WWF RAPID ASSESSMENT AND PRIORITIZATION METHODOLOGY FOR PROTECTED AREA SYSTEMS

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ACKNOWLEDGEMENTS

WWF has developed this methodology over the past two years. The methodology has been field tested in Algeria, Cameroon, France and Gabon, and is currently being implemented in China, Russia and South Africa. Two regional workshops have provided substantial input to the development of this methodology: one in September, 2000 in Vermont USA, and one in January 2001 in Bali, Indonesia.

The lead technical consultant in developing this methodology is Jamison Ervin (email: jervin@sover.net). The WWF Forests For Life Program contact is Devendra Rana (email: drana@wwfint.org). A complete analysis of the results of the assessments in China, Russia and Africa, as well as the final version of the methodology, will be available in early 2002.

The following individuals have provided invaluable feedback and advice in developing this methodology:


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FORMATTED VERSION OF RAPID ASSESSMENT QUESTIONNAIRE
SECTION 1: OVERVIEW AND BACKGROUND

WWF’s Forests for Life Campaign is promoting the concept of viable networks of protected areas worldwide, representing a significant percentage of each of the world’s forest types. This methodology is designed to provide policy makers with a tool for achieving that goal, by enabling a rapid assessment of the overall management effectiveness of existing protected areas. Although the methodology includes data from individual protected areas, it is not intended to provide an in-depth, detailed site-level evaluation for each site. Rather, the “Rapid Assessment and Prioritization Methodology” is designed to give an overall picture of the relative management effectiveness, threats, vulnerability and urgency of an entire protected area system within a particular country or region.

The “Rapid Assessment and Prioritization Methodology” can 1) identify overall strengths and weaknesses in management effectiveness and protected area policies; 2) analyze the overall scope and severity of a variety of threats and pressures; 3) identify areas of high ecological and social importance, and indicate their vulnerability; 4) prioritize policy interventions according to urgency and importance; and 5) complement on-going assessment efforts by identifying areas for more in-depth assessments.

The “Rapid Assessment and Prioritization Methodology” can also be adapted to fit a variety of uses, depending on how it is implemented. A very rapid approach to implementing the methodology, for example, could involve an assessment team of experts completing the questionnaire and threats analysis themselves, based on available data and professional judgement. While this approach is fast and can be inexpensive, it can also provide a broad-brush picture regarding general trends, strengths and weaknesses. However, the results depend heavily on the experts’ knowledge of the area.

A more thorough approach would involve an assessment team gathering data directly from protected area managers, policy makers and other stakeholders through questionnaires and interview. The strength of this approach is its relatively low cost and flexibility; the weakness is the possibility of uneven data quality and typically low response rates to a mail or telephone questionnaire. Furthermore, an approach that depends upon external experts is likely to draw criticism for its lack of participation, since protected area managers would not be involved in determining the conclusions, analyses and decisions stemming from the workshop.

The most thorough and effective approach in implementing this methodology is to hold an interactive workshop in which protected area managers, policy makers and other stakeholders participate fully in evaluating the protected areas, analyzing the results, and identifying subsequent next steps and priorities. This approach need not be prohibitively expensive; planning a workshop in tandem with existing meetings can minimize costs.

This methodology draws from several different approaches to assessing management effectiveness; a list of these is included in the references section. In particular, the methodology draws from an evaluation framework developed by the World Commission on Protected Areas (WCPA).

In 1995, the WCPA established a task force to explore issues related to the management effectiveness of protected areas. As a result of the task force’s work, the WCPA has developed an overall assessment framework (Hockings, 2000a) in order to provide a consistent approach to assessing PA management effectiveness worldwide. WWF’s “Rapid Assessment and Prioritization Methodology” is one of several
ongoing efforts to develop specific assessment tools that are consistent with WCPA’s framework (see Hockings, 2000; and Appendix 3).

The WCPA framework includes six main assessment elements: context, planning, inputs, processes, outputs and outcomes. Context refers to external conditions that may affect the management effectiveness, or that may qualify its importance relative to other protected areas. Examples include biological and social significance of the protected area, threats and pressures, overall vulnerability and sensitivity, as well as protected area policies. Planning refers to the design and planning of individual protected areas and protected area systems. Inputs refer to the staff, infrastructure and funding that enable management activities to take place. Processes refer to the full range of management activities, including training, implementation, research and monitoring. Outputs refer to the results of the management activities (e.g. law enforcement, boundary demarcation, fulfillment of the management plan). Outcomes refer to the effectiveness of those activities in relation to the objectives of the protected area (Hockings et al., 2000). The “Rapid Assessment and Prioritization Methodology” contains all of the six assessment elements, as illustrated in Table 1.

Table 1: Assessment Elements in the “Rapid Assessment and Prioritization Methodology”

<table>
<thead>
<tr>
<th>Context: Enabling Conditions</th>
<th>PA Design and Planning</th>
<th>Inputs</th>
<th>Management Processes</th>
<th>Management Outputs</th>
<th>Outcomes</th>
</tr>
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<tbody>
<tr>
<td>• Biological importance</td>
<td>• Objectives</td>
<td>• PA funding</td>
<td>• Information and communication</td>
<td></td>
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<tr>
<td>• Socio-economic importance</td>
<td>• PA site design</td>
<td>• Staff</td>
<td>• Data management</td>
<td></td>
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<tr>
<td>• Local and regional conditions</td>
<td>• PA system design</td>
<td>• Equipment</td>
<td>• Management planning</td>
<td></td>
<td></td>
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<tr>
<td>• Threats</td>
<td>• Legal status</td>
<td>• Transportation</td>
<td>• Monitoring and research</td>
<td></td>
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<tr>
<td>• PA policies</td>
<td></td>
<td>• Facilities</td>
<td>• Financial management</td>
<td></td>
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<td>• Policy environment</td>
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</table>

Assessments have many dimensions. They may be broad, covering a wide range of topics, or they may be focused, covering only a few specific topics. They may be rapid, assessing each topic with a simple yes/no answer, or they may be in-depth, assessing each topic with measurable indicators and verifiers. They may be office-based, relying on the professional judgement of PA managers and stakeholders, and upon coarse filter tools such as aerial photographs, or they may be field-based, relying on extensive field visits, scientific research and on-site monitoring. They may be used for broad level comparisons at a policy level, or they may be used for in-depth adaptive management and monitoring at a site level.

In general, the “Rapid Assessment and Prioritization Methodology” is designed for broad-level comparative purposes. As such, it can provide answers to questions, such as: What are the threats facing a number of protected areas and how serious are these threats? How do protected areas compare with one another in terms of infrastructure and management capacity? What is the urgency for taking actions in each protected area? What is the overall level of integrity and degradation of each protected area? How well do national
and local policies support the effective management of protected areas? Is the protected area system as a whole improving over time?

An in-depth field assessment designed for adaptive management purposes can answer much more specific questions, such as: What specific steps are needed to prevent or mitigate existing threats within each protected area? What are the specific needs for each protected area regarding training, capacity building and infrastructure support? How well is each protected area meeting its management targets and why or why not are they meeting them? What specific management policies need to be revised and how?

A broad-level assessment such as WWF’s Rapid Assessment can be complementary to more detailed site-level assessments (see Box 1). It can serve as a ‘trip-wire’ for identifying 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.

The Nature Conservancy’s Measures of Success Methodology and WWF’s Rapid Assessment: Two Complementary Approaches to Assessing Protected Areas

Both The Nature Conservancy (TNC) and WWF have developed methodologies for assessing protected areas. Both consider activities that have had a harmful impact on biological resources. Both focus on strategies to mitigate future threats. However, the two systems can complement one another, as illustrated below.

These two assessment systems can be used in tandem. A broad and rapid assessment can help identify vulnerable, degraded and high priority sites; a site-level assessment can help identify specific steps to prevent and mitigate stress to the area, and measure progress over time.

<table>
<thead>
<tr>
<th>WWF’s Rapid Assessment and Prioritization Methodology</th>
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<tbody>
<tr>
<td>• PA system-wide level</td>
</tr>
<tr>
<td>• Analysis focused on threats, pressures and policy interventions</td>
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<tr>
<td>• Considers pressures (stresses) and sources of stress</td>
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<tr>
<td>• Measures specific stress to ecosystems</td>
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<td>• Focuses on biodiversity health</td>
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<tr>
<td>• Develops site-level abatement strategies for sources of stress</td>
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<tr>
<td>• Emphasizes restoration and management measures</td>
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<tr>
<td>• Develops system-wide strategies</td>
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<tr>
<td>• Assesses current and future threats in relation to management objectives</td>
</tr>
<tr>
<td>• Considers influences on protected area</td>
</tr>
<tr>
<td>• Focuses on management effectiveness</td>
</tr>
<tr>
<td>• Focuses on policy-level intervention</td>
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<table>
<thead>
<tr>
<th>TNC’s Site Conservation Planning/ Measures of Success Methodology</th>
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<tbody>
<tr>
<td>• Site level</td>
</tr>
<tr>
<td>• Analysis focused on impacts to biodiversity and their causes</td>
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<tr>
<td>• Actions aimed at improving biodiversity health</td>
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</table>
The methodology outlined in this paper rests on several assumptions. First, it assumes a favorable assessment climate. Since the quality of the data depends on the willingness and participation of PA managers and administrators, a climate of trust and transparency are essential to obtaining accurate results.

Second, the methodology assumes the definition of a protected area, as agreed at the Fourth World Congress on National Parks and Protected Areas in 1992 (IUCN, 1994):

“An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.”

Third, while the methodology is aimed primarily at public-managed protected areas rather than private lands, it could be applied to many types of privately owned protected areas. However, some of the questions would likely need to be modified, as would the overall approach, to more adequately fit the needs and circumstances of private landowners.

Fourth, this methodology applies specifically to forested protected areas. It could be applied to other biomes, but modification of the questions and analyses would be needed. Specifically, questions relating to site design, biological importance and regional influences would need to be adjusted for marine and grassland protected areas.

Fifth, while the methodology can be applied to all six IUCN categories (see Box 2), it is most applicable to categories I through IV. Category V, protected landscapes, extends beyond a single management unit, and would require more sophisticated indicators to measure landscape integrity, as well as a more comprehensive, community-based approach to the assessment process. Category VI, managed resources, would require more detailed indicators to measure forest management practices. The Principles and Criteria of the Forest Stewardship Council could be a useful tool in developing indicators for assessing the sustainability of forest management practices.

Sixth, the methodology assumes that managers and administrators have sufficient knowledge to provide reliable data, and that the quality and quantity of information for each area is relatively equal.

Finally, as a rapid assessment and prioritization tool, this methodology is best implemented under certain conditions. It is more useful when comparing protected areas with the same broad objectives. Ideally, the assessment is applied to an optimal number of protected areas; it is best suited for handling from a dozen to about a hundred protected areas. Any fewer and the methodology loses its utility as an aid to complex decision making, any more and the numbers become unwieldy, and the data less manageable and meaningful. It can still be useful in cases with less than a dozen protected areas, although a finer scale assessment would likely be more appropriate. It can also accommodate very high numbers of protected areas, although it would make sense to reduce the amount of data included in the assessment, and to administer the assessment at a landscape or regional level.
IUCN PROTECTED AREA CATEGORIES

CATEGORY Ia: Strict Nature Reserve (protected area managed mainly for science)
Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.

CATEGORY Ib : Wilderness Area (protected area managed mainly for wilderness protection)
Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.

CATEGORY II : National Park (protected area managed mainly for ecosystem protection and recreation)
Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

CATEGORY III : Natural Monument (protected area managed mainly for conservation of specific natural features)
Area containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.

CATEGORY IV : Habitat/Species Management Area (protected area managed mainly for conservation through management intervention)
Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

CATEGORY V : Protected Landscape/Seascape (protected area managed mainly for landscape/seascape conservation and recreation)
Area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.

CATEGORY VI : Managed Resource Protected Area (protected area managed mainly for the sustainable use of natural ecosystems)
Area containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs (IUCN, 1994).
SECTION 2: PROCESS OF THE METHODOLOGY

WWF recommends that certain questions be answered as part of the planning process, prior to initiating the Rapid Assessment. These include:

- What are the specific objectives of conducting the protected area assessment?
- How will the information be used and by whom?
- Who will participate in the process?
- How will the results be communicated?
- What resources are available for conducting the assessment?
- Who will be responsible for undertaking the assessment?
- What is the timeframe for completion?
- What are the follow-up steps planned after the assessment is completed?

The “Rapid Assessment and Prioritization Methodology” includes five steps:

- Step 1: Identifying the protected areas to be included in the assessment
- Step 2: Assessing existing information for each protected area
- Step 3: Administering the Rapid Assessment Questionnaire
- Step 4: Analyzing the findings
- Step 5: Identifying next steps and priorities

STEP 1: Identifying the protected areas to be included in the assessment
The first step is deciding whether and how to limit the number of protected areas to be included in the assessment process. In countries with very low numbers of protected areas (e.g. Mozambique, Nepal, Algeria), all areas can easily be included in the assessment. In countries with very high numbers of protected areas (e.g. China, Brazil, United States), an assessment of all areas would likely prove unfeasible. Some approaches to narrowing the list include: 1) limiting the assessment to a particular region, such as a province, district, state or bioregion; 2) limiting the assessment to a particular management category, such as national protected areas or specific IUCN categories; or 3) limiting the areas to a specific management objective (see Box 3). This step may need to be revisited after step 2 is completed.

STEP 2: Assessing existing information for each protected area
The second step is assessing the existing data for each protected area. Many countries have already conducted various studies regarding PA management effectiveness and prioritization. A preliminary assessment of the quantity and quality of data available for each protected area can help in selecting the protected areas to be included in the assessment, and in determining which data gaps the questionnaires may be able to fill. Some of the types of existing data may include:

- Aerial photos and satellite imagery
- Biodiversity reviews
- Needs assessments for training and capacity building
- Threats analyses
Existing data can be used either to fill in specific gaps within the questionnaire, or to validate the findings of the assessment. Data used to fill gaps can be directly incorporated into the questionnaire, either by the assessment team or the workshop participants. For example, aerial photos could be helpful in identifying the extent of certain pressures within the protected area; a community survey conducted by an anthropologist could help answer questions regarding the status and socio-economic importance of the protected area; and biological studies could help answer questions regarding the design of the protected area. Data used to confirm the assessment findings can strengthen the results if there is a high correspondence, or identify areas for further investigation if there is a low correspondence.

Whether existing data are used directly or indirectly, some issues to consider include the credibility of the source of the information, its currency and accuracy, and whether or not PA managers, administrators and stakeholder groups agree with the results.

**STEP 3: Questionnaire methodology**

The third step is to gather any remaining information needed by administering the Rapid Assessment Questionnaire in Section 4. This stage may vary widely, depending on the assessment objectives, the quality and extent of existing data, and the resources available. At its simplest, a consultant or assessment team will complete the questionnaires themselves, based on professional judgement and stakeholder consultation. This approach is most applicable for very broad assessments, where results will be used primarily for discovering general trends. A more in-depth approach would involve a consultant or assessment team administering the questionnaires either in person, over the telephone, or by mail. The assessment team then analyzes the information. The most in-depth approach involves administering the questionnaires as part of a participatory workshop involving PA managers, administrators and stakeholders (e.g. social and conservation NGOs). Participants themselves conduct the analyses, and on that basis, recommend priorities and possible next steps. WWF highly recommends the use of a participatory workshop for data collection. A workshop is likely to generate more accurate and thorough data, allow greater stakeholder participation, and be more widely accepted by protected area managers. However, in some cases, a workshop format may not be effective in eliciting accurate information. Depending on the local culture and circumstances of the assessment, a series of private interviews may be more effective in gathering accurate data than a single workshop.

Depending on the circumstances of the assessment, one of the tasks participants may consider is to modify the questionnaire. Some considerations in modifying the questionnaire include:

- Whether to use a yes/no index, or develop specific indicators and verifiers for each question
- Whether to add new questions
- Whether to modify the wording of existing questions
- Whether some questions can be deleted
LESSONS LEARNED FROM IMPLEMENTING THE METHODOLOGY

The “Rapid Assessment and Prioritization Methodology” has been implemented in several countries. Some of the findings and lessons learned so far are:

Algeria
- There is a strong “oral tradition” within the country. Data gathering needed to be modified to allow individual, informal meetings.
- Most of the staff are forest technicians or administrators; there is a systemic gap in research, monitoring and conservation capacity.
- Traditional and indigenous practices contribute to the conservation of the protected area.
- The main threats are grazing and logging.

China
- Because cultural traditions might prevent open criticism of protected area management in a workshop setting, WWF staff also added their own responses to add an additional level of ground truthing.
- Chinese protected area policies are consistent throughout the country. Therefore, instead of national policies, the assessment focused on local budgeting and specific policies within each protected area.
- The workshop was tagged on to a pre-existing Training Needs Assessment, saving travel time and costs.

Bhutan
- The protected area managers found the assessment to be a useful mechanism for highlighting problems they were facing, but did not want to bring to the attention of supervisors. The assessment was a means of challenging existing constraints without direct confrontation.
- The incentives (political, financial or otherwise) for participating in the assessment were unclear, as was the end use of the information. However, protected area managers were motivated by the possibility that the findings would be highlighted in a workshop and potentially receive support and attention.

France
- The size of one of the protected areas is annually increasing, as its northern boundary is a glacier that is retreating due to global warming.
- The main threats to the 12 areas assessed are tourism, pollution and climate change.

Cameroon and Gabon
- Most threats in the areas assessed are beyond the control of protected area administrators. Effective management will require national and international intervention.
- Most large scale threats are the result of pressures caused by Western and Asian countries.
- The remoteness of the area, and the inadequate communication infrastructure meant that far more time was spent than planned for in collecting information.
- There are insufficient resources to understand and effectively manage the extraordinary complexity and richness of the forest ecosystem.
If the workshop participants decide to shorten the questionnaire, WWF recommends that certain key questions be retained to maintain the overall integrity of the methodology. These questions include 1a, 2a, 2d, 3a, 4a-j, 5a-j, 6ad, 7a-d, 10a, 11a, 12a, 13a, 14a, and 15a.

**STEP 4: Analyzing the findings**
The fourth step of the process is analyzing the data. The analyses are based on answers to the Rapid Assessment Questionnaire as well as any supplementary data. The answers to these questions are compiled for both individual and multiple protected areas, to yield the following analyses:

1. Protected area management (planning, inputs and practices)
2. Extent of pressures
3. Extent of threats
4. Cumulative degradation
5. Vulnerability
6. Biological and social urgency
7. Trends and outlook

Detailed instructions and examples for each of these are provided in Sections 4 and 5. The assessment team may also decide to modify these analyses, based on the objectives of the assessment. These analyses provide an overview of status of management effectiveness, threats and pressures of the protected area system as a whole.

**STEP 5: Identifying next steps and priorities by comparing multiple sites**
The fifth step of the process is identifying next steps by further analyzing the assessment results. Ideally, steps 3 through 5 would be conducted by the workshop participants themselves. This step, however, will also be in important one for policy makers and protected area administrators to participate in. The analyses in this section, listed below, identify specific strengths and weaknesses throughout the protected area system, and suggest next steps:

1. Framework analysis
2. Specific issues analysis
3. Cluster analysis
4. Context analysis
5. Data analysis
6. Root causes and ecosystem stresses analysis
CHOOSING PROTECTED AREAS IN CHINA

China contains over 1,000 protected areas. When WWF China set about assessing protected areas, they focused specifically on those areas that provide critical habitat for the giant panda. They chose 21 interconnected protected areas on the eastern edge of the Tibetan Plateau, ranging in size from 7,600 to 200,000 hectares. Each of these IUCN-Category I areas shares the management objective of protecting habitat for the giant panda, tarkin and golden monkey. By focusing on a single management objective, they were able to easily compare one protected area with another.

WWF China had already identified habitat loss and poaching as the two most important causes for the decline in the panda population. Through the assessment they discovered additional threats, including chronically insufficient governmental funding of protected areas, ineffective reserve management, conflicts with local economic development and local communities, lack of awareness and capacity, insufficient policy support to conservation, and lack of information for science-based management decisions (WWF China, 1999).

INCREASING PUBLIC PARTICIPATION

The Rapid Assessment and Prioritization Methodology can be adapted to include varying levels of participation. Some questions to consider when designing a more participatory approach include:

- **Who will participate?** Local communities and NGOs? National environmental and social NGOs? Other interest groups? Protected area managers? Other governmental staff and departments?

- **Will participation be open to anyone, or will representatives be invited to participate?** If they are invited, how will they be selected?

- **Who is likely to be left out of the participatory process, and how will that affect the outcome?**

- **When and how will these groups participate?** What mechanisms will be used to gather input?

- **At what process will participation be important?** Are there steps during which increased participation might be a hindrance?

- **How will input be used in the final decision-making process?**

- **How will the assessment team deal with conflicts that arise from differing interpretations of data and the status of protected areas?**

- **Is a participatory approach compatible with the aims and objectives of the assessment?**
SECTION 3: QUESTIONNAIRE METHODOLOGY

Introduction
The methodology includes a Rapid Assessment Questionnaire. This questionnaire can be administered directly to protected area managers by electronic or postal mail, or as part of a workshop; or it can be filled out by a consultant based on existing data, knowledge of the area, and stakeholder consultation. WWF highly recommends that the questionnaires are mailed to participants in advance, and then filled out in a participatory workshop. This process will enable participants to come to the meeting prepared, as well as to discuss, modify and reach consensus on the meaning of each question.

The Rapid Assessment Questionnaire includes 18 elements:

Protected area planning:
1. Objectives
2. Status
3. PA Site design

Context:
4. Biological Importance
5. Social Importance
6. Pressures
7. Threats
8. Local contributing factors
9. Regional and global influences

Protected area management:
10. Staff
11. Communication and Information
12. Transportation and Infrastructure
13. Management Planning
14. Management Practices
15. Research and Monitoring

System-wide policy analyses:
16. PA System Design
17. PA Policies
18. Policy Environment

Ordinarily, workshop participants would complete questions 1 through 15 for each protected area. If the objectives of the assessment include an assessment of broader policy issues, the workshop participants may also discuss questions 16 through 18, to help gain a better understanding of system-wide strengths and weaknesses.
RAPID ASSESSMENT QUESTIONNAIRE

BACKGROUND
• Name of protected area
• Location of protected area
• Date established
• Size of protected area
• Specific objectives of the protected area
• Historical degree of modification
• Name of respondent
• Date questionnaire completed
• Budget

1. OBJECTIVES
a) The PA objectives provide for the protection and maintenance of biological diversity and associated resources.
b) The objectives of the PA are clearly stated in the management plan.
c) The management policies (e.g. management plan, annual work plan) are consistent with the management objectives of the protected area.
d) PA employees and administrators clearly understand the management objectives, practices and policies of the PA.
e) Local communities support the overall objectives of the PA.

2. LEGAL STATUS AND SECURITY
a) The protected area has long-term legally-binding protection.
b) There are no unsettled disputes regarding land tenure or use rights.
c) Boundary demarcation is adequate to meet the PA objectives.
d) There is effective enforcement of all laws within the PA.
e) There is adequate funding to conduct all critical management activities.

3. PA SITE DESIGN AND PLANNING
a) The layout and configuration of the PA optimizes the conservation of biodiversity (see Box 4).
b) The land use in the surrounding landscape enables effective PA management (e.g. the PA is surrounded by either a buffer zone of undeveloped area, or by a designated low-impact land use zone).
c) The siting of the PA is consistent with the objectives.
d) The size is sufficient to meet the PA objectives (e.g. large enough to support minimum viable populations of umbrella species).
e) The protected area is linked, either via a protected corridor or by direct proximity, to another area of conserved and/or protected land.

4. BIOLOGICAL IMPORTANCE
a) The PA contains a globally threatened ecosystem (see Box 5).
b) The PA contains globally rare, threatened or endangered species.
c) The PA contains regionally or locally rare, threatened or endangered species.
d) The PA has high levels of biological diversity.
e) The PA has a high number of endemic species.
f) The PA provides a critical landscape function.
g) The PA is large enough to support minimum viable populations of umbrella species, or is relatively large for the region.
h) The PA contains exemplary and intact ecosystems.
i) The PA significantly contributes to the overall representativeness of the PA system.
j) The PA contains important, high quality habitat types for key species (see Box 6).

5. SOCIAL IMPORTANCE
a) The PA provides economic opportunities for individuals within or near the PA.
b) The PA demonstrates opportunities for sustainable development, consistent with the PA objectives.
c) The PA has a high level of subsistence and/or traditional use by local communities.
d) The PA has religious or spiritual significance.
e) The PA has unusual features of aesthetic importance (e.g. hot springs, scenic vistas, geoheritage areas).
f) The PA contains species of high social or economic value (e.g. medicinal value, food prototypes).
g) The PA has high value for education and or scientific research.
h) The PA has high recreation value.
i) The functions of the ecosystems within the protected area contribute significant social or economic benefits (e.g. water recharge area).
j) The local community or economy is highly dependent, either directly or indirectly, upon the resources in the protected area.

6. PRESSURES (Each pressure is noted separately)
a. Over the past 10 years, this activity has:
   • Increased sharply
   • Increased slightly
   • Remained constant
   • Decreased slightly
   • Decreased sharply

The impact of this pressure has been:
b. Range       c. Impact       d. Permanence
   Throughout (>50%)    Severe impact    Permanent (>500 years)
   Widespread (15-50%)  High impact     Long term (100-500 years)
   Scattered (5-15%)    Moderate impact  Medium term (10-100 years)
   Localized (<5%)      Mild impact     Short term (<10 years)

7. THREATS (Each threat is noted separately)
a. The likelihood of this activity occurring or increasing in the next 10 years is:
   Very likely   Somewhat likely   Somewhat unlikely   Possible but unlikely
The impact of this threat over the next 10 years is likely to be:

b. Range  c. Impact  d. Permanence
  Through­out (>50%)  Severe impact  Permanent (>500 years)
  Widespread (15-50%) High impact  Long term (100-500 years)
  Scattered (5-15%)  Moderate impact  Medium term (10-100 years)
  Localized (<5%) Mild impact  Short term (<10 years)

8. LOCAL CONTRIBUTING FACTORS

a) The area is difficult to monitor, either because of too few staff, large size of the area, or remoteness.
b) The protected area management is under pressure to unduly exploit the natural resources of the protected area (e.g. is expected to generate sufficient revenue to pay expenses, or is under pressure by special interest groups).
c) Bribery and corruption is common throughout the region.
d) The area is experiencing civil unrest.
e) Cultural practices, beliefs and traditional uses conflict with the objectives of the protected area.
f) The resource value of the protected area is high (e.g. the protected area has stands of high quality marketable timber, rich mineral resources, high potential for hydropower development, grazing capacity).
g) The area is easily accessible (e.g. near major roads, airstrips and/or waterways).
h) There is a strong demand for and trade in, products from the protected area (e.g. desirable timber species, endangered plant and animal species).
i) The area surrounding the protected area is experiencing sharp economic and/or population pressures (e.g. land shortages, widespread poverty, food shortages, high growth).
j) Recruitment and retention of employees is difficult (e.g. large scale disease, emigration).

9. REGIONAL AND GLOBAL INFLUENCES

a) The area is susceptible to, and has a diminished capacity to prevent, natural catastrophes (e.g. flood, fire, insect outbreaks) because of widespread over-exploitation of natural resources and/or suppression of natural processes.
b) The area is susceptible to climate induced changes, including a) protected areas with ecosystems at the limits of the latitudinal extent of their range; b) protected areas with high elevation forests; c) protected areas with low-altitude, shoreline mangrove forests; and/or d) protected areas that are subject to storms of increasing frequency and intensity.
c) The area is susceptible to air pollution and acidification (e.g. prevailing wind patterns transport air pollution, and/or the ecosystems within the protected area are sensitive to the effects of acidification.)
d) The area is susceptible to invasive, exotic species.
e) The integrity of the hydrology of the PA is dependent upon adjacent and/or regional land use (i.e. the area is susceptible to water pollution, desertification, and/or salinization of the water table).

10. STAFF

a) The number of staffing is sufficient to effectively manage the area.
b) Staff members have adequate skills to conduct management activities.
c) There is clear internal organization (e.g. job descriptions).

d) Staff support (e.g. training, supervision, monitoring) are appropriate to the needs of the staff.

e) Staff employment conditions (e.g. salaries, benefits, working environment) are sufficient to retain high quality staff.

11. COMMUNICATION AND INFORMATION SYSTEMS

a) There is effective communication between all PA staff and administration.

b) There are adequate means of communication between field and office staff (e.g. telephones, two-way radios, internet access, fax machines).

c) There are adequate systems for processing information and data (e.g. computers, software, filing systems).

d) Data about the PA is available and relatively recent (e.g. satellite imagery, aerial photos, field study reports).

e) There is effective communication with local communities regarding all aspects of PA management.

12. TRANSPORTATION AND FACILITIES

a) Transportation means are adequate to enable effective monitoring and other critical management activities.

b) Equipment for field-level data collection is adequate (e.g. field glasses, back country gear, GPS monitors).

c) Staff facilities are adequate (e.g. staff offices, research stations, field offices).

d) Maintenance and care of equipment is adequate to ensure long-term use.

e) Visitor facilities (e.g. trails, signs, camping areas) are appropriate to the level of visitor use.

13. MANAGEMENT PLANNING

a) There is a comprehensive, relatively recent written management plan.

b) There is an up-to-date natural resources inventory, including maps of the area.

c) There is an analysis of, and strategy for addressing, PA threats and pressures.

d) Specific goals and targets are identified for achieving management objectives within a clear timeframe.

e) Management planning continually incorporates and adapts to new learning.

14. MANAGEMENT PRACTICES

a) Management goals, targets and prescriptions are fulfilled within a reasonable timeframe.

b) There is an active restoration program, consistent with the degree of pressures.

c) There is an active prevention program, consistent with the degree of threats.

d) Education and outreach programs are consistent with the level of need in the area.

e) Financial management practices enable efficient and effective management.

15. RESEARCH, MONITORING and EVALUATION

a) The impact of legal and illegal uses of the PA are accurately monitored and recorded.

b) Research needs are clearly identified and prioritized.

c) Staff performance and progress on targets are periodically reviewed.

d) The results of research and monitoring are routinely incorporated into management planning.

e) Research in the PA on key ecological and social issues (e.g. species population trends, harvest of non-timber forest products) is consistent with the pressures and threats.
The remaining six sets of questions pertain to system-wide analyses. These questions would not be included in the questionnaire for each protected area, but would be discussed as part of the workshop.

16. PROTECTED AREA SYSTEM DESIGN
a) The PA system adequately represents the full diversity of ecosystems at a landscape level throughout the region.
b) The PA system adequately protects against the extinction or extirpation of any species by protecting sites of rare, threatened and endangered species and their habitats.
c) The PA system consists primarily of exemplary and intact ecosystems.
d) Sites of high conservation value for key species are adequately protected.
e) The PA system allows for natural processes to occur at a landscape level throughout the country.
f) The PA system includes the protection of transition areas between ecosystems.
g) The PA system includes a diversity of successional and seral stages at the landscape level across the region.
h) Sites of high biodiversity are protected.
i) Sites of high endemism are protected.
j) The layout and configuration of protected areas optimizes the conservation of biodiversity (see Box 5).

17. PROTECTED AREA POLICIES
a) National PA policies clearly articulate a vision, goals and objectives for the protected area system.
b) There is an adequate percentage of land cover under protection, consistent with the degree of biodiversity within the region and the resources of the country.
c) There is a clear and demonstrated commitment to protecting a fully viable and representative PA network at a landscape level throughout the region.
d) There is a comprehensive inventory of the biological diversity throughout the region.
e) There is an assessment of the historical range of variability of various ecosystem types throughout the region.
f) There are clear restoration targets for underrepresented and/or degraded ecosystems throughout the region, consistent with the degree of past degradation.
g) There is ongoing research on critical PA-related issues.
h) The PA system is periodically reviewed for gaps and weaknesses (e.g. biodiversity gap analyses).
i) There is an effective training and capacity-building program for PA managers and administrators.
j) PA management, including management effectiveness, is routinely evaluated.

18. POLICY ENVIRONMENT
a) Laws related to protected areas (e.g. land use planning, land tenure, forestry and agriculture) complement PA management and do not conflict with PA objectives.
b) There is sufficient commitment and funding to effectively manage and administer protected areas.
c) Goals of environmental protection and sustainable development are systematically incorporated into all aspects of policy development.
d) There is a high degree of communication between natural resource-related departments, ministries, and agencies (e.g. parks, wildlife, tourism, recreation, forestry, agriculture).
e) There is effective enforcement of PA-related laws and ordinances at local, regional and national levels.
f) National policies promote widespread environmental education at all levels.
g) National policies support sustainable forestry management practices throughout the public and private forestry sectors.

h) National policies promote the full array of public and private mechanisms for enabling land conservation (e.g. private reserves, market-driven certification, logger training, tax incentives).

i) There is adequate environmental training and education for government employees at all levels across all sectors.

j) National policies foster dialogue and participation with civic and environmental NGOs.

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**EMERGING PRINCIPLES OF PROTECTED AREA DESIGN AND LAYOUT**

(Adapted from Dramstad et al, 1996)

Landscape ecology is a recent science. Nonetheless, principles of protected area design and layout have begun to emerge over the past two decades. Some of these principles include:

- Contain larger, rather than smaller, patches
- Contain unfragmented, unperforated areas
- Maintain close proximity to other protected and conserved lands
- Maintain connectedness to forest land through corridors and stepping stones
- Contain high quality habitat diversity within the protected area
- Include buffer zones and appropriate land use planning adjacent to the area
- Include ecosystem transitions within the protected area
- Include altitudinal gradients within the protected area wherever possible
- Orient the protected area to maximize natural migration corridors
- Include exemplary and intact natural communities
- Include the full array of ecosystems found throughout the landscape within the PA system.
DEFINING KEY SPECIES
(from Noss et al, 1997)

Numerous conservation biologists recommend that conservation plans identify a set of species whose unique requirements will encompass all other species in the region. These species include:

“Area-limited species: Species that require the largest patch sizes to maintain viable populations. These species typically have large home ranges and/or low population densities.

Dispersal-limited species: Species that are limited in their ability to move from patch to patch, or that face a high mortality risk in trying to do so. These species require patches in close proximity to one another, movement corridors, or crossings across barriers such as roads.

Resource-limited species: Species requiring specific resources may include nectar sources, fruits, mineral licks, and the like. The number of individuals the region can support is determined by the carrying capacity at the time the critical resource is most limited.

Process-limited species: Species sensitive to the level, rate, spatial characteristics, or timing of some ecological processes, such as flooding, fire, wind transport or sediments, grazing, competition with exotics or predation.

Keystone species: Ecologically pivotal species whose impact on a community or ecosystem is large, and disproportionately large for their abundance.

Narrow endemic species: Species restricted to a small geographic range (e.g. 50,000 km2) and often with very few occurrences within that range.

Special cases: Species important in the planning region that do not fall within one of the above categories. This group includes disjunct or peripheral populations that are genetically distinct, and “flagship species” that promote public support for a conservation plan.”

While protected areas may be established for a variety of reasons, identifying key species may help PA managers improve protected area management and thereby protect a greater number of species.
## SECTION 4: GUIDANCE NOTE TO THE RAPID ASSESSMENT QUESTIONNAIRE

### Explanatory Notes to Specific Questions

Below are some notes regarding each question in the Rapid Assessment Questionnaire. Explanatory notes may include the intent of the question, instructions for interpreting questions, or the rationale for including it in the questionnaire. Possible indicators are included to help describe various aspects of the question, as well as to aid in the development of specific indicators and verifiers should they be needed.

<table>
<thead>
<tr>
<th>#</th>
<th>Explanatory Notes</th>
<th>Possible Indicators and Verifiers</th>
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<tbody>
<tr>
<td>1a</td>
<td>Although the IUCN defines a protected area as an area that provides for the protection and maintenance of biological diversity and associated resources, some PAs do not explicitly include this in their objectives.</td>
<td>Written objectives specifically provide for the protection and maintenance of biological diversity.</td>
</tr>
<tr>
<td>1b</td>
<td>-----</td>
<td>• Objectives included in the management plan</td>
</tr>
<tr>
<td>1c</td>
<td>All management policies and annual work plans should be consistent with the broad objectives for that area.</td>
<td>• Objectives consistent with annual work plan • Objectives consistent with management plan</td>
</tr>
<tr>
<td>1d</td>
<td>-----</td>
<td>• PA employees can articulate PA objectives • PA administrators can articulate PA objectives • PA employees understand the rationale for management practices</td>
</tr>
<tr>
<td>1e</td>
<td>-----</td>
<td>• Absence or low levels of conflicts • Low levels of illegal uses of the area</td>
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<tr>
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<td>Explanatory Notes</td>
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<tr>
<td>2a</td>
<td>The legal status of some protected areas may be temporary, partial, non-existent, or subject to changing political administrations.</td>
<td>• PA protection clearly stated in written document&lt;br&gt;• Legal protection includes protection and maintenance of biodiversity&lt;br&gt;• Protection is long-term&lt;br&gt;• All rights to resources within the PA are protected (e.g. minerals, timber, water)</td>
</tr>
<tr>
<td>2b</td>
<td>In some countries, laws regarding protected areas may conflict with those regarding land tenure or use rights. In other cases, laws have created new protected areas without resolving long-standing land tenure conflicts.</td>
<td>• Absence of land tenure disputes&lt;br&gt;• Low levels of illegal uses of the area</td>
</tr>
<tr>
<td>2c</td>
<td>In cases where unclear boundaries can lead to high levels of encroachment (e.g. adjacent to rapidly developing population centers), demarcation can be more important than in areas where pressures are lower. Therefore, “adequate demarcation” may vary from site to site.</td>
<td>• An adequate buffer zone negates the need for thorough demarcation&lt;br&gt;• Local communities understand where boundaries are&lt;br&gt;• PA employees are familiar with boundaries&lt;br&gt;• Boundaries are demarcated by natural features (e.g. river)&lt;br&gt;• PA is sufficiently remote that encroachment is not a problem&lt;br&gt;• Illegal activity is low or non-existent within the PA</td>
</tr>
<tr>
<td>2d</td>
<td>Laws may exist on paper, but enforcement may be inadequate.</td>
<td>• Field-level PA staff are empowered to enforce laws&lt;br&gt;• Law enforcement funding is adequate&lt;br&gt;• PA employees are familiar with laws&lt;br&gt;• PA employees know the extent of illegal uses</td>
</tr>
<tr>
<td>2e</td>
<td>Funding should be sufficient to enable all critical management activities.</td>
<td>• Budgets are reasonably funded&lt;br&gt;• Disbursements are timely&lt;br&gt;• Budget cycles are predictable from year to year</td>
</tr>
<tr>
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<td>Explanatory Notes</td>
<td>Possible Indicators and Verifiers</td>
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</table>
| 3a  | See Box 4 for more information on PA layout and configuration.                     | • PA contains large patches  
• PA contains altitudinal gradients (if appropriate)  
• PA includes transitions between ecosystems  
• PA management mimics natural disturbance regimes  
• PA management allows natural processes to occur |
| 3b  | -----                                                                            | • Presence of buffer zone  
• Presence of undisturbed forest area  
• Complementary land use planning zoning ordinances |
| 3c  | Ideally, protected areas are sited according to the particular objective of the area (e.g. area contains high biodiversity, areas of critical habitat, unusual natural communities, exemplary and/or intact ecosystems, or important cultural features). | • Siting of the PA is based on biological data  
• The existing natural and cultural resources are adequate to meet the objectives of the area |
| 3d  | -----                                                                            | • Studies on minimum viable populations have been conducted for key species  
• Minimum viable populations of key species are present within the PA |
| 3e  | Connectivity between protected areas can be vital in ensuring that certain species can persist not only within the PA but across the landscape. A network of conserved and protected lands can help ensure long-term landscape-level integrity. | • Known wildlife migration corridors adjacent to protected areas are protected or conserved  
• Adjacent feeding and breeding habitats of key species are protected or conserved. |
| 4a-j and 5a-j | Key terms are defined in the glossary. | ----- |
Examples of pressures to consider include:

- **Logging**: This can range from low-level harvesting of individual trees for firewood and fodder, to wholesale illegal clear cutting.
- **Settlement**: This can range from individual temporary huts to large housing developments.
- **Mining**: This includes all forms of drilling, mining and exploration for underground resources.
- **Grazing**: Harvesting of any resources within the PA for animal feed or fodder.
- **Dam building**: Includes both small scale as well as large hydro-power projects and reservoirs.
- **Hunting and poaching**: This pressure can also include underhunting of large populations of browse animals (e.g. deer).
- **NTFP collection**: This includes the harvest of all plant materials from the PA, including food, medicinals, resins and other materials.
- **Conversion to agriculture**: This may range from swidden agriculture to industrial farms and forest plantations.
- **Tourism and recreation**: This can include hikers, horse-back riders, motorized vehicles, skiers.
- **Waste disposal**: This can range from mild littering of trash to dumping of illegal toxic waste.
- **War**: Any war related activity that results in degradation of the resources should be considered a pressure (e.g. explosives, fire).
- **Any of the global sensitivities** that have caused significant negative impacts (i.e. global climate change, human-induced catastrophes, pollution, exotic species) can also be included in this analysis as pressures.

Note: an activity should be considered a pressure only if it has resulted in a negative impact on natural and/or associated resources in relation to the management objectives. For example, if a protected area is managed for recreation, low-impact hiking would probably not be considered a pressure; illegal motorized vehicles that has caused serious soil erosion would.

### Increase

- **Sharp increase** = an upward change in any of the categories listed under range, impact or permanence.
- **Increased slightly** = a moderate increase, but not enough to result in an upward category.
- **Decreased slightly** = a moderate decrease, but not enough to result in a downward category.
- **Sharp decrease** = a downward change in any of the categories listed under range, impact or permanence.

### Range

- **Throughout** = occurrences in a significant percentage of the protected area (e.g. >25%).
- **Widespread** = common occurrences spread across many parts of the protected area (e.g. 10-25%).
- **Scattered** = occurrences spread across several parts of the protected area (e.g. 2-10% of the area).
- **Localized** = only a few occurrences covering a very limited geographic range (e.g. <2%).

### Impact

- **Severe** = Serious damage to and/or loss of biological and/or associated resources, including regenerative and reproductive capacity.
- **High** = Obvious and significant damage to biological and/or associated resources.
- **Moderate** = Some noticeable and moderate impacts on biological and/or associated resources.
- **Mild** = Few if any serious impacts on biological and/or associated resources.
| 6d | **Permanence**  
*Permanent* = Damage that will prevent the area from recovering, either naturally or with intensive restoration measures, within the next 250 years (e.g. strip mining).  
*Long-term* = Damage that may naturally recover within 50-250 years, or may require long-term and intensive restoration efforts (e.g. clear-cutting of mature forest).  
*Medium-term* = Damage that may take 10-50 years to recover, and/or may require a high degree of intervention and restoration measures (e.g. draining a wetland).  
*Short-term* = Damage that can quickly and fully recover without intervention within 10 years (e.g. poaching of abundant wildlife with high reproductive capacity).  

Note: Answers to these questions will depend on the specific pressure. For example, if the pressure is poaching, “localized range” could mean that less than 2% of the population of a species is being hunted. That may have a high impact, however, if the species has a low reproductive rate, or is endangered. |

| 7a | In estimating the likelihood of a threat occurring or a pressure continuing to occur in the future, respondents should consider the direct and indirect economic incentives associated with the activity; the level of public acceptance of the activity; the number of contributing factors (see question 8); the difficulty of preventing or monitoring the activity; the historical pattern of the activity and the existing circumstances related to the pressure or threat (e.g. a feasibility study is underway). If a pressure exists, it should be assumed to become a threat, unless there are specific reasons for believing that the activity will cease. |

| 7b-7d | See 6b through 6d above. |

| 8 & 9 | Local contributing factors are the physical, social and economic characteristics of the surrounding area that may contribute to a variety of threats and pressures, and prevent effective management. Regional and global influences are environmental forces that cross national and global boundaries, and whose effect may be intensified in certain areas. |

| 10a | Whether or not the number of staffing is sufficient will depend on the intensity of the PA management, as well as the pressures and threats facing the PA. At a minimum, the staffing should be sufficient to conduct all critical management activities.  
- # of staff currently employed  
- # of staff in work plan  
- # of volunteers and/or other workers |

| 10b | Employees should have the skills needed to conduct all critical management activities.  
- Levels of formal education of staff  
- Previous work experience  
- Levels of formal and on-the-job training |

| 10c | Clear internal organization can enable better monitoring and evaluation and create a productive working environment. Employees should clearly know what they are supposed to do and how well they are doing.  
- Written job descriptions  
- Employees can clearly articulate their responsibilities  
- Employees know to whom they are accountable  
- Clear organizational charts, diagrams |

| 10d | The level of support should be appropriate to the skills and needs of the employees.  
- Access to training opportunities  
- Employee reports and performance reviews |

| 10e | Retention of high quality staff enables sound, long-term management and stability. High staff turnover requires heavy investments in recruitment and training.  
- Staff turnover levels  
- Salaries and benefits  
- Hiring policies |
<table>
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<tbody>
<tr>
<td>11a</td>
<td>Communication should be sufficient to enable all critical management activities.</td>
<td>• Field reports&lt;br&gt;• Memos&lt;br&gt;• Telephone and radio logs</td>
</tr>
<tr>
<td>11b</td>
<td>The most effective means of communication will vary from country to country and region to region. The equipment should not be a limiting factor in enabling communication to take place.</td>
<td>• Telephones&lt;br&gt;• Two-way radios&lt;br&gt;• Electronic mail&lt;br&gt;• Fax machines&lt;br&gt;• Postal system</td>
</tr>
<tr>
<td>11c</td>
<td>The adequacy of the data processing systems will depend on the complexity of the data and the types of analyses required.</td>
<td>• Computers&lt;br&gt;• Software (e.g. GIS, data base)&lt;br&gt;• Filing systems</td>
</tr>
<tr>
<td>11d</td>
<td>Adequate data is the basis of sound planning, monitoring and evaluation.</td>
<td>• Satellite imagery&lt;br&gt;• Aerial photos at an adequate resolution&lt;br&gt;• Field study reports&lt;br&gt;• Academic and scientific studies&lt;br&gt;• Market studies of surrounding areas</td>
</tr>
<tr>
<td>11e</td>
<td>Ideally there is open and on-going communication with local communities.</td>
<td>• Public meetings, workshops&lt;br&gt;• Public notices&lt;br&gt;• Community outreach staff</td>
</tr>
<tr>
<td>12a</td>
<td>The adequacy of transportation depends on the intensity of management activities and degree of pressures and threats. At a minimum, the transportation means should not prevent monitoring and other critical management activities.</td>
<td>• Park vehicles&lt;br&gt;• Roads and trails&lt;br&gt;• Helicopters, small aircraft&lt;br&gt;• Boats</td>
</tr>
<tr>
<td>12b</td>
<td>A well-equipped staff will be able to gather more accurate and thorough data. The sophistication of the equipment will depend on the complexity of the data collection needs.</td>
<td>• Notebooks&lt;br&gt;• Field glasses&lt;br&gt;• Global positioning monitors&lt;br&gt;• Radio tags and collars&lt;br&gt;• Back-country gear</td>
</tr>
<tr>
<td>12c</td>
<td>In some cases, only the barest of facilities may be needed.</td>
<td>• Staff offices&lt;br&gt;• Research stations&lt;br&gt;• Field offices&lt;br&gt;• Training/meeting facilities</td>
</tr>
<tr>
<td>12d</td>
<td>Adequate maintenance can minimize wasted time and resources.</td>
<td>• Maintenance schedules and records&lt;br&gt;• State of existing equipment</td>
</tr>
<tr>
<td>12e</td>
<td>The adequacy of visitor facilities will depend on the objectives of the protected area and the level of use. Adequate facilities are those that accommodate the level of visitor use without degrading natural or cultural resources, and that enhance visitors’ experience of the area.</td>
<td>• Trails&lt;br&gt;• Signs&lt;br&gt;• Camping areas&lt;br&gt;• Visitor centers&lt;br&gt;• Safe drinking water&lt;br&gt;• Sanitary facilities&lt;br&gt;• Educational materials&lt;br&gt;• Transportation facilities</td>
</tr>
<tr>
<td>#</td>
<td>Explanatory Notes</td>
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<tr>
<td>13a</td>
<td>A good management plan is the cornerstone of sound PA management.</td>
<td>• Management plan</td>
</tr>
<tr>
<td>13b</td>
<td>The natural resources inventory should identify critical habitat resources, areas of cultural significance, and an inventory of the major natural communities within the area.</td>
<td>• Natural resources inventory • Other related maps</td>
</tr>
<tr>
<td>13c</td>
<td>At a minimum, the PA management should be aware of the extent of pressures existing in the area, and possible means of prevention and restoration.</td>
<td>• Threats and pressures analysis • Monitoring reports</td>
</tr>
<tr>
<td>13d</td>
<td>The specific goals and targets are usually in the form of an annual work plan.</td>
<td>• Annual work plan • Progress and evaluation reports</td>
</tr>
<tr>
<td>13e</td>
<td>-------</td>
<td>• Past iterations of management plans • Planning procedures</td>
</tr>
<tr>
<td>14a</td>
<td>Fulfillment of management objectives includes fulfillment of all critical management activities within the work plan.</td>
<td>• Progress and field reports • Annual reviews</td>
</tr>
<tr>
<td>14b</td>
<td>-------</td>
<td>• Restoration measures included in the work plan</td>
</tr>
<tr>
<td>14c</td>
<td>-------</td>
<td>• Prevention measures included in the work plan</td>
</tr>
<tr>
<td>14d</td>
<td>The level of education and outreach will depend on the objectives of the protected area, local need, and the resources of the staff. At a minimum, outreach efforts should focus on areas of conflict with local communities.</td>
<td>• Educational materials, curricula, reports</td>
</tr>
<tr>
<td>14e</td>
<td>-------</td>
<td>• Financial records • Financial decision-making procedures • Budgets</td>
</tr>
<tr>
<td>15a</td>
<td>At a minimum, PA managers should know what illegal activities are taking place, and the extent of damage these activities have caused.</td>
<td>• Field reports</td>
</tr>
<tr>
<td>15b</td>
<td>-------</td>
<td>• Prioritized research needs</td>
</tr>
<tr>
<td>15c</td>
<td>-------</td>
<td>• Performance reviews</td>
</tr>
<tr>
<td>15d</td>
<td>-------</td>
<td>• Iterations of management plans</td>
</tr>
<tr>
<td>15e</td>
<td>This research may be conducted by the PA management, by the community, or by academic institutions.</td>
<td>• Findings of research and scientific studies</td>
</tr>
</tbody>
</table>

The questions in these sections are self-explanatory. The workshop participants should discuss the interpretation and scoring for these questions as part of the assessment. As with all previous questions, the answers should be considered in relation to the PA objectives.
THREATS, PRESSURES AND SENSITIVITIES IN A PROTECTED AREA

The area is under increasing pressure by the government and special interests to provide recreation opportunities to off-road recreational vehicles. Illegal use of such vehicles is common.

The high elevation of the protected area makes it more susceptible to rapid global climate changes.

A road leads to the top of the mountain, providing increasing access to large numbers of tourists (over 20,000 visitors per year).

Land is leased to ski areas, who maintain ski trails that are used year round. Hikers at the summit have damaged populations of rare and endangered plant species.

Land in the buffer zone is becoming increasingly desirable for housing. The result is increasing forest fragmentation, and a loss of habitat for many forest interior and large range species.

Acidic rain and air pollution has caused a decline in the health of some tree species, including red spruce (Picea rubens spp.).
ADMINISTERING THE QUESTIONNAIRE

Perhaps the single most important issue to consider in administering the questionnaire is the quality of the data received. There are several issues that users of this methodology may want to consider in order to ensure the accuracy of the data:

- **Trust**: If protected area managers are to participate fully, they must trust both the people involved as well as the process itself. Therefore, it is important that the methodology is administered by someone who inspires confidence and trust, and that the procedures, objectives and results of the assessment process are transparent.

- **Use of the information**: Protected area managers will want to know how the information will be used. Will weak protected areas be delisted? Will they receive more benefits? Will strong protected areas be rewarded, or will they receive less funding and support? What will happen to areas with less biological or social importance? Who will make these decisions and when might they be implemented? Answers to these questions should be clear from the outset of the process.

- **Triangulation**: The more that data can be independently confirmed, the more reliable it is likely to be. Data can be triangulated by independent confirmation by NGOs and other stakeholders; by including simple verification techniques such as aerial photos and satellite imagery; by administering the methodology in a workshop so protected area managers are accountable to one another; and by peer review of the results of the assessment.

- **Consistent interpretation**: A portion of the workshop should include time for all respondents to fully understand, and if necessary, to modify, the questionnaires and analyses. This will ensure that questions are answered in a consistent manner.

ANSWERING THE QUESTIONS

Some terms in the Rapid Assessment Questionnaire are italicized; definitions for these are included in the glossary. Terms such as ‘adequate,’ ‘appropriate,’ ‘comprehensive,’ ‘effective,’ and ‘sufficient’ should be interpreted in the context of local conditions. For example, the statement “Visitor facilities are appropriate to the level of visitor use” implies that visitors are not camping in fragile areas, or polluting streams, or causing significant soil erosion. If the area is extremely remote and tourism is minimal, then even the barest of facilities may be adequate. Ideally, participants will have time during the workshop to discuss the interpretation of different terms and questions and develop a consensus. In particular, participants may want to agree upon how they will interpret questions 2c, 2d, 2e, 10a, 10b, 11b, 11c, 12a, 12b and 12c.

The format of the questionnaire is a statement with five options: yes, mostly yes, mostly no, no, or unknown. This format can help to detect general trends, rather than ascertain the degree of fulfillment. For example, statement 13a states “There is a comprehensive, relatively recent written management plan.” A ‘yes’ answer would indicate that all, or nearly all, of the requirements (written, comprehensive, up to date) were met. A ‘mostly yes’ answer could indicate that most of the requirements were met, were likely to be met in the near future or were all met, but the respondent still had reservations about an unqualified yes’. A ‘mostly no’ answer would indicate that only a few requirements were met (e.g. there is an outdated, ineffective written plan), or that even if most requirements are met, the results are still unsatisfactory. A ‘no’ answer would indicate that none or almost none of the requirements were satisfied. An ‘unavailable’ or ‘uncertain’ answer would indicate that insufficient information was available to answer this question fully.
RECORDING THE RESULTS

There are many scoring systems to determine the degree of compliance to any given indicator. A ‘yes/no’ index (or a modified version with ‘mostly yes’ and ‘mostly no’) means that respondents simply indicate whether a given condition is fulfilled. This system is the simplest to use and provides the most flexibility, but the information provided is generally broad. An example of a ‘yes/no index’ is given below:

\[
y \quad m/y \quad m/n \quad n \quad \text{There is an effective training program in place.}
\]

A guided answer approach provides some level of guidance for determining whether and how a condition or criterion has been fulfilled. An example, taken from The Nature Conservancy’s “Scorecard Criteria” (TNC 1998: 465) is shown below:

- 5 = Training needs identified; training program begun
- 4 = Training needs identified; some basic courses provided
- 3 = Training needs identified; no training yet initiated
- 2 = Training needs being identified
- 1 = No indication of personnel training needs

A guided answer approach can provide a greater degree of accuracy, but may also lead to confusion. In the example above, for example, there may be a strong training program in place, but a needs assessment was never completed. Too narrow a range of response means that respondents do not have the flexibility of deciding what constitutes compliance.

A third approach is to use specific indicators and verifiers for each major goal or criterion. An example is shown below:

Indicator: An effective training program is in place.
Verifiers:  
  a) needs assessment completed  
  b) training manuals and other workbooks available  
  c) staff demonstrate ability to perform key skills  
  d) on-going efforts to identify training needs.

In this approach, compliance can be determined by any number of verifiers. These verifiers can be tailored to a specific country or region. However, the time needed to develop and evaluate specific verifiers, coupled with the high level of detail provided by this approach, make this scoring method a better fit for more in-depth, site-level analyses.

A fourth approach is to focus on qualitative data. Such an approach provides the most flexibility to the respondent. An example is shown below:

How well are training needs being met? Why or why not?

This approach is likely to be impractical for broad level assessments, unless the number of protected areas is very low, or time and resources are sufficient to allow such detail. The decision regarding which scoring method to use will depend on the circumstances of each assessment.
SECTION 5: ANALYSIS OF INDIVIDUAL PROTECTED AREAS

PA SITE ANALYSIS 1: Protected Area Management

This analysis covers three aspects of protected area management: planning, inputs and practices. Planning includes protected area objectives, legal status, security and PA site design (questions 1-3 of the Rapid Assessment Questionnaire). Inputs include staffing, funding, communications equipment, transportation and facilities (questions 10-12). Practices include management planning, management outputs, research, monitoring and evaluation (questions 13-15). Taken together, an assessment of planning, inputs and practices provides a broad picture of the overall management of a protected area.

Instructions for Analysis 1
1.1 For each of the questions 1-3, 10-12, and 13-15 from the Rapid Assessment Questionnaire, assign points for each as follows: 'yes' = 5; 'mostly yes' = 3; 'mostly no' = 1; 'no' = 0, and 'unavailable' = blank.
1.2 Add the total points for each question (e.g. the sum of 1a through 1e) to determine the total for each question.
1.3 To determine the average for each set of questions, divide the total by the number of questions that received either a 'yes,' 'mostly yes,' 'mostly no' or 'no' response. Do not include answers that received an 'undetermined' answer in the average.
1.4 To determine the overall average for planning, inputs, and practices, add the total scores for each set of questions (1-3, 10-12, and 13-15) and divide by 3.

Reporting the Results of Analysis 1
The results can be reported in a bar graph format, providing a visual summary of the information for each question.
PA SITE ANALYSIS 2: Pressures

Pressures are forces or events that have already had a detrimental impact on the integrity of the protected area (i.e. that result in diminished biological diversity or capacity, and/or impoverishment of the area’s natural or cultural resources). Pressures may include both legal and illegal activities and may result from direct and indirect forces. Pressures should be determined in relation to the management objectives. A pressure in one protected area may not necessarily be considered a pressure in another area. This analysis covers the magnitude of damage in a protected area over the past decade (range and impact from questions 6b and 6c of the Rapid Assessment Questionnaire), and the severity of that damage (magnitude and permanence from question 6d). From these two analyses, one can determine an index for each type of pressure, as well as an overall index for all pressures within a protected area.

**Instructions for Analysis 2**

2.1 For each pressure indicated on the questionnaire, assign points for responses to 6b as follows:
2.2 Assign points for responses to 6c as follows: ‘severe’ = 4, ‘high’ = 3, ‘moderate’ = 2 and ‘mild’ = 1.
2.3 Multiply the points from 2.1 and 2.2. For example, ‘scattered’ (2) x ‘moderate’ (2) = 4. This is the magnitude of pressure.
2.4 For each pressure indicated, assign points for responses to 6d as follows: ‘permanent’ = 4, ‘long-term’ = 3, ‘medium-term’ = 2, ‘short-term’ = 1.
2.5 Multiply this number with the magnitude of pressure. The result (a number from 1-64) is the degree of pressure.
2.6 Repeat steps 2.1-2.5 for each additional pressure.
2.7 Add the total degree of pressure (from 2.5) for all pressures to determine the overall degree of pressure.

**Reporting the Results of Analysis 2**

One way to illustrate the degree of pressure is with a matrix format that includes all pressures included in the questionnaire. This format provides a quick summary of all pressures and their degree. The left axis represents the magnitude (1-2 = mild, 3-4 = moderate, 6-9 = high, 12-16 = severe), and the bottom axis represents the permanence for each pressure. Pressures in the upper right quadrant are the most severe; those in the lower left the mildest.

Magnitude of poaching = 8
Permanence of poaching = 1
Degree of poaching = 8 (8 x 1)

Magnitude of tourism = 2
Permanence of tourism = 2
Degree of tourism = 4 (2 x 2)

Overall Degree of Pressure = 12 (8 + 4)
**PA SITE ANALYSIS 3: Threats**

Threats are potential pressures in which a detrimental impact on the natural or cultural resources of the protected area is likely to occur or continue in the future. Existing pressures likely to continue in the future should be considered both a pressure and a threat. Threats should be determined in relation to the management objectives. A threat in one protected area may not necessarily be considered a threat in another area. This analysis is similar to Analysis 2 in that it combines the magnitude of a threat with the permanence to determine the “degree of threat.” Questions 7b, 7c and 7d are used instead of questions 6b, 6c and 6d. This analysis also covers the urgency of a threat – a combination of the degree of threat and its likelihood of occurring or increasing.

**Instructions for Analysis 3**

3.1 For each threat indicated on the Rapid Assessment Questionnaire, assign points for responses to 7b as follows: ‘throughout’ = 4, ‘widespread’ = 3, ‘scattered’ = 2 and ‘localized’ = 1.

3.2 Assign points for responses to 7c as follows: ‘severe’ = 4, ‘high’ = 3, ‘moderate’ = 2 and ‘mild’ = 1.

3.3 Multiply the values from 3.1 and 3.2. For example, ‘scattered’ (2) x ‘moderate’ (2) = 4. This number is the magnitude of threat.

3.4 For each threat indicated on the Rapid Assessment Questionnaire, assign points for responses to 7d as follows: ‘permanent’ = 4, ‘long-term’ = 3, ‘medium-term’ = 2, ‘short-term’ = 1.

3.5 Multiply this number with the magnitude of threat. The result (a number from 1-64) is the degree of threat.

3.6 For each threat indicated on the Rapid Assessment Questionnaire, assign points for responses to 7a as follows: ‘possible’ = 1, ‘somewhat likely’ = 2, ‘very likely’ = 3, ‘near certain’ = 4.

3.7 Multiply this number with the magnitude of threat. The result (a number from 1-64) is the urgency of threat.

3.8 Add the total value of the degree of threat (from 3.5) for all threats to determine the overall degree of threat.

3.9 Add the total value of the urgency of threat (from 3.7) for all threats to determine the overall degree of urgency.

**Reporting the Results of Analysis 3**

The results for both the degree of threat and the urgency of threat can be displayed in a matrix format. The degree of threat is similar to the degree of pressure; the left axis represents the magnitude, and the bottom axis represents the permanence for each pressure. Threats in the upper right quadrant represent the most severe threats; those in the lower left the mildest threats. On the urgency of threat matrix, the magnitude of the threat is on the left axis and the likelihood of that threat occurring is on the bottom axis.

Overall degree of threat = 14 (6 + 8)  
Overall degree of urgency = 18 (12 + 6)
**PA SITE ANALYSIS 4: Cumulative Threats and Pressures**

The cumulative impact of threats and pressures is a combination of the total impact to natural and cultural resources from all threats and pressures within the protected area. This analysis helps to identify which issues have the potential for causing the most serious overall damage in the future.

**Instructions for Analysis 4**

4.1 For each pressure included in the Rapid Assessment Questionnaire, indicate the degree of pressure (see 2.5) along the left axis.

4.2 For each threat included in the Rapid Assessment Questionnaire, indicate the degree of threat (see 3.5) along the left axis.

4.3 The total of all threats and pressures can also be included in the graph.

**Recording the Results of Analysis 4**

A bar graph enables a quick summary of the cumulative impact of all pressures and threats within a protected area. In the figure below, for example, the most significant impacts have been caused, and will likely continue to be caused, by encroachment and tourism. All of these threats and pressures can also be combined in a single graph, which can enable easy comparison with other protected areas (see Analysis #10)
PA SITE ANALYSIS 5: Vulnerability

This analysis covers two aspects: susceptibility to local contributing factors, and environmental sensitivity to global and regional influences (questions 8 and 9 from the Rapid Assessment Questionnaire). Local factors include socio-economic trends, resource values, and cultural practices and beliefs that may directly or indirectly hinder effective management. Global and regional influences are environmental forces that cross national and regional boundaries and whose effect may be intensified in certain areas (e.g. global climate change). These influences may also exacerbate the impact of other existing pressures within the protected area.

Instructions for Analysis 5

5.1 For each question 8a-8j of the Rapid Assessment Questionnaire, assign a score as follows: ‘yes’ = 5, ‘mostly yes’ = 3, ‘mostly no’ = 1, ‘no’ = 0, and ‘unavailable’ = 0.
5.2 The sum of questions 8a-8j is the susceptibility index (a number between 0 and 50).
5.3 Repeat for questions 9a-9e.
5.4 The sum of questions 9a-9e is the sensitivity index (a number between 0 and 25).

Reporting the Results for Analysis 5

The results of Analysis 4 are straightforward; a simple graph or table can express the values. These values can then be easily compared with other protected areas (see Analysis #11).

Susceptibility index (local contributing factors): 17
Sensitivity index (regional and global influences): 9

The Accumulation of Many Small Pressures

In some protected areas, there may be many small pressures, each of which seem insignificant. These small pressures may accumulate slowly, be difficult to detect or monitor, and have unknown and compound consequences. The result is a much higher degree of impact in the protected area than may be initially realized. The WWF Rapid Assessment and Prioritization Methodology is one way to help discover cases with many small pressures.

The photo below is of Shelburne Pond and adjacent woodlands, one of the oldest properties held by The Nature Conservancy in the state of Vermont. It is a pretty pond, and attracts a number of visitors every year. However, the entire protected area is facing a myriad of threats and pressures, including pollution from nearby agriculture, acidification, grazing, exotic species, snowmobiling, motor boats, hunting and vandalism.

At a protected areas assessment workshop in Burlington, Vermont, one participant remarked “Gee! I didn’t realize how much stress this little area was under! Maybe it’s more serious than I thought.”

The participant, who had been active in overseeing the area for several years, had not considered how the many small pressures could accumulate and interact over time.
PA SITE ANALYSIS 6: Biological and Social Priority

This analysis compares the biological or social importance of a protected area (questions 4 and 5 of the Rapid Assessment Questionnaire) with the degree and urgency of future threats (see Analyses 3 and 4).

Instructions:
6.1 For each of the questions 4a-5j (biological importance) assign points as follows: ‘yes’ = 5, ‘mostly yes’ = 3, ‘mostly no’ = 1, and ‘no’ and ‘unavailable’ = 0. The result is a number from 0 – 50.
6.2 Determine the overall degree of threat (from analysis 3.8) on the left side of the matrix.
6.3 Determine the overall degree of urgency (from analysis 3.9) also on the left side of the matrix.
6.4 Plot the data as shown below to determine biological priority.
6.5 For each of the questions 5a-5j (socio-economic importance) assign points as for biological importance.
6.6 Repeat steps 6.2-6.4 to determine socio-economic priority.

Reporting the Results of Analysis 6
The results can be reported in a matrix format. In the illustration below, the biological importance is on the bottom axis, and the overall degree and urgency indices are on the left axis. The result is an indication of biological priority. A similar analysis using social importance on the bottom axis indicates the socio-economic priority of the protected area. The position of an individual protected area will gain significance when compared with other protected areas (see Analysis #12).
**PA SITE ANALYSIS 7: Trends and Outlook**

Threats and pressures occur in a historical context. By understanding trends over time, certain patterns can emerge that may help in mitigating and preventing pressures across the protected area system. This analysis considers the changes in pressures over the last 10 years, the current level of pressures, and the outlook for threats over the next 10 years.

**Instructions:**

7.1 For each pressure included in the Rapid Assessment Questionnaire, determine the degree of pressure (see 2.5).

7.2 For each threat included in the Rapid Assessment Questionnaire, determine the degree of threat (see 3.5).

7.3 Indicate whether the pressure has increased sharpenly, increased slightly, remained constant, decreased sharply, or decreased slightly over the past 10 years (question 6a on the Rapid Assessment Questionnaire).

7.4 To determine the overall trend for all threats and pressures, determine the overall degree of pressure (see 2.7) and the overall degree of threats (see 3.8).

7.5 Determine the average past activity for all pressures by assigning points for responses to 6a as follows: increase sharply = 2; increase slightly = 1; remain constant = 0; decrease slightly = 1; decrease sharply = 2. Add the total for all pressures and divide by the number of pressures to determine the average.

**Reporting the Results of Analysis 7**

The results of this analysis can be displayed as shown below. The line to the left represents changes over the past 10 years. The line to the right represents changes over the next 10 years. The result is a visual image of trends for each pressure and threat, as well as overall trends for the whole protected area.
SECTION 6: ANALYZING MULTIPLE SITES

PA SYSTEM ANALYSIS 8: Comparing Management Effectiveness

In the previous section, the first analysis provides information about the management effectiveness of a simple protected area, including planning (questions 1-3 in the Rapid Assessment Questionnaire), inputs (questions 10-12), and practices (13-15). Combining the data sets of many protected areas enables broad comparisons of management effectiveness and identifies trends and patterns across an entire protected area system.

Instructions for Analysis 8
8.1 Determine the overall planning score for each protected area by adding together the average scores of questions 1a-1e, 2a-2e, and 3a-3e from analysis 1. The total will be a number between 0 and 15.
8.2 Determine the overall inputs score for each protected area by adding together the average scores of questions 10a-10e, 11a-11e, and 12a-12e from analysis 1. The total will be a number between 0 and 15.
8.3 Determine the overall practices score for each protected area by adding together the average scores of questions 13a-13e, 14a-14e, and 15a-15e from analysis 1. The total will be a number between 0 and 15.

Recording the Results from Analysis 8
A simple bar graph can illustrate which protected areas have higher average scores for planning, input and practices, as well as highlight system-wide strengths and weaknesses.

Comparison of Inputs, Practices and Policies for 10 Protected Areas
PA SYSTEM ANALYSIS 9: System-wide Threats and Pressures

Analyzing the degree of an array of threats and pressures from many protected areas (Analyses 2 & 3) enables a general understanding of the severity and persistence of these threats system-wide. A threat or pressure that consistently appears across many areas may indicate a system-wide rather than site-level response.

Instructions for Analysis 9

9.1 Each pressure included in the Rapid Assessment Questionnaire has a magnitude and a permanence value (Analysis 2). For example, in the figure in Analysis 2, poaching has a permanence value of 1 and a magnitude of 8.

9.2 For each pressure, add the permanence values for that pressure from each protected area in the assessment.

9.3 Divide this number by the number of protected areas within the assessment to determine the average permanence value for each pressure.

9.4 Repeat steps 9.2 and 9.3 for the magnitude of each recurring pressure to find the average magnitude.

9.5 Divide the number of times the pressure occurs in all of the protected areas by the number of protected areas in the assessment to determine the percentage of occurrence of each pressure.

9.6 For each threat, add the permanence value from each protected area in the assessment.

9.7 Divide this number by the number of protected areas within the assessment to determine the average permanence value for each threat.

9.8 Repeat steps 9.6 and 9.7 for the magnitude of each recurring threat to find the average magnitude.

9.9 Divide the number of times the threat occurs in all of the protected areas by the number of protected areas in the assessment to determine the percentage of occurrence of each threat.

Recording the Results from Analysis 9

The results can be recorded on a matrix similar to that used in Analysis 2. Magnitude of pressures and threats are on the left axis and permanence is on the bottom axis. The percentage in each box indicates the percentage of occurrence across all protected areas in the assessment. In the example below, poaching is likely to become more severe, but less prevalent in the future. Tourism is likely to become substantially more prevalent, and agriculture will remain constant.
PA SYSTEM ANALYSIS 10: Cumulative Threats and Pressures

Section 4 included an analysis of the many threats and pressures facing an individual protected area. Analyses 2 and 3 provided two indices, an overall threat index and an overall pressure index. When graphed, these figures can enable a comparison of the existing and potential impacts on multiple protected areas. In the figure below, for example, protected areas 5, 6 and 10 face low levels of threats and pressures, while 1, 3 and 7 face high levels.

Instructions:
10.1 The figure in Analysis 4 included a total of all pressures and threats for each protected area.
10.2 Compare this total with the totals of all pressures and threats for all protected areas in the assessment.

Recording Results form Analysis 10
A bar graph enables a quick summary of the cumulative pressures and threats across a protected area system.

Example of Globally Significant Biodiversity Hotspots: Conservation International

Conservation International has identified 25 biologically rich areas under threat of destruction as “biodiversity hotspots.” Conservation International concentrates their conservation efforts in those areas to have the most impact. Criteria for defining these hotspots include the number of species present, the number of those species found exclusively in the ecosystem, and the degree of threat they face.

Other examples of globally significant hotspots include WWF’s “Global 200” and the World Resources Institute’s “Frontier Forests.”
PA SYSTEM ANALYSIS 11: Comparing Vulnerability

The basis for this analysis is the data from Analysis 5 – the susceptibility index and the sensitivity index for each protected area. Comparing these two indices helps to identify whether all protected areas face similar pressures, or whether some are besieged by a multitude of external forces beyond the control of management, while others face few such pressures. This knowledge can help put into context other analyses such as management effectiveness and urgency.

Instructions for Analysis 11

11.1 Analysis 5 included a susceptibility index to local factors and a sensitivity index to global and regional forces.
11.2 Compare this total with the totals for all protected areas in the assessment.

Recording the results

A bar graph enables a quick summary of the cumulative pressures and threats across a protected area system. In the example below, protected areas 2, 5 and 9 appear to have much more susceptibility to local factors, and sensitivity to global influences than other areas, while protected areas 6 and 7 appear to be relatively secure. This information can help inform decisions regarding policy interventions.
**PA SYSTEM ANALYSIS 12: Comparing Biological and Socio-Economic Priorities**

Determining which protected areas have a higher priority can be difficult. Some have higher biological and socio-economic values, others have lower. Some face urgent threats, others more remote threats. Prioritizing support for protected areas will require balancing a number of considerations. This analysis can help provide guidance in that process.

**Instructions for Analysis 12**

12.1 The first matrix includes an overall degree of threat for each protected area along the left axis, and the biological importance along the bottom. This analysis gives a sense of how much is at stake to natural resources if threats become pressures.

12.2 The second matrix includes an overall degree of threat for each protected area, and the socio-economic importance.

12.3 The third matrix includes urgency of threat and biological importance. This analysis gives a sense of the imperative for taking action quickly.

12.4 The fourth matrix includes urgency of threat and socio-economic importance.

**Recording the Results**

The results can be displayed in matrices similar to those used in analysis 6. In the graph below, protected area 8 appears to have the highest biological priority, followed by protected areas 2, 1 and 12. Protected areas 1 and 2 appear to have the highest socio-economic priority. Such information can help inform decisions regarding policy interventions.
SECTION 7: NEXT STEPS

In addition to conducting the analyses in sections 4 and 5, workshop participants and/or the assessment team may also wish to further understand the strengths and weaknesses of the protected area system and to develop appropriate next steps. This section includes some tools for enabling this additional analysis.

Framework Analysis

The table below, based on the IUCN framework for assessing management effectiveness (Hockings et al, 2000), includes six aspects of PA management: context, design and planning, inputs, management processes, outputs and outcomes. Each aspect includes a series of associated questions from the Rapid Assessment Questionnaire, as indicated below.

<table>
<thead>
<tr>
<th>Context: Enabling Conditions</th>
<th>PA Design and Planning</th>
<th>Inputs</th>
<th>Management Processes</th>
<th>Management Outputs</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Local contributing factors (8a-8j)</td>
<td>• Objectives (1a-1e)</td>
<td>• PA funding (2e)</td>
<td>• Information and communication (1e,11a,11e)</td>
<td>• Law enforcement (2d)</td>
<td>• Degree of degradation (6b-6d)</td>
</tr>
<tr>
<td>• Global influences (9a-9e)</td>
<td>• PA site design (3a-3e)</td>
<td>• Staff (10a-10e)</td>
<td>• Management planning (13a-13e)</td>
<td>• Boundary demarcation (2c)</td>
<td>• Trends over time (6a, 7a)</td>
</tr>
<tr>
<td>• PA policies (17a-17j)</td>
<td>• PA system design (6a-16j)</td>
<td>• Infrastructure (11b-11d;12a-12c,12e)</td>
<td>• Monitoring and research (15a-15e)</td>
<td>• Fulfillment of workplan (14a)</td>
<td>• Education (14d)</td>
</tr>
<tr>
<td>• Policy environment (18a-18j)</td>
<td>• Legal status (2a,2b)</td>
<td></td>
<td>• Financial management (14e)</td>
<td>• Restoration (14b)</td>
<td>• Prevention (14c)</td>
</tr>
</tbody>
</table>

The questionnaire results can then be tabulated according to the table above to provide an overview of the strengths and weaknesses of the overall protected area system.
### TABLE 3: Overall Strengths and Weaknesses

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTEXT – 79%</td>
<td>• Protected area policies – 87%</td>
<td>• Local contributing factors (0-50) – 33.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Global influences (0-25) – 15.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Policy environment – 62%</td>
</tr>
<tr>
<td>DESIGN &amp; PLANNING – 59%</td>
<td>• Objectives – 90%</td>
<td>• PA site design – 37%</td>
</tr>
<tr>
<td></td>
<td>• Legal status – 85%</td>
<td>• PA system design – 23%</td>
</tr>
<tr>
<td>INPUTS – 57%</td>
<td>• Infrastructure – 70%</td>
<td>• PA funding – 43%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Staff – 58%</td>
</tr>
<tr>
<td>MANAGEMENT PROCESSES – 82%</td>
<td>• Information and communication – 87%</td>
<td>• Monitoring and research – 59%</td>
</tr>
<tr>
<td></td>
<td>• Management planning – 92%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Financial management – 90%</td>
<td></td>
</tr>
<tr>
<td>MANAGEMENT OUTPUTS – 67%</td>
<td>• Boundary demarcation – 72%</td>
<td>• Enforcement – 39%</td>
</tr>
<tr>
<td></td>
<td>• Education programs – 82%</td>
<td>• Prevention measures – 54%</td>
</tr>
<tr>
<td></td>
<td>• Restoration measures – 76%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fulfillment of work plan – 78%</td>
<td></td>
</tr>
<tr>
<td>OUTCOMES</td>
<td>• Overall trend – pressures decreasing slightly</td>
<td>• Degree of overall pressures – moderate/high (28)</td>
</tr>
</tbody>
</table>
Specific Issues Analysis

The previous table provides a general overview of broad strengths and weaknesses within a protected area system. It can also help to identify areas for more specific analysis. For example, in the table above, protected area site design and protected area system design were serious weaknesses. A more detailed analysis of answers to questions 3a through 3e and 16a through 16j of the Rapid Assessment Questionnaire would likely reveal more specific weaknesses. For example, consistently low scores on questions 3b (buffer zones) and 3e (corridors and linkages), would indicate a specific weakness in land use planning, even though other questions within this category might receive much higher scores. Other topics can be similarly analyzed in detail to help elucidate specific strengths and weaknesses, including management planning, infrastructure, monitoring and research.

Cluster Analysis

Some issues are spread across several areas throughout the questionnaire. Community relations, for example, is mentioned or implied in questions 1e (community support of PA objectives), 2b (use rights and tenure disputes), 8e (conflicting cultural practices), 11e (communication with communities), and 14d (education and outreach programs). In addition, some pressures and threats may be more directly related to community relations than others. Illegal poaching and NTFP harvesting, for example, are likely to be the result of inadequate communications and poor relations, while large-scale dam building and mining are more likely to be the result of corporate relations and governmental policies. By examining the results of a suite of related questions, a broader picture can emerge about this complex topic.

Similar cluster analyses can be conducted on other topics, such as law enforcement and adaptive management (see below).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• 1e – community support of PA objectives</td>
<td>• 1d – PA employees understanding of policies</td>
<td>• 11d – Data availability regarding PA</td>
<td></td>
</tr>
<tr>
<td>• 2b – use rights and tenure disputes</td>
<td>• 2d – Enforcement of laws</td>
<td>• 11b – Means of communication</td>
<td></td>
</tr>
<tr>
<td>• 8e – conflicting cultural practices</td>
<td>• 6 – Illegal activities causing pressures and threats</td>
<td>• 11e – Communication with communities</td>
<td></td>
</tr>
<tr>
<td>• 11e – communication with local communities</td>
<td>• 8a – Difficulty of monitoring PA</td>
<td>• 12b – Equipment for data collection</td>
<td></td>
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<tr>
<td>• 14d – education and outreach programs</td>
<td>• 8b – Undue pressure to over exploit resources</td>
<td>• 13c – Adaptive learning in planning process</td>
<td></td>
</tr>
<tr>
<td>• 6 &amp; 7 – certain pressures and threats related to community relations</td>
<td>• 8c – Widespread and systemic bribery and corruption</td>
<td>• 15d – Research results are incorporated into planning</td>
<td></td>
</tr>
<tr>
<td>• 10a – Number of staff</td>
<td>• 12a – Adequacy of transportation</td>
<td>• 15e – Adequate and appropriate research</td>
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</tbody>
</table>
Context Analysis
Some issues may not be readily apparent from the questionnaire answers, and may need to be considered in a broader context, in relation to several other factors. For example, management capacity is often a reflection of several factors, including contributing factors, inputs, management practices, and the degree of pressures and threats facing the protected area. PA managers who have been able to maintain the integrity of a protected area over time, with minimal funding, staff and infrastructure, in a situation with many negative contributing factors, are likely to have high management capacity. A relational database can help in analyzing contextual data by identifying protected areas that have specific characteristics. For example, in the figure below, a database could select areas with inputs of less than 50%, 7 or greater contributing factors, management planning and practices scores of 80% or higher, and low to moderate degrees of degradation.

<table>
<thead>
<tr>
<th>Inputs &lt; 50%</th>
<th>Contributing factors &gt; 7</th>
<th>Management planning &gt; 80%</th>
<th>Management practices &gt; 80%</th>
<th>Degree of degradation = low to moderate</th>
<th>High management capacity</th>
</tr>
</thead>
</table>

Identifying PA managers with exceptionally high capacity can help to identify innovative management practices, and encourage system-wide learning. Other potential areas for context analysis include resource efficiency, and tractability of pressures.

Data Analysis
Since the Rapid Assessment and Prioritization Methodology depends on accurate and thorough information, attention should also be paid to the data itself. Some signals for inaccurate and incomplete data include:
- Large numbers of questions are answered “unavailable” across many categories
- Differing questionnaire results for the same protected area (between PA managers, administrators, and stakeholders, for example)
- Discrepancy between questionnaire results and existing data

The causes of these results may vary; new staff, outdated or unavailable data, differing interpretations and perspectives, and inadequate instructions for filling out the questionnaires can all contribute to inaccurate results. If there appear to be serious information gaps or inconsistencies, the assessment team may wish to supplement the results with additional data collection and/or external verification.

Underlying Causes and Stresses Analysis
Once all threats and pressures are catalogued, the assessment team may also want to explore some of the underlying causes of these activities, as well as some of the stresses these activities may cause on the ecosystem. To conduct this analysis, the assessment team should identify the underlying causes of each threat and pressure by analyzing why the specific activity is considered a problem, and potential reasons for its occurrence. Similarly, the assessment team should identify the specific stresses to the ecosystem that results from these activities. One example of this type of analysis is shown in the chart below.
MAJOR THREATS AND PRESSURES

RESULTING STRESSES AND IMPACTS TO ECOSYSTEM

UNDERLYING CAUSES

HIKING
- Too many hikers
- No hiking restriction during wet season
- Off-trail use
- Inappropriate (illegal) use

MOTORIZED RECREATION
- Decreased forest regeneration rates
- Decreased hydrological functioning
- Decreased in fish and macro-invertebrate populations

SKIING
- Trampling of sensitive rare plants
- Soil erosion and compaction
- Year round disruption to habitat for key species
- Stream sedimentation

ROAD BUILDING
- Decrease in stream volume
- Forest fragmentation
- Disturbance to understory

HOUSING IN BUFFER ZONE
- Decreased habitat for key species

POLLUTION
- Increased competition for decreasing PA resources
- Acid rain
- Pollution unabated from coal-burning factories

FOREST
- Mortality of red spruce, soil and water acidification
- Decline in fish and macro-invertebrate populations

MAJOR THREATS AND PRESSURES

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POLLUTION
- Increased competition for decreasing PA resources
- Acid rain
- Pollution unabated from coal-burning factories

UNDERLYING CAUSES

- Confliction of local attitudes toward land use and recreation
- Poor PA management (insufficient information, practices)
- Inadequate law enforcement
- Insufficient funding and funding mechanisms
- Inappropriate PA policies
- Strong lobbying by tourism and ski industry
- Population pressures, prevailing cultural norms toward land use
- Ineffective governmental and NGO lobbying
SECTION 7: CONCLUSIONS

Protected areas vary considerably from region to region and from country to country. The effectiveness, the levels of existing and potential degradation, the vulnerability, and the biological and social urgency of each protected area will differ for a variety of reasons. The analyses presented in this methodology can enable policy makers to sort through large amounts of complex, multi-variable information, and to answer key questions such as:

- Which protected areas are most at risk?
- Which protected areas should receive priority?
- Which protected areas have strong capacity, and which are weak?
- Which protected areas warrant more detailed, in-depth assessments?
- Which protected areas are the most strategic conservation investments?
- What are the overall strengths and weaknesses in the protected area system?

The “Rapid Assessment and Prioritization Methodology” is simply a tool for asking these questions in a systematic way. The follow up steps that may develop as a result of implementing this methodology are the most important outcome of the assessment exercise.

Furthermore, this methodology is only one step in a longer process of assessing, prioritizing, strengthening and supporting protected area systems. In addition to assessing the management effectiveness of protected areas, this broader process includes developing policies that provide comprehensive land use planning and natural resource protection; conducting thorough biodiversity inventories, evaluating the design and representativeness of protected area systems, increasing protected area management capacity, restoring degraded areas, and developing policies and incentives that encourage and support effective protected area management.
GLOSSARY

**Biological diversity:** The full array of the diversity of life, including genetic, species, community, and ecosystem variations.

**Conserved land:** Land that may not be formally protected, is managed to protect and maintain biological diversity and associated resources. Examples include independently certified well-managed forests, and landowner cooperatives managed to enhance biodiversity.

**Critical landscape function:** Protected areas that perform a critical landscape function include areas that have important feeding, breeding or migration values to species whose existence would be jeopardized by the alteration of that area.

**Critical management activities:** Any management activity that prevents irreplaceable or unacceptable losses to natural or cultural resources. Examples include monitoring fragile areas, enforcement of laws within the protected area, management prescriptions and restoration measures that will prevent further damage, and all planning, training and supervisory activities necessary to conduct these activities.

**Endemic species:** Species that originate from and exist only within, a particular, limited, geographic area.

**Exemplary and intact ecosystem:** An ecosystem that has retained all of most of its natural elements, including the full array of native species, and the structures and patterns associated with historic natural disturbance regimes.

**GIS:** Geographic information systems allow computer users to overlay one set of data (e.g. forest cover type) with one or more other sets of data (e.g. topography, habitats) to enable complex analyses.

**Globally threatened ecosystem:** An ecosystem recognized by national and/or international groups (e.g. The World-Wide Fund for Nature, Conservation International, World Resources Institute, World Conservation Monitoring Centre) to be globally rare and threatened.

**GPS:** Global positioning systems allow users to precisely identify a particular geographical location, enabling effective planning and monitoring.

**High conservation value:** Any area that a) provides critical habitat to key species; b) contains natural communities or species that are rare, threatened or endangered; or c) contribute significantly to the representativeness of the protected area system.

**Historical range of variability:** The range of occurrence of different ecosystem types prior to wide scale, industrial and intensive human disturbance.

**Key species:** (See also Box 5) Those species whose unique requirements are likely to encompass the habitat needs of all other species in the area.
**Keystone species:** Any species which, when removed from an ecosystem, is likely to cause drastic, unanticipated changes. These species often influence the ability of large numbers of other species in the community to persist.

**Low-impact land use:** Land use can be considered low-impact if it has a minimal impact on the forest. Examples include low road density, clearance size limitations to minimize perforation and fragmentation, and restrictions on noise and pollution.

**Minimum viable population:** The minimum population of a species necessary for that species to persist in the future (usually 500 years), given the random variability of population dynamics.

**Natural processes:** The natural processes of an ecosystem include processes that allow the ecosystem to function and evolve. Examples include natural disturbance and succession processes, nutrient recycling (e.g. plant decay and decomposition), reproduction (e.g. pollination, fertilization), and species predation and migration.

**Natural resources inventory:** An inventory (usually with maps), of the area's natural resources, including forest cover types, water resources, important habitat areas, occurrences of rare, threatened or endangered species, and other areas of ecological and/or social significance.

**Pressure:** Pressures are forces or events that have already had a detrimental impact on the integrity of the protected area (i.e. that have resulted in diminished biological diversity or capacity, and/or impoverishment of the area's natural resources). Pressures may include both legal and illegal activities and may result from direct and indirect forces.

**Protected area system:** A protected area system includes all areas formally and designated as protected areas. The “system” may also include all protected area-related policies, as well as the landscape surrounding the protected areas.

**Rare, threatened and endangered species:** Rare species are any species with very low occurrences, either naturally or as a result of human actions. Threatened species are rare species threatened with localized extirpation or decline. Endangered species are rare species in danger of permanent extinction.

**Sustainable development:** Use of natural resources that minimises impacts on the forest structures and processes, and that does not compromise the forest’s long-term productive and regenerative capacity. Examples may include ecotourism, non-timber forest product collection, and small-scale sustainable forestry operations.

**Threat:** Threats are potential or impending pressures in which a detrimental impact is likely to occur or continue in the future.

**Umbrella species:** An umbrella species is one which, by the nature of its habitat needs, can serve as a conservation proxy for protecting other related species. An example is black bear.
REFERENCES


## A. BACKGROUND

1) **Name of protected area**

2) **Location of protected area**

3) **Date established**

4) **Size of protected area**

5) **Name of respondent**

6) **Date questionnaire completed**

7) **Budget**

### A 8) Specific PA Objectives:

- a) The PA objectives provide for the protection and maintenance of biological diversity and associated resources.
- b) The objectives of the PA are clearly stated in the management plan.
- c) The management policies (e.g. management plan, annual work plan) are consistent with the management objectives of the protected area.
- d) PA employees and administrators clearly understand the management objectives, practices and policies of the PA.
- e) Local communities support the overall objectives of the PA.

## 1. OBJECTIVES

<table>
<thead>
<tr>
<th>y m/y m/n u</th>
<th>a) The PA objectives provide for the protection and maintenance of biological diversity and associated resources.</th>
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<td>o o o o o</td>
<td>b) The objectives of the PA are clearly stated in the management plan.</td>
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<tr>
<td>o o o o o</td>
<td>e) Local communities support the overall objectives of the PA.</td>
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</table>

## 2. LEGAL STATUS AND SECURITY

<table>
<thead>
<tr>
<th>y m/y m/n u</th>
<th>a) The protected area has long-term legally-binding protection.</th>
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<td>o o o o o</td>
<td>b) There are no unsettled disputes regarding land tenure or use rights.</td>
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<td>o o o o o</td>
<td>c) Boundary demarcation is adequate to meet the PA objectives.</td>
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<tr>
<td>o o o o o</td>
<td>d) There is effective enforcement of all laws within the PA.</td>
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<tr>
<td>o o o o o</td>
<td>e) There is adequate funding to conduct all critical management activities.</td>
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## 3. PA SITE DESIGN AND PLANNING

<table>
<thead>
<tr>
<th>y m/y m/n u</th>
<th>a) The layout and configuration of the PA optimizes the conservation of biodiversity (see Box 4).</th>
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<tr>
<td>o o o o o</td>
<td>b) The land use in the surrounding landscape enables effective PA management (e.g. the PA is surrounded by either a buffer zone of undeveloped area, or by a designated low-impact land use zone).</td>
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<td>o o o o o</td>
<td>c) The siting of the PA is consistent with the objectives.</td>
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<tr>
<td>o o o o o</td>
<td>d) The size is sufficient to meet the PA objectives (e.g. large enough to support minimum viable populations of umbrella species).</td>
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<tr>
<td>o o o o o</td>
<td>e) The protected area is linked, either via a protected corridor or by direct proximity, to another area of conserved and/or protected land.</td>
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</table>

## NOTES

1. **OBJECTIVES**

2. **LEGAL STATUS AND SECURITY**

3. **PA SITE DESIGN AND PLANNING**
### 4. BIOLICAL IMPORTANCE

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- a) The PA contains a globally threatened ecosystem.
- b) The PA contains globally rare, threatened or endangered species.
- c) The PA contains regionally or locally rare, threatened or endangered species.
- d) The PA has high levels of biological diversity.
- e) The PA has a high number of endemic species.
- f) The PA provides a critical landscape function.
- g) The PA is large enough to support minimum viable populations of umbrella species, or is relatively large for the region.
- h) The PA contains exemplary and intact ecosystems.
- i) The PA significantly contributes to the overall representativeness of the PA system.
- j) The PA contains important, high quality habitat types for key species.

### 5. SOCIAL IMPORTANCE

<table>
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- a) The PA provides economic opportunities for individuals within or near the PA.
- b) The PA demonstrates opportunities for sustainable development, consistent with the PA objectives.
- c) The PA has a high level of subsistence and/or traditional use by local communities.
- d) The PA has religious or spiritual significance.
- e) The PA has unusual features of aesthetic importance (e.g. hot springs, scenic vistas, geoheritage areas).
- f) The PA contains species of high social or economic value (e.g. medicinal value, food prototypes).
- g) The PA has high value for education and or scientific research.
- h) The PA has high recreation value.
- i) The functions of the ecosystems within the protected area contribute significant social or economic benefits (e.g. water recharge area).
- j) The local community or economy is highly dependent, either directly or indirectly, upon the resources in the protected area.

### PRESSURES

**Pressure: __________________**

**Notes:**

<table>
<thead>
<tr>
<th>a. Over the past 10 years, this activity has:</th>
<th>b. Range</th>
<th>c. Impact</th>
<th>d. Permanence</th>
</tr>
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<tbody>
<tr>
<td>Increased sharply</td>
<td>Throughout (&gt;50%)</td>
<td>Severe impact</td>
<td>Permanent (&gt;500 years)</td>
</tr>
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<td>Increased slightly</td>
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<tr>
<td>Decreased slightly</td>
<td>Localized (&lt;5%)</td>
<td>Mild impact</td>
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**Pressure: __________________**

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### 6 Pressures

**Pressure:**

**Notes:**

#### a. Over the past 10 years, this activity has:
- Increased sharply
- Increased slightly
- Remained constant
- Decreased slightly
- Decreased sharply

#### b. Range
c. Impact
d. Permanence
- Throughout (>50%)
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- Short term (<10 years)

---

### 7 Threats

**Threat:**

**Notes:**

#### a. The likelihood of this activity occurring or increasing in the next 10 years is:
- Very likely
- Somewhat likely
- Somewhat unlikely
- Possible but unlikely

#### b. Range
c. Impact
d. Permanence
- Throughout (>50%)
- Widespread (15-50%)
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- Localized (<5%)

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**Threat:**

**Notes:**

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- Very likely
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d. Permanence
- Throughout (>50%)
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- Localized (<5%)

- Severe impact
- High impact
- Moderate impact
- Mild impact

- Permanent (>500 years)
- Long term (100-500 years)
- Medium term (10-100 years)
- Short term (<10 years)
### 8. LOCAL CONTRIBUTING FACTORS

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**NOTES**

- **a)** The area is difficult to monitor, either because of too few staff, large size of the area, or remoteness.
- **b)** The protected area management is under pressure to unduly exploit the natural resources of the protected area (e.g. is expected to generate sufficient revenue to pay expenses, or is under pressure by special interest groups).
- **c)** Bribery and corruption is common throughout the region.
- **d)** The area is experiencing civil unrest.
- **e)** Cultural practices, beliefs and traditional uses conflict with the objectives of the protected area.
- **f)** The resource value of the protected area is high (e.g. the protected area has stands of high quality timber, rich mineral resources, high potential for hydropower development, grazing capacity).
- **g)** The area is easily accessible (e.g. near major roads, airstrips and/or waterways).
- **h)** There is a strong demand for and trade in, products from the protected area (e.g. desirable timber species, endangered plant and animal species).
- **i)** The area surrounding the protected area is experiencing sharp economic and/or population pressures (e.g. land shortages, widespread poverty, food shortages, high growth).
- **j)** Recruitment and retention of employees is difficult (e.g. large scale disease, emigration).  

### 9. REGIONAL AND LOCAL INFLUENCES

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**NOTES**

- **a)** The area is susceptible to, and has a diminished capacity to prevent, natural catastrophes (e.g. flood, fire, insect outbreaks) because of widespread over-exploitation of natural resources and/or suppression of natural processes.
- **b)** The area is susceptible to climate induced changes, including a) protected areas with ecosystems at the limits of the latitudinal extent of their range; b) protected areas with high elevation forests; c) protected areas with low-altitude, shoreline mangrove forests; and/or d) protected areas that are subject to storms of increasing frequency and intensity.
- **c)** The area is susceptible to air pollution and acidification (e.g. prevailing wind patterns transport air pollution, and/or the ecosystems within the protected area are sensitive to the effects of acidification.)
- **d)** The area is susceptible to invasive, exotic species.
- **c)** The integrity of the hydrology of the PA is dependent upon adjacent and/or regional land use (i.e. the area is susceptible to water pollution, desertification, and/or salinization of the water table).

### 10. STAFF

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**NOTES**

- **a)** The number of staffing is sufficient to effectively manage the area.
- **b)** Staff members have adequate skills to conduct management activities.
- **c)** There is clear internal organization (e.g. job descriptions).
- **d)** Staff support (e.g. training, supervision, monitoring) are appropriate to the needs of the staff.
- **c)** Staff employment conditions (e.g. salaries, benefits, working environment) are sufficient to retain staff.

### 11. COMMUNICATION AND INFORMATION SYSTEMS

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**NOTES**

- **a)** There is effective communication between all PA staff and administration.
- **b)** There are adequate means of communication between field and office staff (e.g. telephones, two-way radios, internet access, fax machines).
- **c)** There are adequate systems for processing information and data (e.g. computers, software, filing systems).
- **d)** Data about the PA is available and relatively recent (e.g. satellite imagery, aerial photos, field study reports).
- **c)** There is effective communication with local communities regarding all aspects of PA management.
### 12. TRANSPORTATION AND FACILITIES

| y m/y m/n n u | a) Transportation means are adequate to enable effective monitoring and other critical management activities.  
| b) Equipment for field-level data collection is adequate (e.g. field glasses, back country gear, GPS monitors).  
| c) Staff facilities are adequate (e.g. staff offices, research stations, field offices).  
| d) Maintenance and care of equipment is adequate to ensure long-term use.  
| c) Visitor facilities (e.g. trails, signs, camping areas) are appropriate to the level of visitor use. |

#### NOTES

### 13. MANAGEMENT PLANNING

| y m/y m/n n u | a) There is a comprehensive, relatively recent written management plan.  
| b) There is an up-to-date natural resources inventory, including maps of the area.  
| c) There is an analysis of, and strategy for addressing, PA threats and pressures.  
| d) Specific goals and targets are identified for achieving management objectives within a clear timeframe.  
| c) Management planning continually incorporates and adapts to new learning. |

#### NOTES

### 14. MANAGEMENT PRACTICES

| y m/y m/n n u | a) Management goals, targets and prescriptions are fulfilled within a reasonable timeframe.  
| b) There is an active restoration program, consistent with the degree of pressures.  
| c) There is an active prevention program, consistent with the degree of threats.  
| d) Education and outreach programs are consistent with the level of need in the area.  
| c) Financial management practices enable efficient and effective management. |

#### NOTES

### 15. RESEARCH, MONITORING AND EVALUATION

| y m/y m/n n u | a) The impact of legal and illegal uses of the PA are accurately monitored and recorded.  
| b) Research needs are clearly identified and prioritized.  
| c) Staff performance and progress on targets are periodically reviewed.  
| d) The results of research and monitoring are routinely incorporated into management planning.  
| c) Research in the PA on key ecological and social issues (e.g. species population trends, harvest of non-timber forest products) is consistent with the pressures and threats. |

#### NOTES

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The remaining six sets of questions pertain to system-wide analyses. These questions would not be included in the questionnaire for each protected area, but would be discussed as part of the workshop.
### 16. PROTECTED AREA SYSTEM DESIGN

<table>
<thead>
<tr>
<th>y m/y m/n u</th>
<th>a)</th>
<th>The PA system adequately represents the full diversity of ecosystems at a landscape level throughout the region.</th>
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<tbody>
<tr>
<td></td>
<td>b)</td>
<td>The PA system adequately protects against the extinction or extirpation of any species by protecting sites of rare, threatened and endangered species and their habitats.</td>
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<td>c)</td>
<td>The PA system consists primarily of exemplary and intact ecosystems.</td>
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<td></td>
<td>d)</td>
<td>Sites of high conservation value for key species are adequately protected.</td>
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<td>e)</td>
<td>The PA system allows for natural processes to occur at a landscape level throughout the country.</td>
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<td>f)</td>
<td>The PA system includes the protection of transition areas between ecosystems.</td>
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<td>g)</td>
<td>The PA system includes a diversity of successional and seral stages at the landscape level across the region.</td>
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<td></td>
<td>h)</td>
<td>Sites of high biodiversity are protected.</td>
</tr>
<tr>
<td></td>
<td>i)</td>
<td>Sites of high endemism are protected.</td>
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<tr>
<td></td>
<td>j)</td>
<td>The layout and configuration of protected areas optimizes the conservation of biodiversity.</td>
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</table>

### NOTES

16. PROTECTED AREA SYSTEM DESIGN

- a) National PA policies clearly articulate a vision, goals and objectives for the protected area system.
- b) There is an adequate percentage of land cover under protection, consistent with the degree of biodiversity within the region and the resources of the country.
- c) There is a clear and demonstrated commitment to protecting a fully viable and representative PA network at a landscape level throughout the region.
- d) There is a comprehensive inventory of the biological diversity throughout the region.
- e) There is an assessment of the historical range of variability of various ecosystem types throughout the region.
- f) There are clear restoration targets for underrepresented and/or degraded ecosystems throughout the region, consistent with the degree of past degradation.
- g) There is ongoing research on critical PA-related issues.
- h) The PA system is periodically reviewed for gaps and weaknesses (e.g. biodiversity gap analyses).
- i) There is an effective training and capacity-building program for PA managers and administrators.
- j) PA management, including management effectiveness, is routinely evaluated.

### 17. PROTECTED AREA POLICIES

<table>
<thead>
<tr>
<th>y m/y m/n u</th>
<th>a)</th>
<th>Laws related to protected areas (e.g. land use planning, land tenure, forestry and agriculture) complement PA management and do not conflict with PA objectives.</th>
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<td></td>
<td>b)</td>
<td>There is sufficient commitment and funding to effectively manage and administer protected areas.</td>
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<td></td>
<td>c)</td>
<td>Goals of environmental protection and sustainable development are systematically incorporated into all aspects of policy development.</td>
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<td></td>
<td>d)</td>
<td>There is a high degree of communication between natural resource-related departments, ministries, and agencies (e.g. parks, wildlife, tourism, recreation, forestry, agriculture).</td>
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<tr>
<td></td>
<td>e)</td>
<td>There is effective enforcement of PA-related laws and ordinances at local, regional and national levels.</td>
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<td></td>
<td>f)</td>
<td>National policies promote widespread environmental education at all levels.</td>
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<td></td>
<td>g)</td>
<td>National policies support sustainable forestry management practices throughout the public and private forestry sectors.</td>
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<td>h)</td>
<td>National policies promote the full array of public and private mechanisms for enabling land conservation (e.g. private reserves, market-driven certification, logger training, tax incentives).</td>
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<tr>
<td></td>
<td>i)</td>
<td>There is adequate environmental training and education for government employees at all levels across all sectors.</td>
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<tr>
<td></td>
<td>j)</td>
<td>National policies foster dialogue and participation with civic and environmental NGOs.</td>
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</table>

### NOTES

17. PROTECTED AREA POLICIES

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