index Three: Cultural Landscapes
Index Four: Historic Structures
Index Five: Museum and Archival Collections
Index Six: Ethnography

A. Ecosystem measures
    I. Ecosystem extent and function
    Ii. Species composition and condition

B. Environmental quality and biotic health
    I. Water resources
    Ii. Air quality
    Iii. Soils and sediments
    Iv. Climate
    V. Biotic health

42.11 Scoring and analysis

A mixture of different scoring systems and qualitative descriptions are used. The natural resource assessment uses a 0-3 rating system which can be rolled up into a metric for the park overall from 0-100:.

Reporting for each park includes easy-to-understand summary figures (Figure 11).

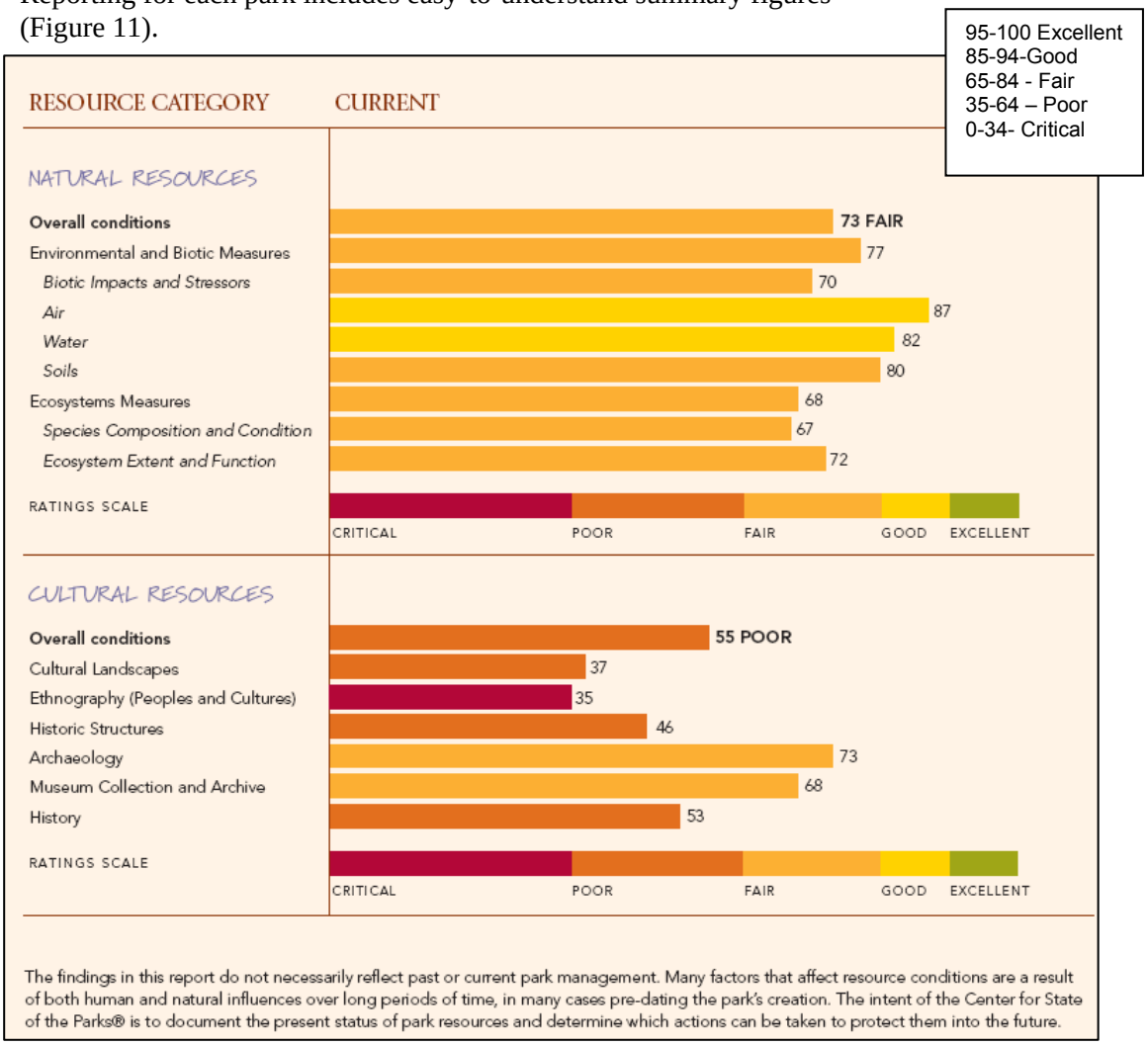


Figure 11: Example of overall park rating. Source: (National Parks Conservation Association State of the Parks Program 2008)

In addition to the scoring, the reports include clear highlights as well as more detailed text about the various indicators. The descriptions and explanations are easy to understand and provide a good basis for improving management.

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