


# Management Effectiveness Evaluation of National Parks and Wildlife Sanctuaries of Sikkim

PROCESS AND OUTCOMES: 2014-2015



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India



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PROCESS AND OUTCOMES: 2014-2015



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# Foreword

Protected Areas (PAs) are considered as the corner stones for biodiversity conservation. In the last five decades, the number of PAs has substantially increased throughout the world. However, the success of these PAs depends upon how effectively these are managed. Management Effectiveness Evaluation (MEE) is being used as a tool globally to evaluate the performance of PAs. In the last one decade, India has adopted and institutionalized the process of MEE for evaluation of our PAs. The process of MEE of tiger reserves in India was initiated in 2005 and so far three cycles of this evaluation have been completed. Similarly, the process of evaluation of National Parks (NPs) and Wildlife Sanctuaries (WLSs) through MEE was initiated in 2006 and so far 125 NPs and WLSs in 31 states and Union Territories of the country have been evaluated till 2014. The process of evaluation for the remaining PAs of the country is ongoing.

I would like to complement the state of Sikkim for being the first in country in undertaking MEE of its entire PAs. This report provides an insight about the overall assessment of PAs of the State; strengths and weaknesses of their management and possible way forward for improvement in the working of different PAs. Report also tries to look at the overall issues of PA management in the State and what policy level and institutional reforms are needed to strengthen biodiversity conservation initiatives of the State.

I take this opportunity to compliment the Department of Forests, Environment and Wildlife Management, Government of Sikkim, all officers and frontline staff working in PAs of State of Sikkim and associated with this exercise for their valuable contributions during the course of this work. I hope that the recommendations of the report will be useful for improving the existing management plans and ongoing management of PAs and also undertaking State level umbrella policy and institutional reforms for strengthening and sustainability of wildlife conservation initiatives of the State.

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**V.B. Mathur**  
Director  
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We wish to thank all the faculty colleagues of WII for their ever available support and encouragement. We also wish to put on record our appreciation and thanks to all the staff of WII for their direct or indirect help. Thanks are also due to Dr. Panna Lal for his GIS support and to Sh. Neeraj Gupta for designing & drafting of this report.

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# Chapter

# 1

## BACKGROUND

### 1.1 Introduction

Protected areas (PAs) are considered as the cornerstones of efforts to conserve biodiversity and the environment and these areas provide associated recreational, economic and social benefits to humans. The number and total extent of PAs have been increasing exponentially over the last 50 years, and there are now more than 100,000 PAs covering about 11% of the earth's land surface (Chape et al. 2005, Leverington et al. 2008). The success of PAs as a tool for conservation is based around the assumption that they are managed to protect the values that they contain (Hockings et al. 2006). However, PAs face many challenges to their integrity that, unless addressed, can undermine the very objectives for which they were established (Mathur et al. 2011). Yet, many sites are under pressure from internal and external threats, and many are degraded (Carey et al. 2000).

Monitoring threats and activities affecting a PA and using the results to manage the challenges, threats and pressures is essential for improving conservation success. Assessing the effectiveness of management and using the results for adaptive management is at the core of good PA management. Assessments enable managers and stakeholders to reflect on their experience, allocate resources efficiently and plan for effective management in relation to potential threats and opportunities (Hockings et al. 2007). Evaluating the effectiveness of the management of these sites is one important way of ensuring that the investment of time and effort in establishing and managing PAs is delivering the benefits that society seeks.

## 1.2 Sikkim State

Sikkim is a small hilly State (7,096 km<sup>2</sup>) located in the Eastern Himalaya between 27° 49" and 28°10" N and 88°28" and 88°55" E. It is the 22nd State of India which came into existence with effect from 16th May, 1975. Sikkim is surrounded by vast stretches of Tibetan Plateau in the north, Chumbi Valley of Tibet and the kingdom of Bhutan in the east, Darjeeling district of West Bengal in the south and the kingdom in Nepal in the west. It extends approximately 115 km from north to south and 65 km from east to west with elevations ranging from 300 m to 8583 m i.e., Mt. Khangchendzonga and encompasses wide varied habitats ranging from subtropical to alpine. Sikkim has been divided into four districts and each district has further been bifurcated into two sub-divisions for administrative purpose except the East district which has four sub-divisions. Habitable areas are only up to the altitude of 2100 m, constituting only 20% of the total area of the State. The highest portion of Sikkim lies in its northwest direction. A large number of mountains having altitudes of about 7000 m stands here with – Khangchendzonga, the third highest peak in the world and highest for India. The other high serrated, snow -capped spurs and peaks area of Kumbha Karna (7711 m.), Pendim (6706 m.), Narsingh (5825 m.), Kabru Dome (6545 m.), etc. A number of glaciers descend from eastern slopes of Khangchendzonga into Sikkim, the biggest of them is Zemu. Teesta is the main river and its main tributaries are Zemu, Lachung, Rangyong, Dikchu, Rongli, Rangpo and Rangit which form the main channel of drainage from the north to the south (Tambe 2007). Ethnically Sikkim has mainly three groups of people i.e. Nepalis, Bhutias, Lepchas. The local language is Nepali. English is the official language.

## 1.3 Biodiversity of Sikkim

Sikkim is located in the Eastern Himalaya and is globally renowned for its biological diversity and the traditional knowledge associated with it. It is a part of the global biodiversity hotspot. The unique terrain, climate and biogeography of the State have resulted in the sustenance of varied eco-zones in close proximity. Also the harmonious presence of several ethnic groups having their distinct identity and practising their traditional livelihood adds to the treasure house of knowledge related to this biodiversity. (Arrawatia and Tambe 2011).

Sikkim harbours nearly 4,458 out of the total 15,000 species of flowering plants in the country. These include: 506 of the total 2302 species of Lichens; 480 of the total 1200 species of Ferns; 527 of the total 1229 species of Orchids; 58 of the total 102 species of Primulas and 38 of the total 90 species of Rhododendrons (Arrawatia and Tambe 2011). Nearly 165 plant species have been named after the State, as they were first collected from here. The State possesses about 31% of the mammals, 45% of the birds and 50% of the butterflies of the country. The Tso Lhamo cold desert in Sikkim supports India's only population of the Southern Kiang *Equus kiang polygdon*, and also significant population of the Tibetan gazelle *Procapra pincta caudata* and the Tibetan argali *Ovis ammon hodgsonii* (Chanchani et al. 2010).

## 1.4 Protected Areas (PAs) of Sikkim

Wildlife conservation has become a worldwide significance. In the field of wildlife conservation, Sikkim State has progressed a great deal with the establishment of one large National Park i.e. Khangchendzonga National Park/ Biosphere Reserve. The State has been able to set aside 51.68 % of the State's forest land area under the wildlife PA network including one Biosphere Reserve for the protection and conservation of State's rich wildlife and biodiversity resources. Protection, preservation and conservation is achieved through the people's participation represented by Eco-Development Committees (EDCs) formed

around the PAs. In Sikkim, presently, there are 8 PAs which comprise of 1 National Park and 7 Wildlife Sanctuaries that cover almost 31 per cent of the total geographical area of the state (Table 1 & Fig 1) (Tambe 2007).

**Table 1. List of Protected Areas of Sikkim**

| S. No.                      | Name                             | Year of Establishment | District     | Area (km <sup>2</sup> ) |
|-----------------------------|----------------------------------|-----------------------|--------------|-------------------------|
| <b>National Park/s</b>      |                                  |                       |              |                         |
| 1.                          | Khangchendzonga National Park    | 1977                  | North & West | 1784.00                 |
| <b>Wildlife Sanctuaries</b> |                                  |                       |              |                         |
| 2.                          | Barsey (Rhododendron) Sanctuary  | 1998                  | West         | 104.00                  |
| 3.                          | Fambonglho Wildlife Sanctuary    | 1984                  | East         | 51.76                   |
| 4.                          | Kitam Wildlife Sanctuary         | 2005                  | South        | 6.00                    |
| 5.                          | Kyongnosla Alpine Sanctuary      | 1977                  | East         | 31.00                   |
| 6.                          | Maenam Wildlife Sanctuary        | 1987                  | South        | 35.34                   |
| 7.                          | Pangolakha Wildlife Sanctuary    | 2002                  | East         | 124.00                  |
| 8.                          | Shingba (Rhododendron) Sanctuary | 1984                  | North        | 43.00                   |

### 1.5 Genesis of the project

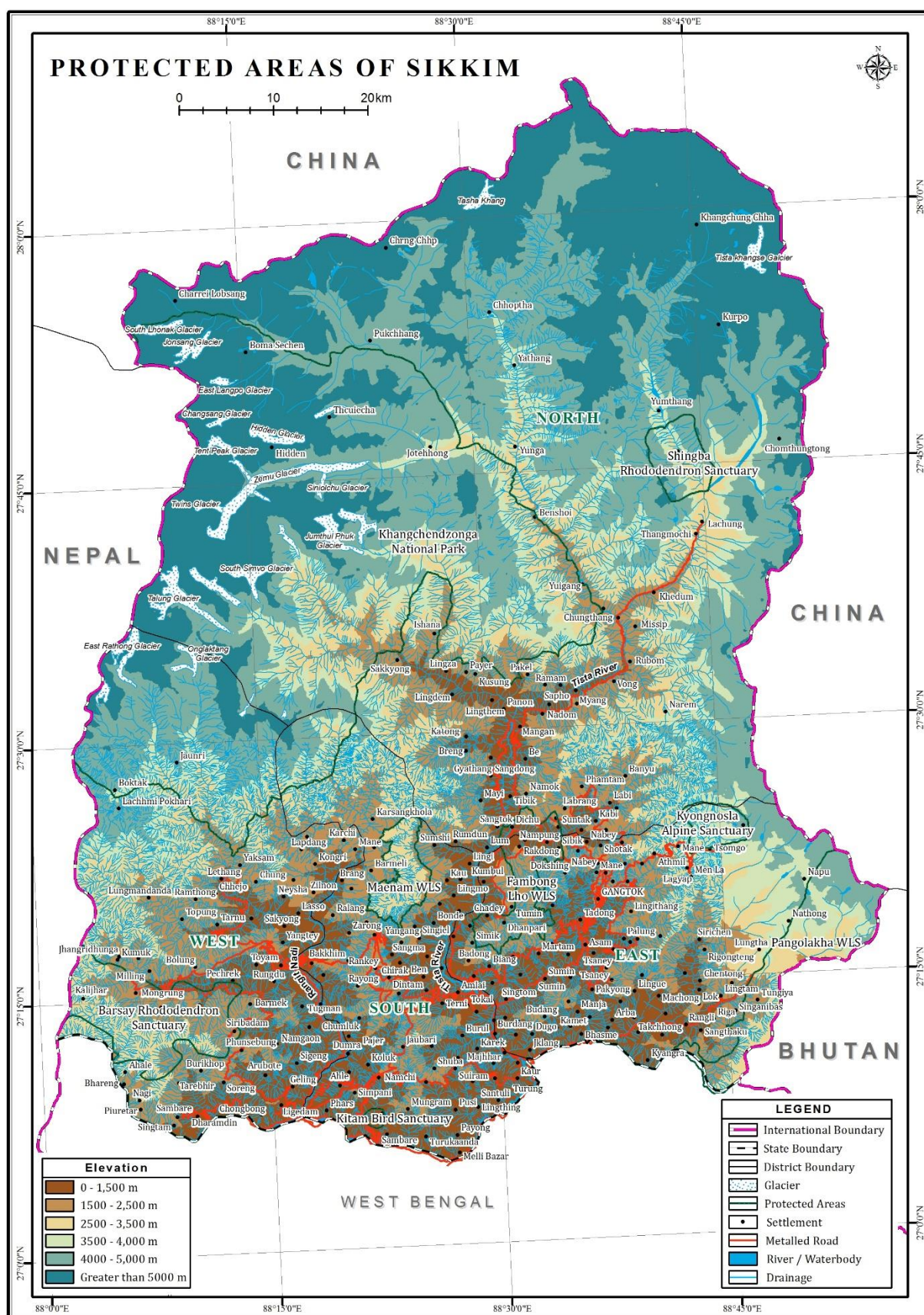
Department of Forest, Environment and Wildlife Management (DFEWM), Government of Sikkim under JICA assisted Sikkim Biodiversity Conservation and Forest Management (SBF) Project assigned to Wildlife Institute of India (WII) the task of evaluation of all the PAs of Sikkim by conducting detailed Management Effectiveness Evaluation (MEE) process with the objective of reviewing the existing management plans. The purpose of this exercise is to understand the current status of management of PAs of the State, find strengths and weaknesses of current management and accordingly update the management plans. WII had initiated the process of MEE of PAs of Sikkim during the month of October 2014 through an inception workshop organized on 17<sup>th</sup> October 2014. This opportunity was also used for training of a group of selected planning officers and staff of the State in "Management Planning for PAs" on 15<sup>th</sup> and 16<sup>th</sup> October 2014. Inception workshop and training was followed by field survey of one of the PA. Second field visit was made during May 2015 in which all remaining PAs of Sikkim were covered for detailed survey.

### 1.6 Objectives

The main objectives of the project were as follows:

- To build the capacity of core team of officers and staff of the department in the area of MEE and PA management planning
- To undertake the Management Effectiveness Evaluation of PAs of the State
- To understand the strengths and weaknesses of existing management of PAs and suggest improvements

**Fig. 1. Map of Protected Areas of Sikkim, India**





# Chapter

# 2

## PROCESS AND METHODOLOGY

### 2.1 What is Management Effectiveness Evaluation (MEE)?

Assessment of management effectiveness has emerged as a key tool for PA managers and is increasingly being required by governments and international bodies. For example, the Convention on Biological Diversity (CBD) Programme of Work for PAs calls on all State Parties to continue to expand and institutionalize management effectiveness assessments to work towards assessing 60% of the total area of PAs using various national and regional tools and report the results into the global database on management effectiveness being maintained by the World Conservation Monitoring Centre of the United Nations Environment Programme (WCMC UNEP) (<http://www.cbd.int/decision/cop/?id=12297>). Evaluation of management effectiveness is generally carried out by assessing a series of criteria (represented by carefully selected indicators) against agreed objectives or standards.

Protected Area (PA) Management Effectiveness Evaluation (MEE) is defined as the assessment of how well PAs are being managed—primarily, whether they are protecting their values and achieving the goals and objectives agreed upon. The term ‘management effectiveness’ reflects three main themes of PA management:

- Design issues relating to both individual sites and PA systems
- The adequacy and appropriateness of management systems and processes
- Delivery of the objectives of PAs, including conservation of values.

## 2.2 Why do we need evaluation or/and assessment?

The need to evaluate PA management effectiveness has become increasingly well recognized internationally over the past one and a half decades. In both developed and developing countries it has been seen that declaration of PAs does not always result in adequate protection (Hockings and Phillips 1999, Hockings et al. 2000, Ervin 2003). Evaluation is necessary because PAs face many threats. However, evaluation is not simply a way of looking for problems; it is as important to identify when things are going well. Assessment of management effectiveness should include both issues within and/or beyond the control of individual managers. This approach facilitates a range of responses to threats and deficiencies in management, from site-based actions to broad political and policy reviews (Hockings et al. 2000).

There are many reasons why people want to assess management effectiveness (Hockings et al. 2000). These different purposes may require different assessment systems and varying degrees of detail. Funding bodies, policy makers and conservation lobbyists may use the results to highlight problems and to set priorities, or management agencies may use them to promote better management policies and practices. Managers may wish to use the results of evaluations to improve their performance or to report on achievements to senior managers, the government or external stakeholders (Hockings et al. 2006). Local communities and other stakeholders, including civil society, need to establish how far their interests are being taken into account. The increased emphasis on evaluation is in part due to changes in society, especially the increased demand for accountability, transparency and demonstrated 'value for money' (Hockings et al. 2006).

### **Broadly speaking, MEE can:**

- Enable and support an adaptive approach to management
- Assist in effective resource allocation
- Promote accountability and transparency
- Help involve the community and build constituencies
- Promote the values of PAs.

In addition to these substantive benefits, the process of assessing management effectiveness can also deliver a number of procedural benefits. Improved communication and cooperation between managers and other stakeholders is a common outcome of evaluation processes. Managers also have an opportunity to 'step back' from the day-to-day concerns of their jobs and consider the issues and challenges that they face in a new light. Many managers have commented that they have derived the major benefits during the process rather than from any formal report written at the end of the exercise (Hockings et al. 2006).

In practice, evaluation results are usually used in more than one way. Information used by managers to improve their own performance (adaptive management) can also be drawn on for reporting (accountability) or can be used to improve the way funds and other resources are allocated either within a single reserve or across a PA system (resource allocation). Whatever purposes it may serve, evaluation should be seen primarily as a tool to assist managers in their work, not as a system for watching and punishing managers for inadequate performance. Evaluation must be used positively to support managers and be seen as a normal part of the process of management. Nonetheless, funding agencies, NGOs and others have a legitimate right to know whether a PA is achieving its stated objectives, and it should be recognized that evaluation findings will inevitably also be used

for advocacy. Recent experiences around the world have demonstrated that involving external stakeholders in the assessment process and transparent sharing of the results of assessment can help build cooperation and support for PAs (Hockings et al. 2006).

In recent years there has been a growing concern amongst PA professionals and the public that many PAs are failing to achieve their objectives and, in some cases, are actually losing the values for which they were established (Hockings et al. 2008). As a result, improving the effectiveness of PA management has become a priority throughout the conservation community. One important step in this process is the carrying out of an assessment of the current status and management of the PA to understand better what is and what is not working, and to plan any necessary changes as efficiently as possible (Hockings et al. 2008).

However, assessments should not primarily be about reporting on or judging the managers and/or frontline staff (Mathur et al. 2011). As important as reporting requirements are, assessment of management effectiveness should primarily be used to assist managers to work as effectively as possible. Monitoring threats and activities affecting a PA and using the results to manage challenges, threats and pressures are increasingly being seen as being at the core of good site management (Mathur et al. 2011). Assessments help managers and stakeholders reflect on their experience, allocate resources efficiently and plan for effective management in relation to potential threats and opportunities (Hockings et al. 2008).

### **2.3 The WCPA Framework for Assessing Management Effectiveness**

The precise methodology used to assess effectiveness differs between PAs and depends on factors such as the time and resources available, the importance of the site, data quality and stakeholder pressures. The differing situations and needs for PAs thus require different methods of assessment. As a result, a number of assessment tools have been developed to guide and record changes in management practices.

A uniform theme has been provided to these assessments by the IUCN World Commission on Protected Areas (WCPA) Framework for Assessing the Management Effectiveness of Protected Areas (see Fig.2 for more information), which aims both to give overall guidance in the development of assessment systems and to encourage basic standards for assessment and reporting. The WCPA Framework for Assessing Management Effectiveness is a system for designing PA management effectiveness evaluations with six elements: context, planning, inputs, processes, outputs and outcomes. It is not a methodology but is a guide for developing assessment systems. The WCPA Framework sees management as a process or cycle with six distinct stages, or elements:

- It begins with establishing the context of existing values and threats,
- progresses through planning and
- allocation of resources (inputs)
- as a result of management actions (process) and
- eventually produces goods and services (outputs)
- that result in impacts or outcomes.



**Fig. 2. The WCPA Framework for Assessing Management Effectiveness**

(Source: Hockings et al. 2006)

Of these elements, the outcomes most clearly indicate whether the site is maintaining its core values, but the outcomes can also be the most difficult element to measure accurately. However, the other elements of the framework are all also important for helping identify particular areas where management might need to be adapted or improved. Over the past 10 years, numerous assessment systems have been developed, most based at least to some extent on the WCPA Framework. They vary from simple questionnaire-type approaches suitable for individual PAs, through workshop-style approaches aimed at whole PA systems, to detailed monitoring systems. The approach described here is a fairly detailed monitoring and evaluation system, suitable for sites of particular importance (Hockings et al. 2008).

## **2.4 Management Effectiveness Evaluation (MEE) across the world and India**

Evaluation of PA management effectiveness did not gain real momentum until after the issue was highlighted at the 1992 World Parks Congress, in Caracas, Venezuela. Since then, more than 40 methodologies have been developed and applied to the assessment of the management effectiveness of PAs (Leverington et al. 2008). In response to these initiatives, work on management effectiveness assessment has become an increasingly common component of PA management worldwide. Evaluations have now been undertaken in over 6000 PAs, and the pace of this work is accelerating (Leverington et al. 2008). International organisations such as IUCN, WCPA, the World Bank, the Global Environment Facility and NGOs such as WWF and the Nature Conservancy have taken a lead in both promoting the

importance of management effectiveness as an issue and in providing the technical development and support needed to underpin this effort.

India has also made a beginning in evaluating the management effectiveness of its NPs, WLSs, tiger reserves (TRs) and world heritage sites (Mathur 2008). The MEE of NPs and WLSs was initiated in 2006 and till 2014, 125 sites have been evaluated. Three Natural World Heritage sites in South Asia, namely Keoladeo National Park, Rajasthan; Kaziranga National Park, Assam and Chitwan National Park, Nepal were evaluated in 2002-2007. Project Tiger carried out the management effectiveness assessment of 28 Tiger Reserves in 2006, 39 TRs in 2010 and 43 TRs in 2014 in India.

## 2.5 Assessment process for National Parks and Wildlife Sanctuaries of Sikkim

The evaluation of one NP and Seven WLSs were done in two phases from 2014 to 2015. During the first visit, an inception workshop was conducted to familiarise the PA managers and staff of Sikkim. Simultaneously the field work was initiated in one PA. In second visit, field exercise was undertaken in all the PAs of Sikkim to complete the MEE process and MEE score card as per the prescribed assessment criteria. Considering the growing importance of addressing issues relating to Climate Change, Carbon Capture, and preventing Carbon loss and encouraging further Carbon capture in PAs, two additional criteria have been developed. These criteria were not included in the formal MEE process but the information gathered helped to sensitize the PA managers and staff about the significance of these issues and to plan next steps for addressing them.

## 2.6 Assessment Criteria for National Parks and Wildlife Sanctuaries in Sikkim

For assessment of each of the six elements of the MEE Framework, the following criteria have been developed for MEE process. Explanatory notes, wherever needed, are provided to guide the assessment process. The scores by themselves will not help in providing the complete picture unless supported by considered observations (remarks) that qualify such scores.

## 2.7 Management Effectiveness Evaluation of National Parks and Wildlife Sanctuaries in India, Assessment Framework and Criteria

### 1. Context

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

| Condition  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| Values not systematically documented, assessed or monitored                | Poor      |          |                       |         |
| Values generally identified but not systematically assessed and monitored. | Fair      |          |                       |         |
| Most values systematically identified and assessed and monitored.          | Good      |          |                       |         |
| All values systematically identified and assessed and monitored.           | Very good |          |                       |         |

\*Values would also include geo-morphological, historic-cultural and faunal and floral species.

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Threats not systematically documented or assessed.            | Poor      |          |                       |         |
| Threats generally identified but not systematically assessed. | Fair      |          |                       |         |
| Most threats systematically identified and assessed.          | Good      |          |                       |         |
| All threats systematically identified and assessed.           | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| The site has extensive human and biotic interference. | Poor      |          |                       |         |
| The site has some human and biotic interference.      | Fair      |          |                       |         |
| The site has little human and biotic interference.    | Good      |          |                       |         |
| The site has no human and biotic interference.        | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

## 2. Planning

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Site not identified correctly or categorized.                 | Poor      |          |                       |         |
| Site identified correctly but not categorized.                | Fair      |          |                       |         |
| Site identified correctly but not systematically categorized. | Good      |          |                       |         |

|  |           |  |  |  |
|--|-----------|--|--|--|
| Site identified correctly and systematically categorized with proper zonation plans. | Very good |  |  |  |
|--|-----------|--|--|--|

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#  | Category* (Tick ✓) | Reference document(s) | Remarks |
|---|--------------------|-----------------------|---------|
| No relevant Management Plan in place.   | Poor               |                       |         |
| Management Plan exist but not comprehensive.  | Fair               |                       |         |
| Site has a comprehensive Management Plan.   | Good               |                       |         |
| Site has a comprehensive, science based Management Plan prepared through a participatory process. | Very good          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition   | Category* (Tick ✓) | Reference document(s) | Remarks |
|---|--------------------|-----------------------|---------|
| No process in place for systematic review and update of Management Plan.                              | Poor               |                       |         |
| Management Plan sometimes updated in adhoc manner.  | Fair               |                       |         |
| Management Plan routinely and systematically updated.   | Good               |                       |         |
| Management Plan routinely, systematically and scientifically updated through a participatory process. | Very good          |                       |         |

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#   | Category* (Tick ✓) | Reference document(s) | Remarks |
|--|--------------------|-----------------------|---------|
| Sites does not safeguard the threatened biodiversity values.       | Poor               |                       |         |
| Sites safeguards a few threatened biodiversity values.             | Fair               |                       |         |
| Sites safeguards a large number of threatened biodiversity values. | Good               |                       |         |
| Sites safeguards all threatened biodiversity values.               | Very good          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#   | Category* (Tick ✓) | Reference document(s) | Remarks |
|--|--------------------|-----------------------|---------|
| Little, if any opportunity for stakeholder participation in planning.            | Poor               |                       |         |
| Stakeholders participate in some planning.                                       | Fair               |                       |         |
| Stakeholders participate in most planning processes.                             | Good               |                       |         |
| Stakeholders routinely and systematically participate in all planning processes. | Very good          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#   | Category* (Tick ✓) | Reference document(s) | Remarks |
|--|--------------------|-----------------------|---------|
| Habitat restoration programmes are entirely adhoc.                               | Poor               |                       |         |
| Limited planning and monitoring programmes are in place for habitat restoration. | Fair               |                       |         |
| Habitat restoration programmes are generally well planned and monitored.         | Good               |                       |         |
| Habitat restoration programmes are thoroughly planned and monitored.             | Very good          |                       |         |

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

riparian habitats. Have these been addressed? Is there a planning process in place? What is the extent of 'invasive species in the Site? Are there any measures to reduce/ remove them? Have these been successful?

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Site has no protection strategy.  | Poor      |          |                       |         |
| Site has an adhoc protection strategy.                                  | Fair      |          |                       |         |
| Site has a comprehensive protection strategy but is not very effective. | Good      |          |                       |         |
| Site has a comprehensive and very effective protection strategy.        | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| Human-wildlife conflicts are rampant.                                    | Poor      |          |                       |         |
| Site has been able to mitigate few human-wildlife conflicts.             | Fair      |          |                       |         |
| Site has been able to mitigate many human-wildlife conflicts.            | Good      |          |                       |         |
| Site has been able effective in mitigating all human-wildlife conflicts. | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| Site not integrated into a wider network/ landscape.                   | Poor      |          |                       |         |
| Some limited attempts to integrate the site into a network/ landscape. | Fair      |          |                       |         |
| Site is generally quite well integrated into a network/ landscape.     | Good      |          |                       |         |
| Site is fully integrated into a wider network/ landscape.              | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

### 3. Inputs

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Few, if any, personnel explicitly allocated for PA management.  | Poor      |          |                       |         |
| Some personnel explicitly allocated for PA management but not systematically linked to management objectives. | Fair      |          |                       |         |
| Some personnel explicitly allocated towards achievement of specific management objectives.                    | Good      |          |                       |         |
| Adequate personnel explicitly allocated towards achievement of specific management objectives.                | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Few, if any, resources explicitly allocated for PA management.  | Poor      |          |                       |         |
| Some resources explicitly allocated for PA management but not systematically linked to management objectives. | Fair      |          |                       |         |
| Some resources explicitly allocated towards achievement of specific management objectives.                    | Good      |          |                       |         |
| Adequate resources explicitly allocated towards achievement of specific management objectives.                | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Resource allocation is adhoc, funds are inadequate and seldom released in time and not utilized.  | Poor      |          |                       |         |
| Some specific allocation for management of priority action. Funds are inadequate and there is some delay in release, partially utilized.          | Fair      |          |                       |         |
| Comprehensive planning and allocation that meets the most important objectives. Generally funds released with not much delay and mostly utilized. | Good      |          |                       |         |
| Comprehensive planning and allocation of resources for attainment of most objectives. Funds generally released on-time and are fully utilized.    | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| NGOs contribute nothing for the management of the site.  | Poor      |          |                       |         |
| NGOs make some contribution to management of the site but opportunities for collaboration are not systematically explored. | Fair      |          |                       |         |
| NGOs contributions are systematically sought and negotiated for the management of some site level activities.              | Good      |          |                       |         |
| NGOs contributions are systematically sought and negotiated for the management of many site level activities.              | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition                               | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Resources insufficient for most tasks.  | Poor      |          |                       |         |
| Resources sufficient for some tasks.    | Fair      |          |                       |         |
| Resources sufficient for most tasks.    | Good      |          |                       |         |
| Resources are in excess for most tasks. | Very good |          |                       |         |

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

## 4. Process

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

| Condition#   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| Very few trained officers and frontline staff in the site.                     | Poor      |          |                       |         |
| Few trained officers and frontline staff, who are posted in the site.          | Fair      |          |                       |         |
| A large number of trained officers and frontline staff are posted in the site. | Good      |          |                       |         |
| All trained managers and frontline staff posted in the site.                   | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| No linkage between staff performance management and management objectives.  | Poor      |          |                       |         |
| Some linkage between staff performance management and management objectives, but not consistently or systematically assessed. | Fair      |          |                       |         |
| Performance management for most staff is directly linked to achievement of relevant management objectives.                    | Good      |          |                       |         |
| Performance management of all staff is directly linked to achievement of relevant management objectives.                      | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| Little or no public participation in PA management.  | Poor      |          |                       |         |
| Opportunistic public participation in some aspects of PA management.                         | Fair      |          |                       |         |
| Systematic public participation in most aspects of PA management.                            | Good      |          |                       |         |
| Comprehensive and systematic public participation in all important aspects of PA management. | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| No systematic approach to handling complaints.  | Poor      |          |                       |         |
| Complaints handling system operational but not responsive to individual issues and limited follow up provided.          | Fair      |          |                       |         |
| Coordinated system logs and responds effectively to most complaints.  | Good      |          |                       |         |
| All complaints systematically logged in coordinated system and timely response provided with minimal repeat complaints. | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| No livelihood issues are addressed by PA management.   | Poor      |          |                       |         |
| Few livelihood issues are addressed by PA management.  | Fair      |          |                       |         |
| Substantial livelihood issues are addressed by PA management.  | Good      |          |                       |         |
| Livelihood issues of resource dependent communities especially women are addressed effectively by PA managers. | Very good |          |                       |         |

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

## 5. Output

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

| Condition#   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| Little or no information on PA management publicly available.  | Poor      |          |                       |         |
| Publicly available information is general and has limited relevance to management accountability and the condition of public assets. | Fair      |          |                       |         |
| Publicly available information provides detailed insight into major management issues for most PAs or groups of PAs.                 | Good      |          |                       |         |
| Comprehensive reports are routinely provided on management and condition of public assets in all PAs or groups of PAs.               | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| Visitor services and facilities are at odds with relevant PA category and/or threaten PA values.         | Poor      |          |                       |         |
| Visitor services and facilities generally accord with relevant PA category and don't threaten PA values. | Fair      |          |                       |         |
| All visitor services and facilities accord with relevant PA category and most enhance PA values.         | Good      |          |                       |         |
| All visitor services and facilities accord with relevant PA category and enhance PA values.              | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Little or no systematic evaluation or routine reporting of trends.  | Poor      |          |                       |         |
| Some evaluation and reporting undertaken but neither systematic nor routine.  | Fair      |          |                       |         |
| Systematic evaluation and routine reporting of management related trends undertaken.  | Good      |          |                       |         |
| Systematic evaluation and comprehensive reporting of trends undertaken and attempts made at course corrections as relevant. | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| No systematic inventory or maintenance schedule.  | Poor      |          |                       |         |
| Inventory maintenance is adhoc and so is the maintenance schedule.  | Fair      |          |                       |         |
| Systematic inventory provides the basis for maintenance schedule but funds are inadequately made available. | Good      |          |                       |         |
| Systematic inventory provides the basis for maintenance schedule and adequate funds are made available.     | Very good |          |                       |         |

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

**6. Outcomes**

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

| Condition#  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Threatened/ endangered species populations declining.                           | Poor      |          |                       |         |
| Some threatened/ endangered species populations increasing, most others stable. | Fair      |          |                       |         |
| Most threatened/ endangered species populations increasing, most others stable. | Good      |          |                       |         |
| All threatened/ endangered species populations either increasing or stable.     | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Threats to the Site have not abated but have enhanced.  | Poor      |          |                       |         |
| Some threats to the Site have abated, others continue their presence  | Fair      |          |                       |         |
| Most threats to the Site have abated. The few remaining are vigorously being addressed  | Good      |          |                       |         |
| All threats to the Site have been effectively contained and an efficient system is in place to deal with any emerging situation | Very good |          |                       |         |

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

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

| Condition#                                  | Category* | (Tick ✓) | Reference document(s) | Remarks |
|---|-----------|----------|-----------------------|---------|
| Expectations of visitors generally not met. | Poor      |          |                       |         |
| Expectations of many visitors are met.      | Fair      |          |                       |         |
| Expectations of most visitors are met.      | Good      |          |                       |         |
| Good expectations of most visitors are met. | Very good |          |                       |         |

#Is there any system of receiving/ analyzing visitor feedback?

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

## 6.4 Are local communities supportive of PA management?

| Condition#   | Category* | (Tick ✓) | Reference document(s) | Remarks |
|--|-----------|----------|-----------------------|---------|
| Local communities are hostile.                     | Poor      |          |                       |         |
| Some are supportive.                               | Fair      |          |                       |         |
| Most locals are supportive of PA management.       | Good      |          |                       |         |
| All local communities supportive of PA management. | Very good |          |                       |         |

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

\*Score: Poor: 2.5; Fair: 5; Good: 7.5; Very Good: 10

## MEE Score Card

| Framework Element Number | Framework Element Name | Number of Questions (a) | Maximum Mark per question (b) | Total (a x b) | Marks obtained for the Element | Overall Score |
|--------------------------|------------------------|-------------------------|-------------------------------|---------------|--------------------------------|---------------|
| 1.                       | Context                | 3                       | 10                            | 30            |                                | %             |
| 2.                       | Planning               | 9                       | 10                            | 90            |                                |               |
| 3.                       | Inputs                 | 5                       | 10                            | 50            |                                |               |
| 4.                       | Process                | 5                       | 10                            | 50            |                                |               |
| 5.                       | Outputs                | 4                       | 10                            | 40            |                                |               |
| 6.                       | Outcomes               | 4                       | 10                            | 40            |                                |               |
| <b>Total</b>             |                        | <b>30</b>               |                               | <b>300</b>    |                                |               |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above





# Chapter

# 3

## MANAGEMENT EFFECTIVENESS EVALUATION OF NATIONAL PARK AND WILDLIFE SANCTUARIES OF SIKKIM - RESULTS AT GLANCE: 2014-15

### 3.1 Overview of MEE Process in Sikkim

Eight protected areas of Sikkim include one NP and seven WLSs have been evaluated through MEE process. In total out of eight PAs, four are rated in 'good' category and remaining 4 are rated in 'fair' category. The Khangchendzonga NP received the highest MEE score of 62.50% and has been rated in 'good' category with the total score of 187.50 out of 300, while the Fambonglho WLS has received the lowest MEE score of 46.67% and is rated in 'fair' category with the total score of 140.00 out of 300. The MEE performance of PAs of Sikkim in descending order represented in Table 2.

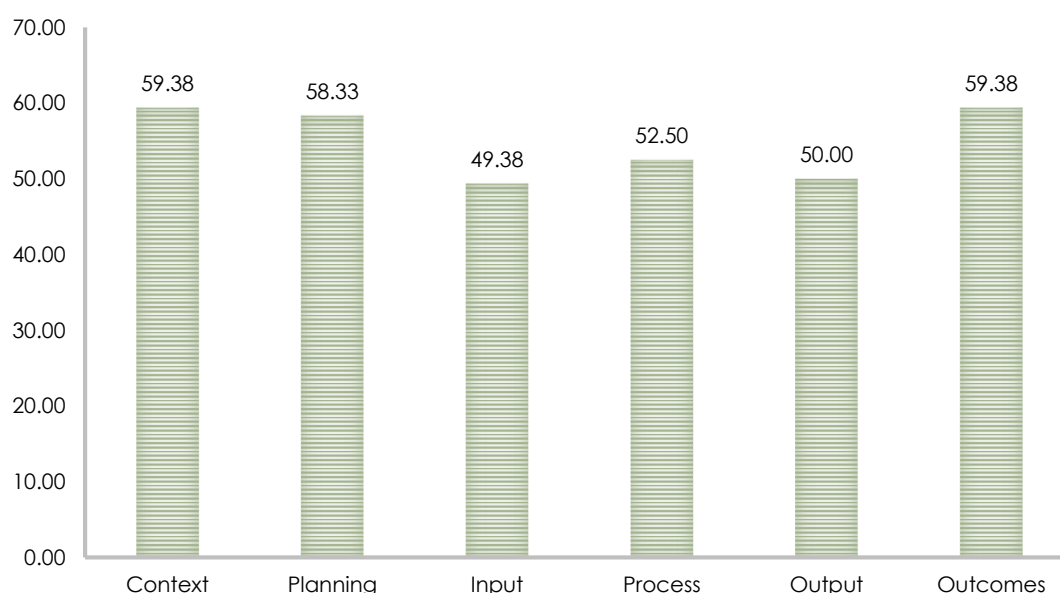
**Table 2. MEE Performance of protected areas of Sikkim in descending order**

| S. No. | Name of protected area   | PA Abbreviation | % of MEE Score | Total Score | Category |
|--------|--------------------------|-----------------|----------------|-------------|----------|
| 1      | Khangchendzonga NP       | KNP             | 62.50          | 187.50      | Good     |
| 2      | Maenam WLS               | MWLS            | 60.83          | 182.50      | Good     |
| 3      | Barsey Rhododendron WLS  | BRS             | 60.83          | 182.50      | Good     |
| 4      | Shingba Rhododendron WLS | SRWLS           | 60.00          | 180.00      | Good     |
| 5      | Kitam WLS                | KWLS            | 51.67          | 155.00      | Fair     |
| 6      | Kyongnosla Alpine WLS    | KAWLS           | 50.00          | 150.00      | Fair     |
| 7      | Pangolakha WLS           | PWLS            | 47.50          | 142.50      | Fair     |
| 8      | FambongLho WLS           | FWLS            | 46.67          | 140.00      | Fair     |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above

### 3.2 Element –wise variation in protected areas of Sikkim

There are thirty headline indicators in MEE process. These 30 headline indicators are divided into six elements of MEE framework, i.e. Context, Planning, Input, Process, Output and Outcomes. All the PAs of Sikkim have been analysed on the basis of these 30 headline criteria and 6 elements of MEE process. Context and Outcomes received the maximum score 59.38% and input received 49.38 percent the lowest score (Figure 3). It means overall the Context and Outcomes of the PAs of Sikkim are in better position whereas PAs were found to be weak in terms if Input.

**Fig. 3. Overall comparative performance of MEE elements for PAs of Sikkim**

All six elements of MEE framework were analysed for individual PAs of Sikkim. Maenam WLS received the highest MEE score in terms of Context (MWLS-75%); Shingba Rhododendron Sanctuary in terms of Planning (SRWLS- 69%); Barsey Rhododendron Sanctuary in terms of Inputs (BRWLS- 60%); Khangchendzonga NP and Barsey Rhododendron Sanctuary in terms

of Process (KNP & BRWLS- 60%); Khangchendzonga NP in terms of Output (KNP- 63%); Khangchendzonga NP and Barsey Rhododendron Sanctuary in terms of Outcomes (KNP & BRWLS- 69%) (Figure 4).

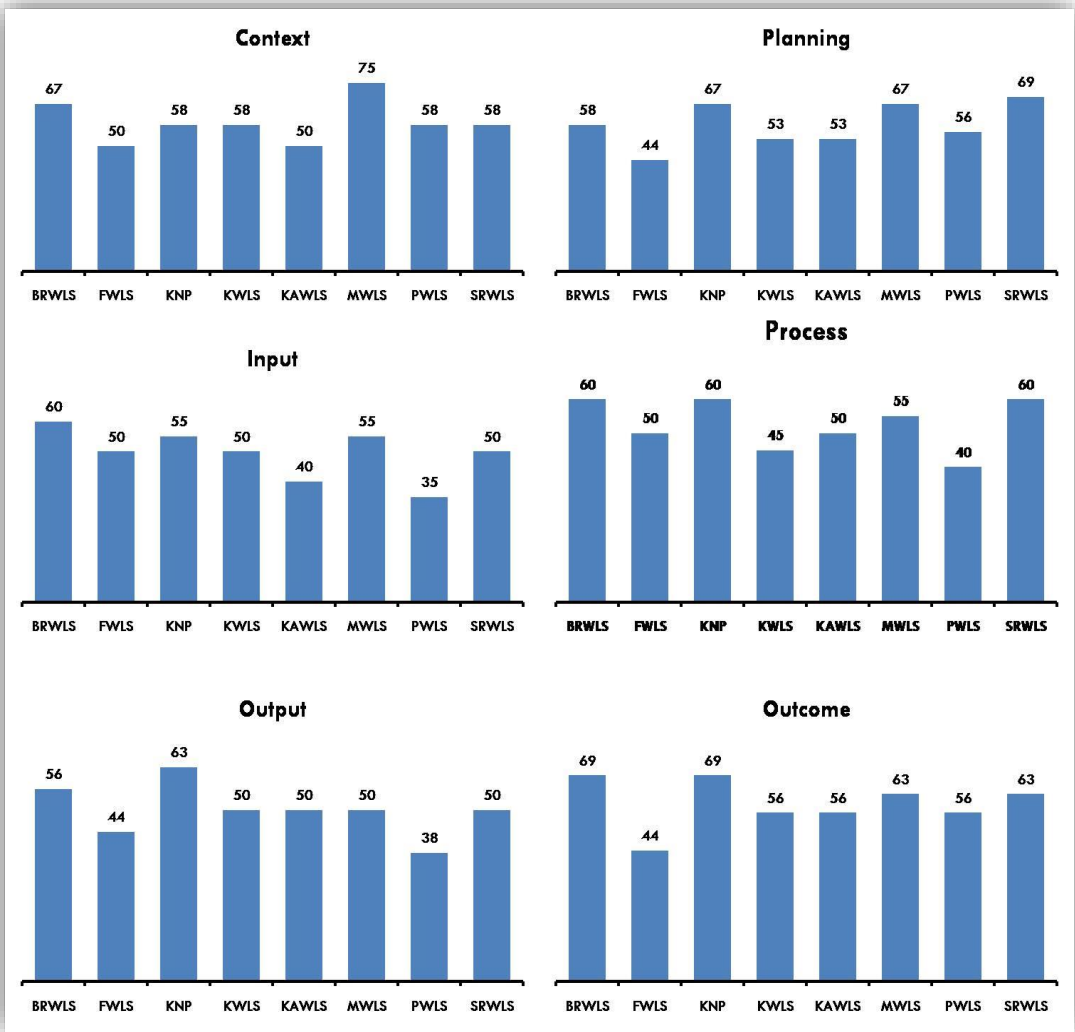
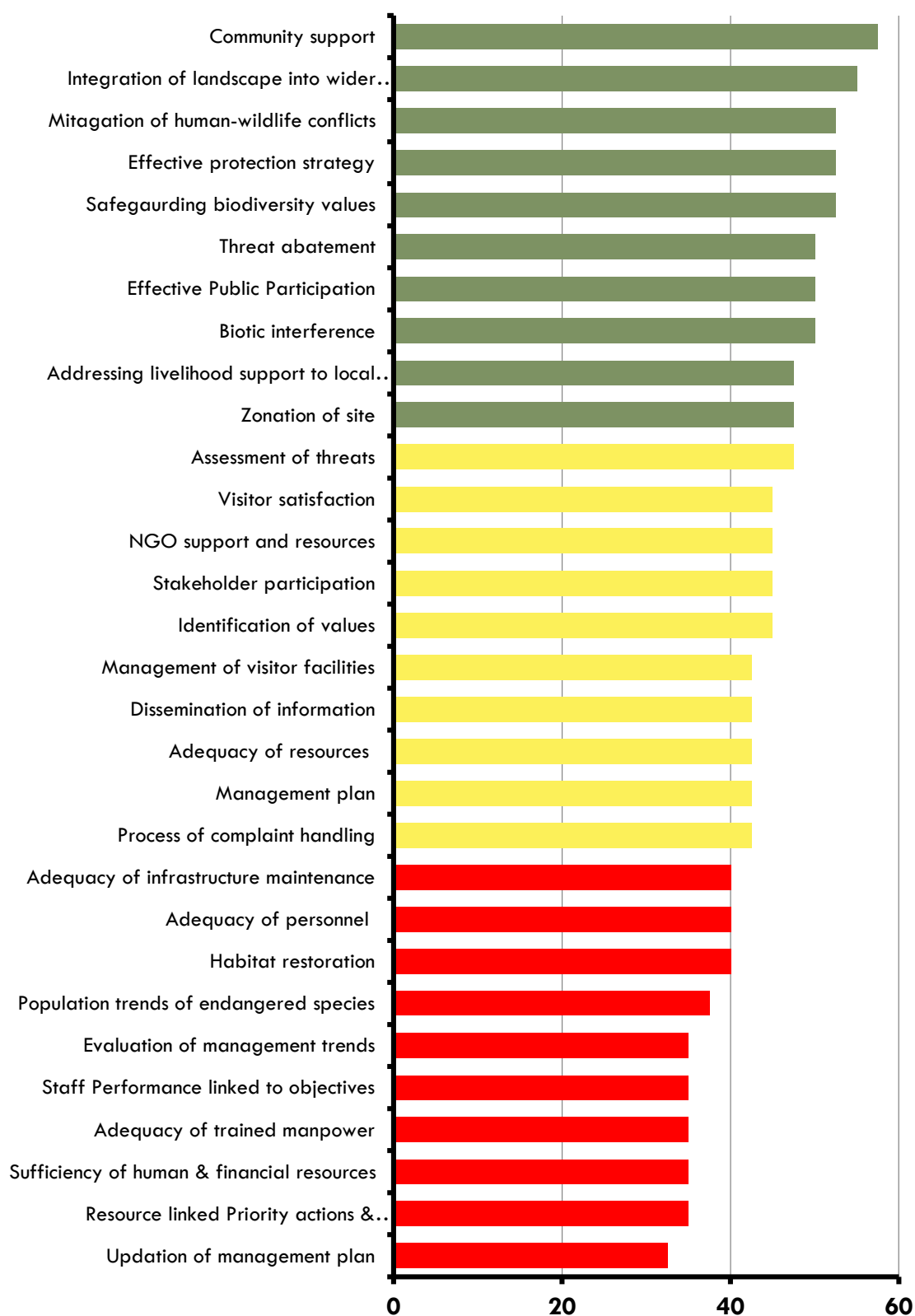


Fig. 4 MEE performance across the 6 elements of individuals PAs

### 3.3 Performance of headline criteria/indicators

The relative performance of 30 headline indicators has been calculated on the basis of evaluation of all PAs of Sikkim. This overall evaluation reveals that PAs are better placed as far as community support, protection, human - wildlife conflicts and landscape integration for safeguarding of conservation values are concerned. However, quality of management plans and capacity of field staff for wildlife management are critical areas which need to be addressed on a priority basis. Similarly, other weak aspects of PA system are adequate and timely availability of resources, adequate staff and infrastructure, habitat management and long term scientific monitoring. Ten indicators criteria which received highest MEE score are marked green, 10 indicators which received least MEE score are marked red and remaining 10 indicators receiving median MEE score are placed with yellow colour in figure 5.



**Fig. 5 Relative performance of MEE indicators across the PAs of Sikkim**



Chapter

4

## **EFFECTIVENESS OF INDIVIDUAL PROTECTED AREAS OF SIKKIM**

## 4.1 Barsey Rhododendron Wildlife Sanctuary





| Barsey Rhododendron Wildlife Sanctuary : At a Glance |                                    |  |
|--|------------------------------------|--|
| S. No.   | Contents                           | Details  |
| 1.   | Notification/Year of Establishment | 50/WL/F/95/269/F7WL dated 08.06.1996   |
| 2.   | Location                           | West Wildlife Division, West District, Sikkim  |
| 3.   | Area                               | 104 sq. km   |
| 4.   | Biogeographic location             | 2C (Central Himalayas)   |
| 5.   | Latitude, Longitude & Altitude     | Lat: 27° 11' 39" N, Long: 88° 07' 06" E, Alt: 1900m – 4100m  |
| 6.   | Nearest Town                       | Sombaria (26km) Gyalshing (District HQ)  |
| 7.   | Major Forest Types                 | Temperate mixed-forests, sub-alpine conifer forests, and broadleaved forest, alpine shrubs, grasslands and barren land.                |
| 8.   | Key Flora                          | 12 species of rhododendron, Silver fir <i>Abies densa</i> and hemlock <i>Tsuga dumosa</i> , Broadleaf Oak, Maple and Acer species etc. |
| 9.   | Key Fauna                          | Red Panda, Himalayan black bear, Common Leopard, Clouded leopard, Chinese pangolin and Satyr Tragopan.                                 |
| 10.  | Fringe Area Villages               | Hilley, Buriakhop, Soreng, Kaluk, Hee Patal, Dentam and Uttarey  |
| 11.  | Major Threats                      | Grazing, Fire, Erosion, Floods, Snow, Weeds, Wind, Poaching and Habitat Destruction  |
| 12.  | Others                             | Heavy Pressure of Tourism need to be managed at the earliest   |

The Barsey Rhododendron WLS lies in the South West corner of the West district of Sikkim across the Singalila Ridge which forms the natural international border with Nepal. In South, the Rammam River separates it from West Bengal. The majestic mass scale Rhododendron flowering in the region with Khangchendzonga back drop view is the main attraction of Barsey Rhododendron Sanctuary. This Sanctuary possesses a wide range of microclimates, leading to a vast floral diversity right from the Sub Tropical Forests to the Rolling alpine meadows. Every year more than 3000 thousand local as well as national visitors come to this Hill top and enjoy the beauty of the Rhododendron flowering. International as well as national tourists prefer to trek inside this Sanctuary. Phoktey Hill Top near Kalijhar and Chewa Bhanjyang inside the Barsey Rhododendron Sanctuary is the only place in the State of Sikkim from where both the World's highest mountain peak (Mt. Everest) and third highest mountain peak in the world (Mt. Khangchendzonga) can be seen.

## MEE Assessment Criteria of Barsey Rhododendron Wildlife Sanctuary:

May 2015, Information collected by the WII Team

### 1. Context

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Values not systematically documented, assessed or monitored.               | Poor      |          | Management Plan 2008-18, documents related to WLS and discussion with PA officials | Values in terms of floral and faunal species as well as vegetation types have been mentioned in the Management plan. However other conservation values like catchments, important habitats and unique geo-morphological attributes are not adequately reflected. |
| Values generally identified but not systematically assessed and monitored. | Fair      | ✓        |  |  |
| Most values systematically identified and assessed and monitored.          | Good      |          |  |  |
| All values systematically identified and assessed and monitored.           | Very good |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)                                    | Remarks  |
|---|-----------|----------|--|--|
| Threats not systematically documented or assessed.            | Poor      |          | Management Plan 2008-18 and Discussion with PA officials | A list of possible threats has been provided in the management plan. The threats in relation to biotic pressures, habitat degradation, poaching and human-wildlife conflicts have been documented as well as quantified. |
| Threats generally identified but not systematically assessed. | Fair      |          |  |  |
| Most threats systematically identified and assessed.          | Good      | ✓        |  |  |
| All threats systematically identified and assessed.           | Very good |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-----------|----------|--|--|
| The site has extensive human and biotic interference. | Poor      |          | Management Plan, existing reports, office records and discussion with PA officials | There are no villages inside the PA. However there are some dependencies of the fringe area villages in the landscape. In addition, some pressures do exist due to trans-boundary issues. The consumptive use pressures from the villages have reduced due to promotion of tourism activities. However, tourism itself has seasonal pressures on the PA. |
| The site has some human and biotic interference.      | Fair      |          |  |  |
| The site has little human and biotic interference.    | Good      | ✓        |  |  |
| The site has no human and biotic interference.        | Very good |          |  |  |

## 2. Planning

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Site not identified correctly or categorized.  | Poor        |          | Management Plan, existing reports, office records and discussion with PA officials | The management plan does mention about different zones for management. However, the areas of these zones are yet to be decided. The zonation need to be translated on ground. |
| Site identified correctly but not categorized.                                       | <b>Fair</b> | ✓        |  |   |
| Site identified correctly but not systematically categorized.                        | Good        |          |  |   |
| Site identified correctly and systematically categorized with proper zonation plans. | Very good   |          |  |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------|----------|--|---|
| No relevant Management Plan in place.   | Poor        |          | Management Plan, existing reports, office records and discussion with PA officials | The existing management plan is not comprehensive. Part-I of the plan does provide adequate background information. But Part-II needs further improvements. |
| Management Plan exist but not comprehensive.  | <b>Fair</b> | ✓        |  |   |
| Site has a comprehensive Management Plan.   | Good        |          |  |   |
| Site has a comprehensive, science based Management Plan prepared through a participatory process. | Very good   |          |  |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------|----------|--|---|
| No process in place for systematic review and update of Management Plan.                              | Poor        |          | Management Plan, existing reports, office records and discussion with PA officials | Planning was initiated in 2005 and the current plan which is the first plan for the area has been prepared for the period 2008-2018. As this is the first plan, it is not possible to comment upon periodic updation process. |
| Management Plan sometimes updated in adhoc manner.  | <b>Fair</b> | ✓        |  |   |
| Management Plan routinely and systematically updated.   | Good        |          |  |   |
| Management Plan routinely, systematically and scientifically updated through a participatory process. | Very good   |          |  |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Sites does not safeguard the threatened biodiversity values.       | Poor        |          | Management Plan, existing reports, office records and discussion with PA officials | Area does safeguard most of the biodiversity values of the area. However, due to its strategic location between Kanchenjunga Conservation Reserve of Nepal and Singalila National Park of West Bengal, there are possible corridor areas outside the PA which need to be managed as an integrated landscape unit. |
| Sites safeguards a few threatened biodiversity values.             | Fair        |          |  |   |
| Sites safeguards a large number of threatened biodiversity values. | <b>Good</b> | ✓        |  |   |
| Sites safeguards all threatened biodiversity values.               | Very good   |          |  |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Little, if any opportunity for stakeholder participation in planning.            | Poor        |          | Management Plan, office records and discussion with PA officials | EDCs have been established for the villages around the PA and periodic meetings are conducted with these village level institutions. However, there is no systematic participation of stakeholders in the planning process. |
| Stakeholders participate in some planning.                                       | <b>Fair</b> | ✓        |  |   |
| Stakeholders participate in most planning processes.                             | Good        |          |  |   |
| Stakeholders routinely and systematically participate in all planning processes. | Very good   |          |  |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-------------|----------|---|---|
| Habitat restoration programmes are entirely adhoc.                               | Poor        |          | Management Plan, existing office records and discussion with PA officials | Most of the habitat restoration programmes are based on budget availability and therefore, there is no system of planning and monitoring of habitat restoration initiatives. As per the discussion with PA staff major habitat management activity has been focused on eradication of weeds along walking trails. |
| Limited planning and monitoring programmes are in place for habitat restoration. | <b>Fair</b> | ✓        |   |   |
| Habitat restoration programmes are generally well planned and monitored.         | Good        |          |   |   |
| Habitat restoration programmes are thoroughly planned and monitored.             | Very good   |          |   |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-------------|----------|--|--|
| Site has no protection strategy.  | Poor        |          | Management Plan, office records and discussion with PA officials | Due to limited staff and resources, the protection strategy is adhoc. However, due to community support, the area does not have major protection issues. |
| Site has an adhoc protection strategy.                                  | <b>Fair</b> | ✓        |  |  |
| Site has a comprehensive protection strategy but is not very effective. | Good        |          |  |  |
| Site has a comprehensive and very effective protection strategy.        | Very good   |          |  |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Human-wildlife conflicts are rampant.                                    | Poor        |          | Management Plan, office records and discussion with PA officials | As per the discussion with the staff, it is revealed that there is problem of crop damage mainly due to wild pig. Also there are some incidences of human injury due to Asiatic Black Bear. Department has been able to pay timely compensation to victims for these cases. |
| Site has been able to mitigate few human-wildlife conflicts.             | Fair        |          |  |   |
| Site has been able to mitigate many human-wildlife conflicts.            | <b>Good</b> | ✓        |  |   |
| Site has been able effective in mitigating all human-wildlife conflicts. | Very good   |          |  |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Site not integrated into a wider network/ landscape.                   | Poor        |          | Management Plan, office records and discussion with PA officials | As already stated, this PA is strategically located between Kanchenjunga Conservation Reserve of Nepal and Singalila NP of West Bengal. Therefore, this acts as important corridor area for wide ranging species. |
| Some limited attempts to integrate the site into a network/ landscape. | Fair        |          |  |   |
| Site is generally quite well integrated into a network/ landscape.     | <b>Good</b> | ✓        |  |   |
| Site is fully integrated into a wider network/ landscape.              | Very good   |          |  |   |

### 3. Inputs

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|---|-------------|----------|---|--|
| Few, if any, personnel explicitly allocated for PA management.  | Poor        |          | Office records and discussion with PA officials | The staff deployed in the area is inadequate. Therefore, they have to look after multifarious activities of protection, human - wildlife conflict, tourism as well as communities. |
| Some personnel explicitly allocated for PA management but not systematically linked to management objectives. | <b>Fair</b> | ✓        |   |  |
| Some personnel explicitly allocated towards achievement of specific management objectives.                    | Good        |          |   |  |
| Adequate personnel explicitly allocated towards achievement of specific management objectives.                | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------|----------|--|---|
| Few, if any, resources explicitly allocated for PA management.  | Poor        |          | Management Plan, office records and discussion with PA officials | The area being small and important from tourism point of view adequate infrastructure at important locations has been created. The communication infrastructure has been supplemented by the department through ongoing JICA project. |
| Some resources explicitly allocated for PA management but not systematically linked to management objectives. | Fair        |          |  |   |
| Some resources explicitly allocated towards achievement of specific management objectives.                    | <b>Good</b> | ✓        |  |   |
| Adequate resources explicitly allocated towards achievement of specific management objectives.                | Very good   |          |  |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Resource allocation is adhoc, funds are inadequate and seldom released in time and not utilized.  | Poor      |          | Management Plan, office records and discussion with PA officials | Funds are inadequate as compare to the range of activities required in the area. Also the release of funds is mostly delayed. |
| Some specific allocation for management of priority action. Funds are inadequate and there is some delay in release, partially utilized.          | Fair      | ✓        |  |   |
| Comprehensive planning and allocation that meets the most important objectives. Generally funds released with not much delay and mostly utilized. | Good      |          |  |   |
| Comprehensive planning and allocation of resources for attainment of most objectives. Funds generally released on-time and are fully utilized.    | Very good |          |  |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| NGOs contribute nothing for the management of the site.  | Poor      |          | Management Plan, office records and discussion with PA officials | The involvement of World Wide Fund for Nature (WWF) and Khangchendzonga Conservation Committee (KCC) is seen in programmes of awareness generation and community participation. As such there are no financial contribution by the NGOs. |
| NGOs make some contribution to management of the site but opportunities for collaboration are not systematically explored. | Fair      |          |  |  |
| NGOs contributions are systematically sought and negotiated for the management of some site level activities.              | Good      | ✓        |  |  |
| NGOs contributions are systematically sought and negotiated for the management of many site level activities.              | Very good |          |  |  |

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

| Condition                              | Category  | (Tick ✓) | Reference document(s)                           | Remarks  |
|--|-----------|----------|---|--|
| Resources insufficient for most tasks  | Poor      |          | Office records and discussion with PA officials | As indicated in 3.1, 3.2 & 3.3, the human and financial resources are inadequate |
| Resources sufficient for some tasks    | Fair      | ✓        |   |  |
| Resources sufficient for most tasks    | Good      |          |   |  |
| Resources are in excess for most tasks | Very good |          |   |  |

#### 4. Process

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|--|-------------|----------|---|--|
| Very few trained officers and frontline staff in the site.                     | Poor        |          | Office records and discussion with PA officials | There is no formal wildlife trained officers in the area. However, short term training programmes for staff on human wildlife conflict, intelligence gathering and protection have been conducted at the departmental level with the help of WWF. Similarly, under JICA, training has also been provided to staff on ecotourism. Exposure trips to South India have also been conducted. |
| Few trained officers and frontline staff, who are posted in the site.          | <b>Fair</b> | ✓        |   |  |
| A large number of trained officers and frontline staff are posted in the site. | Good        |          |   |  |
| All trained managers and frontline staff posted in the site.                   | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|---|-------------|----------|---|--|
| No linkage between staff performance management and management objectives.  | Poor        |          | Office records and discussion with PA officials | There is no such system for performance linked achievements. However, there is a State level award for best performance by the staff. No staff from this PA has received this award. |
| Some linkage between staff performance management and management objectives, but not consistently or systematically assessed. | <b>Fair</b> | ✓        |   |  |
| Performance management for most staff is directly linked to achievement of relevant management objectives.                    | Good        |          |   |  |
| Performance management of all staff is directly linked to achievement of relevant management objectives.                      | Very good   |          |   |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Little or no public participation in PA management.  | Poor        |          | Management plan, Office records and discussion with PA officials | There are 12 EDCs established for villages around the PA. These EDCs are quite active and in-fact proactive in some activities. The EDC members are involved in activities like cleaning, awareness, visitor management, fire protection and information gathering. |
| Opportunistic public participation in some aspects of PA management.                         | Fair        |          |  |   |
| Systematic public participation in most aspects of PA management.                            | <b>Good</b> | ✓        |  |   |
| Comprehensive and systematic public participation in all important aspects of PA management. | Very good   |          |  |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|---|-------------|----------|---|--|
| No systematic approach to handling complaints.  | Poor        |          | Office records and discussion with PA officials | The response system for the visitor complaints and suggestions is in the form of a visitor register at the entry gate. In addition to this the local officers also get complaints from individuals which are routinely responded. However, as such the follow up is very weak. |
| Complaints handling system operational but not responsive to individual issues and limited follow up provided.          | <b>Fair</b> | ✓        |   |  |
| Coordinated system logs and responds effectively to most complaints.  | Good        |          |   |  |
| All complaints systematically logged in coordinated system and timely response provided with minimal repeat complaints. | Very good   |          |   |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|--|-------------|----------|---|--|
| No livelihood issues are addressed by PA management.   | Poor        |          | Office records and discussion with PA officials | As a part of ecodevelopment programme, entry point activities have been carried out for the EDCs. This includes construction of community halls, providing tents, furniture, public announcement system, |
| Few livelihood issues are addressed by PA management.  | Fair        |          |   |  |
| Substantial livelihood issues are addressed by PA management.  | <b>Good</b> | ✓        |   |  |
| Livelihood issues of resource dependent communities especially women are addressed effectively by PA managers. | Very good   |          |   |  |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  | toilets, etc. Support has also been provided to the community for running of ecotourism, homestays, ecotourism guides and designing of handicrafts |
|--|--|--|--|--|

## 5. Output

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|--|-------------|----------|---|--|
| Little or no information on PA management publicly available.  | Poor        |          | Office records and discussion with PA officials | The information for PA management is available with tour operators, tourism department as well as forest department. However there is no dedicated website for PA. |
| Publicly available information is general and has limited relevance to management accountability and the condition of public assets. | <b>Fair</b> | ✓        |   |  |
| Publicly available information provides detailed insight into major management issues for most PAs or groups of PAs.                 | Good        |          |   |  |
| Comprehensive reports are routinely provided on management and condition of public assets in all PAs or groups of PAs.               | Very good   |          |   |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                           | Remarks   |
|--|-------------|----------|---|---|
| Visitor services and facilities are at odds with relevant PA category and/or threaten PA values.         | Poor        |          | Office records and discussion with PA officials | The visitor facilities include availability of local trained guides from among EDCs, cafeteria run by EDCs, public facilities, dormitory and two watch towers. The biggest strength of the area is local trained guides. Department is thinking of constructing an interpretation center shortly. |
| Visitor services and facilities generally accord with relevant PA category and don't threaten PA values. | Fair        |          |   |   |
| All visitor services and facilities accord with relevant PA category and most enhance PA values.         | <b>Good</b> | ✓        |   |   |
| All visitor services and facilities accord with relevant PA category and enhance PA values.              | Very good   |          |   |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|---|-------------|----------|---|--|
| Little or no systematic evaluation or routine reporting of trends.  | Poor        |          | Office records and discussion with PA officials | During the process of management plan preparation evaluation of research and monitoring information has been carried out using the expertise of WWF, however there is no regular system of evaluation. |
| Some evaluation and reporting undertaken but neither systematic nor routine.  | <b>Fair</b> | ✓        |   |  |
| Systematic evaluation and routine reporting of management related trends undertaken.  | Good        |          |   |  |
| Systematic evaluation and comprehensive reporting of trends undertaken and attempts made at course corrections as relevant. | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                           | Remarks   |
|---|-------------|----------|---|---|
| No systematic inventory or maintenance schedule.  | Poor        |          | Office records and discussion with PA officials | Inventory of assets exists in the form of a register. There are no systematic maintenance schedules and maintenance is driven by the availability of funds. |
| Inventory maintenance is adhoc and so is the maintenance schedule.  | <b>Fair</b> | ✓        |   |   |
| Systematic inventory provides the basis for maintenance schedule but funds are inadequately made available. | Good        |          |   |   |
| Systematic inventory provides the basis for maintenance schedule and adequate funds are made available.     | Very good   |          |   |   |

**6. Outcomes**

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                           | Remarks   |
|---|-------------|----------|---|---|
| Threatened/ endangered species populations declining.                           | Poor        |          | Office records and discussion with PA officials | There are no formal records about the trends of populations of threatened species. However, discussion with |
| Some threatened/ endangered species populations increasing, most others stable. | <b>Fair</b> | ✓        |   |   |

|   |           |  |  |   |
|---|-----------|--|--|---|
| Most threatened/ endangered species populations increasing, most others stable. | Good      |  |  | the PA officials reveals that species are either increasing or stable. This is also supported by the evidences of human - wildlife conflict trends. |
| All threatened/ endangered species populations either increasing or stable.     | Very good |  |  |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                           | Remarks   |
|---|-------------|----------|---|---|
| Threats to the Site have not abated but have enhanced.  | Poor        |          | Office records and discussion with PA officials | No records could be seen to understand the trends of threats. However, through discussion, it is revealed that the support from local communities is one of the significant factors, which is leading to reduction in the threats in the form of human - wildlife conflict cases, offence cases as well as habitat degradation. |
| Some threats to the Site have abated, others continue their presence  | Fair        |          |   |   |
| Most threats to the Site have abated. The few remaining are vigorously being addressed  | <b>Good</b> | ✓        |   |   |
| All threats to the Site have been effectively contained and an efficient system is in place to deal with any emerging situation | Very good   |          |   |   |

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

| Condition                                   | Category    | (Tick ✓) | Reference document(s)                           | Remarks   |
|---|-------------|----------|---|---|
| Expectations of visitors generally not met. | Poor        |          | Office records and discussion with PA officials | From the visitor register, it is revealed that the visitor satisfaction is high due to the tourism value of this area and the beauty of the landscape. This is also supported by the existing positive environment in the tourism management. |
| Expectations of many visitors are met.      | Fair        |          |   |   |
| Expectations of most visitors are met.      | <b>Good</b> | ✓        |   |   |
| Good expectations of most visitors are met. | Very good   |          |   |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                           | Remarks   |
|--|-----------|----------|---|---|
| Local communities are hostile.                     | Poor      |          | Office records and discussion with PA officials | Due to proactive involvement EDCs in tourism activities, the local communities are supportive of PA management. |
| Some are supportive.                               | Fair      |          |   |   |
| Most locals are supportive of PA management.       | Good      | ✓        |   |   |
| All local communities supportive of PA management. | Very good |          |   |   |

## Assessment Criteria for addressing issues relating to Climate Change & Carbon capture in the Protected Areas

### 1. Additional Criteria on Climate Change: Is the protected area being consciously managed to adapt to climate change?

| Condition  | Category  | (Tick ✓) | Comment/Explanation  | Next Steps   |
|--|-----------|----------|--|--|
| There have been no efforts to consider adaptation to climate change in management  | Poor      |          | There is no conscious effort in this direction. However, the community driven initiatives are indirectly supporting the climate change issues. | In the revised management plan, these issues should be addressed |
| Some initial thought has taken place about likely impacts of climate change, but this has yet to be translated into management plans                     | Fair      | ✓        |  |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management. | Good      |          |  |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented                     | Very good |          |  |  |

### 2. Additional Criteria on Climate Change: Is the protected area being consciously managed to prevent carbon loss and to encourage further carbon capture?

| Condition  | Category  | (Tick ✓) | Comment/Explanation   | Next Steps   |
|--|-----------|----------|---|--|
| Carbon storage and carbon dioxide capture have not been considered in management of the protected area   | Poor      |          | There is no conscious effort in this direction. However, community supported protection of the area is likely to contribute for carbon capture. | In the revised management plan, these issues should be addressed |
| Carbon storage and carbon dioxide capture have been considered in general terms, but has not yet been significantly reflected in management    | Fair      | ✓        |   |  |
| There are active measures in place to reduce carbon loss from the protected area, but no conscious measures to increase carbon dioxide capture | Good      |          |   |  |
| There are active measures in place both to reduce carbon loss from the protected area and to increase carbon dioxide capture                   | Very good |          |   |  |

## MEE Score Card

| Framework Element Number | Framework Element Name | Number of Questions (a) | Maximum Mark per question (b) | Total (a x b) | Marks obtained for the Element | Overall Score |
|--------------------------|------------------------|-------------------------|-------------------------------|---------------|--------------------------------|---------------|
| 1.                       | Context                | 03                      | 10                            | 30            | 20                             | <b>60.83%</b> |
| 2.                       | Planning               | 09                      | 10                            | 90            | 52.5                           |               |
| 3.                       | Inputs                 | 05                      | 10                            | 50            | 30                             |               |
| 4.                       | Process                | 05                      | 10                            | 50            | 30                             |               |
| 5.                       | Outputs                | 04                      | 10                            | 40            | 22.5                           |               |
| 6.                       | Outcomes               | 04                      | 10                            | 40            | 27.5                           |               |
| <b>Total</b>             |                        | <b>30</b>               |                               | <b>300</b>    | <b>182.5</b>                   |               |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above



## Management Strengths, Weaknesses and Actionable Points of Barsey (Rhododendron) Wildlife Sanctuary

### Management Strengths

1. PA is strategically located between Kanchenjunga Conservation Reserve of Nepal and Singalilla NP of West Bengal and act as an important corridor between two PAs.
2. Due to the rich diversity of Rhododendrons, the area is an important ecotourism destination and every year a large number of tourists (especially from West Bengal) are visiting this PA during March- April.
3. Biotic interference is comparatively less, because of low dependence of local people on the resources of PA.
4. There is good presence of proactive eco-development committees.
5. Because of less biotic interference, human - wildlife conflict is also comparatively controlled.
6. The local people around the PA are supportive due to the good relations between park management with the local communities.

### Management Weaknesses

1. There is no comprehensive Management Plan of the PA.
2. Although there is good information on issues related to protection, there is no effective strategic plan for protection.
3. The habitat restoration programmes is entirely adhoc.
4. The resources in terms of human and financial aspects are inadequate and the funds not released on time.
5. Although the officers and staff have some basic forestry training, they have not been trained in wildlife management.
6. There is no proper monitoring protocol or mechanism for understanding the trends of flora, fauna and other biodiversity attributes.
7. Although the area is very important from tourism point of view but there is no interpretation centre or devoted website for information dissemination to the visitors and other stakeholders.

### Actionable point

1. There is a need of proper documentation and assessment of values of the PA.
2. The Management Plan made earlier needs to be revised with updated information.
3. Devising of monitoring protocols and its implementation in the field need to be done on priority basis.
4. The existing strength of frontline staff is inadequate and it needs to be enhanced.
5. The site needs trained staff in wildlife management.
6. Being an important ecotourism site, the establishment of interpretation centre and creation of dedicated website need to be done urgently for information dissemination to the visitors.
7. The PA needs timely release of adequate funds for the management.

## 4.2 Fambonglho Wildlife Sanctuary





| Fambonglho Wildlife Sanctuary : At a Glance |                                    |   |
|---|------------------------------------|---|
| S. No.                                      | Contents                           | Details   |
| 1.  | Notification/Year of Establishment | 34/WL/82 dated 2/04/1984  |
| 2.  | Location                           | East Wildlife Division, East District, Sikkim   |
| 3.  | Area                               | 51.76 sq. km  |
| 4.  | Biogeographic location             | 2C (Central Himalayas)  |
| 5.  | Latitude, Longitude & Altitude     | Lat: 27° 10' to 27° 23'N, Long: 88° 29' to 88° 35' E, Alt: 1524m-2749m  |
| 6.  | Nearest Town                       | Gangtok   |
| 7.  | Major Forest Types                 | East Himalayan sub-tropical wet hill forest, East Himalayan wet temperate forest, Lauraceous forest, Buk-oak forest, High-level Oak Forest, East Himalayan mixed temperate forest, East Himalayan mixed conifer forest  |
| 8.  | Key Flora                          | <i>Andromeda elliptica</i> , <i>Mallotus nepalensis</i> , <i>Rhus arboretum</i> , <i>R. griffithi</i> , <i>Glochidion</i> sp., <i>Machilus</i> sp., <i>Buchlandea populnea</i> , <i>Acer</i> sp., <i>Quercus lineate</i> , <i>Endospermum chininse</i> , <i>R. falconeri</i> , <i>Lithocarpus</i> , <i>Pentapanax leschenaulti</i> , <i>Eleocarpus sikkimensia</i> , <i>Quercus lanaeaeefolia</i> , <i>Michelia</i> sp. |
| 9.  | Key Fauna                          | Red Panda, Binturong, Himalayan Black Bear, Tragopan Pheasants, Kaleej Pheasant.  |
| 10.   | Fringe Area Villages               | Pangthang, Singtam, Sang, Rumtek, Ranka, Tumin etc.   |
| 11.   | Major Threats                      | Erosion and Floods, Snow, Weeds, Grazing, Fire, Poaching, Grazing.  |
| 12.   | Others                             | Nothing specific  |

The Fambonglho WLS located towards west of Gangtok city, straddling the entire hill range with a majestic view of the Mt. Khangchendzonga, is an eco-tourist's delight. The PA was established in 1984 to offset the ecological loss due to rapid development in Gangtok and its surroundings. The major significance of this PA is that apart from being a habitat for number of Schedule I species, it also acts as a source of drinking water for the numerous villages and small towns surrounding it. Besides, it is also a catchment for major tributaries of river Teesta, the life line of Sikkim. Apart from acting as green lung of the State capital of Gangtok, it is also an ecological oasis to the rapidly developing towns and human settlements at Singtam, Sang, Rumtek, Ranka, Tumin towns of Sikkim.

## MEE Assessment Criteria of Fambonglho Wildlife Sanctuary

May 2015, Information collected by the WII Team

### 1. Context

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-------------|----------|---|--|
| Values not systematically documented, assessed or monitored.               | Poor        |          | Draft Management Plan (2008 to 2018 and discussion with PA authorities and EDC members) | WLS is located close to Gangtok to guard against increasing urbanization in the region. It is valued for its watershed as it provides drinking water to numerous villages and towns including the city of Gangtok. Conservation values including rare and endangered species are enumerated in the draft management plan but have not been systematically assessed or monitored. |
| Values generally identified but not systematically assessed and monitored. | <b>Fair</b> | ✓        |   |  |
| Most values systematically identified and assessed and monitored.          | Good        |          |   |  |
| All values systematically identified and assessed and monitored.           | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| Threats not systematically documented or assessed.            | Poor        |          | Draft Management Plan (2008 to 2018 and discussion with PA authorities and EDC members) | Threats in terms of encroachment, illegal felling, unauthorized removal of NTFP, collection of boulders and stone are mentioned in the draft plan. However, these are not assessed for extent and gravity of these issues and their major impacts. |
| Threats generally identified but not systematically assessed. | <b>Fair</b> | ✓        |   |  |
| Most threats systematically identified and assessed.          | Good        |          |   |  |
| All threats systematically identified and assessed.           | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-------------|----------|--|--|
| The site has extensive human and biotic interference. | Poor        |          | Management Plan and discussions with PA management and EDC members | There are a few villages inside WLS exerting pressure. Also there are some pressures from outside villages. These pressures include grazing, firewood collection, illicit felling, encroachment in north-western boundary of |
| The site has some human and biotic interference.      | <b>Fair</b> | ✓        |  |  |
| The site has little human and biotic interference.    | Good        |          |  |  |
| The site has no human and biotic interference.        | Very good   |          |  |  |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  | PA. Due to anomalies in the land records, department faces issues of boundary disputes with private landholders. |
|--|--|--|--|--|

## 2. Planning

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Site not identified correctly or categorized.  | Poor      |          | Management Plan and discussions with PA authorities and CDA authorities | The identification of site as WLS is based on high biodiversity and watershed values. However, systematic classification of various zones and management prescriptions for different zones need to be carefully planned. |
| Site identified correctly but not categorized.                                       | Fair      | ✓        |   |  |
| Site identified correctly but not systematically categorized.                        | Good      |          |   |  |
| Site identified correctly and systematically categorized with proper zonation plans. | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)                                | Remarks  |
|---|-----------|----------|--|--|
| No relevant Management Plan in place.   | Poor      |          | Management Plan and discussions with PA authorities. | The draft management plan has been initiated for the period from 2008-2018. However, it is still in preparation, which needs more inputs in terms of process and contents. |
| Management Plan exist but not comprehensive.  | Fair      | ✓        |  |  |
| Site has a comprehensive Management Plan.   | Good      |          |  |  |
| Site has a comprehensive, science based Management Plan prepared through a participatory process. | Very good |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)                                    | Remarks   |
|---|-----------|----------|--|---|
| No process in place for systematic review and update of Management Plan.                              | Poor      | ✓        | Draft management plan and discussion with PA authorities | The draft management plan is first plan for the area. Therefore, it is difficult to comment on routine and systematic updation process. |
| Management Plan sometimes updated in adhoc manner.  | Fair      |          |  |   |
| Management Plan routinely and systematically updated.   | Good      |          |  |   |
| Management Plan routinely, systematically and scientifically updated through a participatory process. | Very good |          |  |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-----------|----------|---|---|
| Sites does not safeguard the threatened biodiversity values.       | Poor      |          | Management Plan, and discussions with PA authorities, including the senior officers at the Headquarter. | The site safeguards values for which it has been notified as sanctuary. However, the developments in the landscape in terms of urbanization and roads are becoming a hindrance for the overall connectivity and movement of long ranging animals. |
| Sites safeguards a few threatened biodiversity values.             | Fair      | ✓        |   |   |
| Sites safeguards a large number of threatened biodiversity values. | Good      |          |   |   |
| Sites safeguards all threatened biodiversity values.               | Very good |          |   |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                                    | Remarks   |
|--|-----------|----------|--|---|
| Little, if any opportunity for stakeholder participation in planning.            | Poor      |          | Discussions with staff, PA manager and some stakeholders | There have been attempts to involve local communities in the management of WLS. However, their involvement in the planning process is weak. |
| Stakeholders participate in some planning.                                       | Fair      | ✓        |  |   |
| Stakeholders participate in most planning processes.                             | Good      |          |  |   |
| Stakeholders routinely and systematically participate in all planning processes. | Very good |          |  |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                            | Remarks   |
|--|-----------|----------|--|---|
| Habitat restoration programmes are entirely adhoc.                               | Poor      | ✓        | Management plan, discussion with PA authorities. | WLS is a home for different species of conservation importance and their associated habitats. These habitats have not been properly identified and assessed. Routine activities like fire protection and sporadic eradication of weeds is carried out as per the availability of funds. The current management plan flags the issue of habitat restoration but there is no follow up on this aspect due to absence of baseline information as well as constraints of financial and human resources. |
| Limited planning and monitoring programmes are in place for habitat restoration. | Fair      |          |  |   |
| Habitat restoration programmes are generally well planned and monitored.         | Good      |          |  |   |
| Habitat restoration programmes are thoroughly planned and monitored.             | Very good |          |  |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                            | Remarks  |
|---|-------------|----------|--|--|
| Site has no protection strategy.  | Poor        |          | Management Plan, discussions with PA authorities | While the current management plan enumerates major threats and required protection strategy, the situation on ground is different. WLS suffers from inadequacy of Forest Guards. There are no vehicles and required equipment for patrolling by the staff. Staff does not have even minimum weapons for protection of these areas. Therefore, the mentioned strategy in management plan is not functional. |
| Site has an adhoc protection strategy.                                  | <b>Fair</b> | ✓        |  |  |
| Site has a comprehensive protection strategy but is not very effective. | Good        |          |  |  |
| Site has a comprehensive and very effective protection strategy.        | Very good   |          |  |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                             | Remarks  |
|--|-------------|----------|---|--|
| Human-wildlife conflicts are rampant.                                    | Poor        |          | Office records and discussion with PA authorities | Black bear and wild boar are the main species responsible for human wildlife conflicts in terms of human injury and damage to the crops. As such no compensation is being paid for the damages. However, few of the EDCs are trying to manage this situation at their own. |
| Site has been able to mitigate few human-wildlife conflicts.             | <b>Fair</b> | ✓        |   |  |
| Site has been able to mitigate many human-wildlife conflicts.            | Good        |          |   |  |
| Site has been able effective in mitigating all human-wildlife conflicts. | Very good   |          |   |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                              | Remarks  |
|--|-------------|----------|--|--|
| Site not integrated into a wider network/ landscape.                   | Poor        |          | Discussion with PA authorities and CDA authorities | WLS covers this compact block of forest and associated species. However, the connectivity to the adjoining conservation areas is perforated due to urbanization and other linear infrastructure. Corridors and connectivity, even though slightly difficult, need to be identified urgently, so as to strengthen the landscape integration of this PA. There are also issues of boundary demarcation with the adjoining areas of villages. |
| Some limited attempts to integrate the site into a network/ landscape. | <b>Fair</b> | ✓        |  |  |
| Site is generally quite well integrated into a network/ landscape.     | Good        |          |  |  |
| Site is fully integrated into a wider network/ landscape.              | Very good   |          |  |  |

**3. Inputs**

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-------------|----------|---|---|
| Few, if any, personnel explicitly allocated for PA management.  | Poor        |          | Draft management plan, office records and discussions with PA staff | The WLS suffers from inadequacy of staff. A Range Officer at Golitar, along with one Block Officer and two Forest Guards, heads it. The overall control of the WLS vests with the DFO (WL) East Division, who sits at Gangtok and has additional areas under his charge. Due to inadequacy of staff, the multifarious management activities have to be handled by the same staff. The staff of the sanctuary is also responsible for looking after the issues of human wildlife conflict even outside PA areas. |
| Some personnel explicitly allocated for PA management but not systematically linked to management objectives. | <b>Fair</b> | ✓        |   |   |
| Some personnel explicitly allocated towards achievement of specific management objectives.                    | Good        |          |   |   |
| Adequate personnel explicitly allocated towards achievement of specific management objectives.                | Very good   |          |   |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)                    | Remarks  |
|---|-----------|----------|--|--|
| Few, if any, resources explicitly allocated for PA management.  | Poor      |          | Discussion with PA authorities and staff | The resources are inadequate. However, due to the availability of JICA fund some infrastructure facilities are being created at the entry points. Vehicle is available with the DFO and it is likely to be provided upto the range officer level. As far as other equipment is concerned, it is practically not available. |
| Some resources explicitly allocated for PA management but not systematically linked to management objectives. | Fair      | ✓        |  |  |
| Some resources explicitly allocated towards achievement of specific management objectives.                    | Good      |          |  |  |
| Adequate resources explicitly allocated towards achievement of specific management objectives.                | Very good |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)                              | Remarks  |
|---|-----------|----------|--|--|
| Resource allocation is adhoc, funds are inadequate and seldom released in time and not utilized.  | Poor      |          | APO, fund release orders, Utilization Certificates | The funds being received under central assistance are being received regularly. These are mostly for routine habitat activities like afforestation, ecotourism, ecodevelopment, improvement of communication facilities, habitat improvement, soil conservation and stream bank erosion control, nature education, management of human wildlife conflicts, creation of water holes, research and monitoring. So far the release of funds has been more or less timely. However, the funds are not enough to meet the activities as being proposed in the draft plan. |
| Some specific allocation for management of priority action. Funds are inadequate and there is some delay in release, partially utilized.          | Fair      | ✓        |  |  |
| Comprehensive planning and allocation that meets the most important objectives. Generally funds released with not much delay and mostly utilized. | Good      |          |  |  |
| Comprehensive planning and allocation of resources for attainment of most objectives. Funds generally released on-time and are fully utilized.    | Very good |          |  |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)           | Remarks   |
|--|-------------|----------|---------------------------------|---|
| NGOs contribute nothing for the management of the site.  | Poor        |          | Discussions with PA authorities | Hardly any financial support is being provided by any NGO. WWF is however, involved in a couple of studies on pheasants and red panda. This is an area near to Gangtok and possibilities of support of NGOs are many. |
| NGOs make some contribution to management of the site but opportunities for collaboration are not systematically explored. | <b>Fair</b> | ✓        |                                 |   |
| NGOs contributions are systematically sought and negotiated for the management of some site level activities.              | Good        |          |                                 |   |
| NGOs contributions are systematically sought and negotiated for the management of many site level activities.              | Very good   |          |                                 |   |

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

| Condition                               | Category    | (Tick ✓) | Reference document(s)           | Remarks   |
|---|-------------|----------|---------------------------------|---|
| Resources insufficient for most tasks.  | Poor        |          | Discussions with PA authorities | As mentioned in 3.2 and 3.4, there is funding support for some of the activities for habitat management, soil and water conservation, education awareness and human wildlife conflict management. Some resources are currently being made available through JICA funds. However, for systematic management of WLS, the resources are either not available or inadequate for various activities. |
| Resources sufficient for some tasks.    | <b>Fair</b> | ✓        |                                 |   |
| Resources sufficient for most tasks.    | Good        |          |                                 |   |
| Resources are in excess for most tasks. | Very good   |          |                                 |   |

#### 4. Process

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|--|-------------|----------|---|--|
| Very few trained officers and frontline staff in the site.                     | Poor        |          | Office records, discussions with PA authorities | One of the senior officers is formally trained in Wildlife Management. As such the field staff has no training in wildlife. As part of normal forestry training programme, the staff has received inputs on some aspects of wildlife management. It was also informed that department has organized some training on ecotourism and legal issues of protection which has been made use by few staff. |
| Few trained officers and frontline staff, who are posted in the site.          | <b>Fair</b> | ✓        |   |  |
| A large number of trained officers and frontline staff are posted in the site. | Good        |          |   |  |
| All trained managers and frontline staff posted in the site.                   | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)           | Remarks  |
|---|-------------|----------|---------------------------------|--|
| No linkage between staff performance management and management objectives.  | Poor        |          | Discussions with PA authorities | Staff promotions are based on seniority and suitability. Good performance is rewarded by the State Government through good service entry. However, there is no system of performance management link with achievements of management objectives. |
| Some linkage between staff performance management and management objectives, but not consistently or systematically assessed. | <b>Fair</b> | ✓        |                                 |  |
| Performance management for most staff is directly linked to achievement of relevant management objectives.                    | Good        |          |                                 |  |
| Performance management of all staff is directly linked to achievement of relevant management objectives.                      | Very good   |          |                                 |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|--|-------------|----------|---|--|
| Little or no public participation in PA management.  | Poor        |          | Discussion with PA authorities and EDC members. | There are nine EDCs in the WLS, of which only one is involved in ecotourism at Golitar. Awareness programmes for school children and trekking camps are being organized by the department. Another area where college students, EDC members and civil society representatives are being involved is the exercise of bird census which is being conducted periodically. |
| Opportunistic public participation in some aspects of PA management.                         | <b>Fair</b> | ✓        |   |  |
| Systematic public participation in most aspects of PA management.                            | Good        |          |   |  |
| Comprehensive and systematic public participation in all important aspects of PA management. | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)          | Remarks   |
|---|-------------|----------|--------------------------------|---|
| No systematic approach to handling complaints.  | Poor        |          | Discussion with PA authorities | Periodic Progress Reports are sent to higher officials. However, no systematic management of grievance redressal. There have not been serious complaints over the last few years, except issues of boundary dispute. No RTI queries over the last 3 years have been received. The system for complaint handling is officer centric and follow up is poor. |
| Complaints handling system operational but not responsive to individual issues and limited follow up provided.          | <b>Fair</b> | ✓        |                                |   |
| Coordinated system logs and responds effectively to most complaints.  | Good        |          |                                |   |
| All complaints systematically logged in coordinated system and timely response provided with minimal repeat complaints. | Very good   |          |                                |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                            | Remarks   |
|--|-----------|----------|--|---|
| No livelihood issues are addressed by PA management.   | Poor      |          | Discussions with PA authorities and EDC members. | There are nine EDCs in the WLS, of which one is involved in ecotourism at Golitar. The infrastructure has been partially developed at Golitar and EDC members including women are involved. Few National and international tourists visit the WLS for trekking and wilderness experience and the management is planning to develop ecotourism as a means of livelihood at places like Tinjuray, Samdung, Tumin, Khamdong, Martam etc. This is a good beginning, but these efforts for the livelihood of the EDC members need to be enhanced and expanded. |
| Few livelihood issues are addressed by PA management.  | Fair      | ✓        |  |   |
| Substantial livelihood issues are addressed by PA management.  | Good      |          |  |   |
| Livelihood issues of resource dependent communities especially women are addressed effectively by PA managers. | Very good |          |  |   |

**5. Output**

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-----------|----------|--|---|
| Little or no information on PA management publicly available.  | Poor      | ✓        | Office orders, discussions with PA authorities and WWF researchers | Basic inventory on flora, fauna and watershed values including that on the socio-economy of local people is available in the management plan. However, systematic species specific and habitat specific information is inadequate. Forest types related information is available in the management plan. WWF has also been engaged in studying pheasants and red panda, but their research information is not readily available. In nutshell the available information is not in the public domain. |
| Publicly available information is general and has limited relevance to management accountability and the condition of public assets. | Fair      |          |  |   |
| Publicly available information provides detailed insight into major management issues for most PAs or groups of PAs.                 | Good      |          |  |   |
| Comprehensive reports are routinely provided on management and condition of public assets in all PAs or groups of PAs.               | Very good |          |  |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                           | Remarks  |
|--|-----------|----------|---|--|
| Visitor services and facilities are at odds with relevant PA category and/or threaten PA values.         | Poor      |          | Office records, discussions with PA authorities | The PA allows visitation at Golitar, where an ecotourism programme with local community is being developed. The visitors are also allowed trekking to the peak Tinjuray and local EDC members act as guide for such programmes. However, there is no interpretation centre and quality interpretative materials, signages and vehicles. The facilities need improvement for meeting the basic management needs of WLS. |
| Visitor services and facilities generally accord with relevant PA category and don't threaten PA values. | Fair      | ✓        |   |  |
| All visitor services and facilities accord with relevant PA category and most enhance PA values.         | Good      |          |   |  |
| All visitor services and facilities accord with relevant PA category and enhance PA values.              | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Little or no systematic evaluation or routine reporting of trends.  | Poor      |          | Discussions with PA authorities, WWF researchers and annual report of PA | The PA does not have any system to undertake research and monitoring. However, WWF is engaged in studying pheasants and red panda. But the information is not readily available. Similarly, the G B Pant Institute on Himalayan Environment works from within the WLS, but their researched information is not available to the PA. In general, the system of research and monitoring is adhoc and opportunistic. |
| Some evaluation and reporting undertaken but neither systematic nor routine.  | Fair      | ✓        |  |   |
| Systematic evaluation and routine reporting of management related trends undertaken.  | Good      |          |  |   |
| Systematic evaluation and comprehensive reporting of trends undertaken and attempts made at course corrections as relevant. | Very good |          |  |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                                 | Remarks  |
|---|-------------|----------|---|--|
| No systematic inventory or maintenance schedule.  | Poor        |          | Management Plan, APO, discussions with PA authorities | There are records for the inventory of buildings and major infrastructure. Departmental procedures exist for placing demands for maintenance in the APO, which is prepared and submitted annually. Current draft plan has also provisions for maintenance of infrastructure. However, there is gap between requirement and actual receipt of funds for maintenance of infrastructure and assets. |
| Inventory maintenance is adhoc and so is the maintenance schedule.  | <b>Fair</b> | ✓        |   |  |
| Systematic inventory provides the basis for maintenance schedule but funds are inadequately made available. | Good        |          |   |  |
| Systematic inventory provides the basis for maintenance schedule and adequate funds are made available.     | Very good   |          |   |  |

**6. Outcomes**

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| Threatened/ endangered species populations declining.                           | Poor        |          | Office records, discussions with PA manager and staff as well as NGOs | The information on forest types and relative abundance of major trees is available in the management plan. While list of animal and plant species of conservation value is available, no systematic assessment of endangered species is being carried out. The PA does not have information on population trends and similar matter to improve scientific management of the WLS. |
| Some threatened/ endangered species populations increasing, most others stable. | <b>Fair</b> | ✓        |   |  |
| Most threatened/ endangered species populations increasing, most others stable. | Good        |          |   |  |
| All threatened/ endangered species populations either increasing or stable.     | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                           | Remarks  |
|---|-------------|----------|---|--|
| Threats to the Site have not abated but have enhanced.  | Poor        |          | Discussions with PA authorities and EDC members | After the declaration of the WLS, the permanent cattle sheds have been removed. However, the biotic pressures due to grazing, firewood collection and other illegal activities from few villages inside on fringe of PA do exist. Over the years threats such as smuggling of timber and poaching has been considerably reduced. However, emerging urbanization and inadequacy of sustenance alternatives to local community continue to exert pressure on the PA. |
| Some threats to the Site have abated, others continue their presence  | <b>Fair</b> | ✓        |   |  |
| Most threats to the Site have abated. The few remaining are vigorously being addressed  | Good        |          |   |  |
| All threats to the Site have been effectively contained and an efficient system is in place to deal with any emerging situation | Very good   |          |   |  |

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

| Condition                                   | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-------------|----------|---|---|
| Expectations of visitors generally not met. | Poor        |          | Office records, discussions with the PA authorities and some visitors | The visitors appreciate the natural beauty of the landscape. With the initiation of ecotourism at Golitar, visitor's appreciation has increased. However, poor interpretation facilities and inadequacy of trained man-power reduces the impact. There is absence of visitor feedback and its analysis. |
| Expectations of many visitors are met.      | <b>Fair</b> | ✓        |   |   |
| Expectations of most visitors are met.      | Good        |          |   |   |
| Good expectations of most visitors are met. | Very good   |          |   |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-------------|----------|---|--|
| Local communities are hostile.                     | Poor        |          | Office records, discussions with the PA authorities and EDC members | Local communities appreciate the value of the PA as a source of livelihood and sustenance. There is also support for conservation in the civil society. However, due to inadequacy of appropriate outreach programmes, the PA is not able to solicit large scale support. Through initiation of ecodevelopment, a beginning has been made, which needs to be expanded to other villages and the administration of Gangtok town, especially the tourism sector be taken in confidence to make the conservation gains substantial. |
| Some are supportive.                               | <b>Fair</b> | ✓        |   |  |
| Most locals are supportive of PA management.       | Good        |          |   |  |
| All local communities supportive of PA management. | Very good   |          |   |  |



## Assessment Criteria for addressing issues relating to Climate Change & Carbon capture in the Protected Areas

### 1. Additional Criteria on Climate Change: Is the protected area being consciously managed to adapt to climate change?

| Condition  | Category  | (Tick ✓) | Comment/ Explanation   | Next Steps   |
|--|-----------|----------|--|--|
| There have been no efforts to consider adaptation to climate change in management  | Poor      |          | There is no conscious effort to deal with the issues of climate change in the activities of PA management. However, initiatives of ecotourism and ecodevelopment do contribute in directly for this issue. | Specific guidelines need to be issued at national and state level to address the issues of climate change in the management plan and activities. |
| Some initial thought has taken place about likely impacts of climate change, but this has yet to be translated into management plans                     | Fair      | ✓        |  |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management. | Good      |          |  |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented                     | Very good |          |  |  |

### 2. Additional Criteria on Climate Change: Is the protected area being consciously managed to prevent carbon loss and to encourage further carbon capture?

| Condition  | Category  | (Tick ✓) | Comment/ Explanation   | Next Steps  |
|--|-----------|----------|--|---|
| Carbon storage and carbon dioxide capture have not been considered in management of the protected area   | Poor      |          | There is no such initiative and concern in the management. However, the protection and supporting activity of community support through ecodevelopment and ecotourism will help in enhanced carbon capture | Specific guidelines need to be issued at national and state level to address the issues of climate change in the management plan and activities. In the revised management plan, these issues should be addressed |
| Carbon storage and carbon dioxide capture have been considered in general terms, but has not yet been significantly reflected in management    | Fair      | ✓        |  |   |
| There are active measures in place to reduce carbon loss from the protected area, but no conscious measures to increase carbon dioxide capture | Good      |          |  |   |
| There are active measures in place both to reduce carbon loss from the protected area and to increase carbon dioxide capture                   | Very good |          |  |   |

## MEE Score Card

| Framework Element Number | Framework Element Name | Number of Questions (a) | Maximum Mark per question (b) | Total (a x b) | Marks obtained for the Element | Overall Score |
|--------------------------|------------------------|-------------------------|-------------------------------|---------------|--------------------------------|---------------|
| 1.                       | Context                | 03                      | 10                            | 30            | 15                             | <b>46.67%</b> |
| 2.                       | Planning               | 09                      | 10                            | 90            | 40                             |               |
| 3.                       | Inputs                 | 05                      | 10                            | 50            | 25                             |               |
| 4.                       | Process                | 05                      | 10                            | 50            | 25                             |               |
| 5.                       | Outputs                | 04                      | 10                            | 40            | 17.5                           |               |
| 6.                       | Outcomes               | 04                      | 10                            | 40            | 17.5                           |               |
| <b>Total</b>             |                        | <b>30</b>               |                               | <b>300</b>    | <b>140</b>                     |               |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above



## Management Strengths, Weaknesses and Actionable Points of Fambonglho Wildlife Sanctuary

### Management Strengths

1. A rich biodiversity area located near the city of Gangtok.
2. Because of its location, it has a potential of developing as an ecotourism destination.
3. There is active participation of Ecodevelopment committees in PA management.

### Management Weaknesses

1. Due to the nearness of habitations, biotic pressures in terms of threats like encroachments, illegal felling, and mining are high.
2. Management plan is not comprehensive and lacks proper zonation, threat analysis, habitat restoration plan, ecodevelopment plan, etc.
3. Human wildlife conflict (especially crop damages) seems to be high.
4. There is lack of interpretation facilities and publication materials for tourists and visitors.
5. Resources (human and financial) are inadequate.
6. The site lacks trained manpower in wildlife management.

### Actionable points

1. The management plan need to be revised and made comprehensive with proper stakeholder consultation.
2. Conservation values should be systematically identified and assessed with the help of research organisations. Proper threat analysis should be carried out by involving all stakeholders.
3. Habitats of different species should be identified and assessed. On the basis of this information, a detailed monitoring protocol and habitat restoration programme should be prepared and implemented.
4. The existing strength of frontline staff is highly inadequate and it needs to be enhanced. Training of frontline staff in different facets of management need to be put in place.
5. Area has good support of local communities and their support needs to be utilized for the maximum managerial advantage to the area by improving coordination, communication, transparency and participation.
6. A comprehensive strategy need to be developed for generation of adequate and timely financial and other resources from different sources.



## 4.3 Khangchendzonga National Park





| Khangchendzonga National Park : At a Glance |                                    |   |
|---|------------------------------------|---|
| S. No.                                      | Contents                           | Details   |
| 1.  | Notification/Year of Establishment | Sikkim Official Gazette 95 dated 26 <sup>th</sup> August 1977 with an initial area 835 sq. km.  |
| 2.  | Location                           | Chungthang, Dzongu and Yuksam Ranges of North, West and South Districts of Sikkim   |
| 3.  | Area                               | 1784.00 sq km.  |
| 4.  | Biogeographic location             | 2C (Central Himalayas)  |
| 5.  | Latitude, Longitude & Altitude     | Lat: 27° 30' to 27°50' N, Long: 88°30' to 88°37' E, Alt: 1220 – 8585 m  |
| 6.  | Nearest Town                       | Mangan & Chungthang in North District & Gyalsing in West Districts and Rabongla in South District.  |
| 7.  | Major Forest Types                 | Sub-tropical Forest, Temperate Forest, Alpine Forest, Alpine Scrub  |
| 8.  | Key Flora                          | <i>Macaranga denticulata</i> , <i>Alnus nepalensis</i> , <i>Castanopsis tribuloides</i> , <i>Rhododendron arboreum</i> , <i>Alangium chinese</i> , <i>Maesa chisia</i> , <i>Malus sikkimensis</i> , <i>Ficus semicordata</i> , <i>Toricellia tiliifolia</i> , <i>Schima wallichii</i> , <i>Saurauia nepalensis</i> , <i>Acer campbellii</i> , <i>Exbucklandia populnea</i> , <i>Alnus nepalensis</i> , <i>Betula utilis</i> , <i>Malus sikkimensis</i> , <i>Lithocarpus pachyphylla</i> , <i>Engelhardtia spicata</i> , <i>Quercus</i> sp., <i>Enkianthus deflexus</i> , <i>Pieris formosa</i> , <i>Lyonia ovalifolia</i> , <i>Rhododendron grande</i> , <i>Magnolia campbellii</i> , <i>Rheum acuminatum</i> , <i>Rheum nobile</i> , <i>Primula capitata</i> , <i>P. obliqua</i> , <i>P. minutissima</i> , <i>P. sikkimensis</i> , <i>Rhododendron ciliatum</i> , <i>R. anthopogon</i> , <i>R. lepidotum</i> , <i>Cassiope fastigiata</i> , <i>Parnassia nubicola</i> , <i>Rhodiola himalensis</i> , <i>R. imbricata</i> , <i>Corydalis juncea</i> , <i>Nardostachys grandiflora</i> , <i>Saussurea gossypiphora</i> , <i>Meconopsis paniculata</i> , <i>Caltha palustris</i> , <i>Potentilla coriandrifolia</i> , <i>P. peduncularis</i> , <i>Cypripedium himalaicum</i> , <i>Pododphyllum hexandrum</i> and species of <i>Aconitum</i> , <i>Bryocarpum</i> , <i>Cassiope</i> , <i>Gentiana</i> , <i>Corydalis</i> , <i>Saxifragae</i> etc. |
| 9.  | Key Fauna                          | Leopard, Himalayan Yellow Throated Marten, Common Otter, Himalayan Palm Civet, Wild dog, Indian Fox, Jackal, Himalayan Black Bear, Wild Boar, Red Panda, Musk Deer, Barking Deer, Goral, Serow, Assamese Macaque, Crimson Horned Pheasant and Kaleej Pheasant, Crestless Porcupine, Rufous Tailed Hare, Chinese Pangolin, Parti-coloured Flying Squirrel, Hoary-bellied Squirrel, Orange-Bellied Squirrel, Shrew, Himalayan Mouse, Hare etc.  |

|     |                      |   |
|-----|----------------------|---|
| 10. | Fringe Area Villages | Thangu, Lachen, Lachen, Chhaten, Denga, Yuigang, Mensithang, Chungthang, Pegong, Theng, Bop, Shipgyer, Karchi RF, Sada-Famtam, Borong, Tashiding, Legship, Lachen, Chhaten, Denga, Yuigang, Mensithang, Chungthang, Pegong, Theng, Bop, Shipgyer, Ramam, Saffu, Pakel, Salim, Leek, Tingvong, Payer, Kusung, Nampruk, Lingzya, Beh, Myong, Tshana, Tholung Monastery, Pentong Sakyong, Lom, Sangnok Gaor, Sada, Fhamtam, Lingi Paiyong of South Sikkim. Chongi, Yambong, Chojo, Khechelpolri, Yuksam, Chung, Hungri, Nisha, Chongrang, Kongri, Labdang, Dhupi dara, Karjee, Mangnam, Norkhola, etc. of West Sikkim. |
| 11. | Major Threats        | Grazing, Fire, Erosion, Floods, Snow, Weeds, Wind, Poaching and Habitat Destruction   |
| 12. | Others               | The Park covers 25.14% of the total geographical area of Sikkim and about 18 glaciers-including the huge, fearsome, awesome and turbulent Zemu Glacier that is 300 m wide and 26 km long. Besides, there are over 17 high altitude lakes and 19 mountains and peaks. Mount Khangchendzonga is flanked by Mount Narsing (5,825m) Mount Pandim (6,691 m) and Mount Kabru of the southern side, the Twins (7,350m), Nepal Peak (7,150m) and Tent Peak (7,365m) on the Northern side, and Mount Simvo (6,811m) and Siniolchu (6,886m) on the Eastern side.  |

The Khangchendzonga National Park (KNP) represents the third highest point of the Earth's surface and situated in the North and West districts of Sikkim. The Park covers 25.14% of the total geographical area of Sikkim with 18 major glaciers including the huge Zemu Glacier, 300 m wide and 26 km long. Besides this, there are over 17 high altitude lakes and 19 mountains and peaks including the most magnificent Mt. Khangchendzonga (8,586m) itself. The name literally means the "Abode of the Gods" consisting of five treasure houses indication the five peaks and the guardian deity of Sikkim. Khangchendzonga NP contains floral and faunal elements akin to Palearctic and Oriental regions and in addition, it has a good representation of species endemic to Himalaya.

## MEE Assessment Criteria of Khangchendzonga National Park

May 2015, Information collected by the WII Team

### 1. Context

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Values not systematically documented, assessed or monitored.               | Poor      |          | Management Plan 2008-18, documents related to KBR, research papers and reports, KNP WHS nomination dossier | Most of the ecological values identified in different research papers/reports. However, information mainly about flora, fauna and vegetation types recorded in the management plan. Status of some of the floral and faunal species also provided in the management plan. Assessment of values is yet to be carried out and the systematic monitoring regimes are yet to be put in place. Other conservation values such as catchments, important habitats, and unique geo-morphological and historico-cultural attributes need to be included in the management plan. |
| Values generally identified but not systematically assessed and monitored. | Fair      | ✓        |  |  |
| Most values systematically identified and assessed and monitored.          | Good      |          |  |  |
| All values systematically identified and assessed and monitored.           | Very good |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| Threats not systematically documented or assessed.            | Poor      |          | Management Plan and discussion with Director/ Field officials of KNP and Local NGOs such as KCC | A list of possible threats has been provided in the management plan. However, lot of information on threats such as human wildlife conflicts, resource dependence of the local people and illegal activities exists in the form of reports/other official documents. This needs to be included in the management plan. |
| Threats generally identified but not systematically assessed. | Fair      | ✓        |   |  |
| Most threats systematically identified and assessed.          | Good      |          |   |  |
| All threats systematically identified and assessed.           | Very good |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------|----------|--|---|
| The site has extensive human and biotic interference. | Poor        |          | Management Plan, existing reports, office records and discussion with FD/other park Officials and representatives of KCC | Due to difficult terrain and remoteness of the areas, biotic interference is comparatively less. Further Govt. of Sikkim has banned grazing in PAs. Department has removed cattle sheds and EDCs have provided necessary support for reducing their dependence on the area. As on today, there are no villages inside NP. However, there are dependencies of the fringe area villages in the landscape. In addition some pressures do exist due to trans-boundary issues. |
| The site has some human and biotic interference.      | Fair        |          |  |   |
| The site has little human and biotic interference.    | <b>Good</b> | ✓        |  |   |
| The site has no human and biotic interference.        | Very good   |          |  |   |

## 2. Planning

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-------------|----------|--|--|
| Site not identified correctly or categorized.  | Poor        |          | Management Plan, existing reports and discussion with FD/other park Officials and representatives of KCC | The site is properly identified. Ground work has been done for identification of different zones. In the wilderness zone, sub zones for species such as Musk Deer and Blue Sheep have been worked out. |
| Site identified correctly but not categorized.                                       | Fair        |          |  |  |
| Site identified correctly but not systematically categorized.                        | <b>Good</b> | ✓        |  |  |
| Site identified correctly and systematically categorized with proper zonation plans. | Very good   |          |  |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)    | Remarks  |
|---|-------------|----------|--------------------------|--|
| No relevant Management Plan in place.   | Poor        |          | Existing Management Plan | The Management Plan has been prepared for period from 2008-18. Further information exists for improving the scientific database for the management plan, proposed strategies, zones and sub zones etc. All this information needs to be included in the Management Plan. |
| Management Plan exist but not comprehensive.  | <b>Fair</b> | ✓        |                          |  |
| Site has a comprehensive Management Plan.   | Good        |          |                          |  |
| Site has a comprehensive, science based Management Plan prepared through a participatory process. | Very good   |          |                          |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                                      | Remarks  |
|---|-------------|----------|--|--|
| No process in place for systematic review and update of Management Plan.                              | Poor        |          | Management Plan 2008-18 and discussion with Park officials | This is the first Management Plan prepared and it needs to include arrangements for periodical updation and adaptive management. |
| Management Plan sometimes updated in adhoc manner.  | <b>Fair</b> | ✓        |  |  |
| Management Plan routinely and systematically updated.   | Good        |          |  |  |
| Management Plan routinely, systematically and scientifically updated through a participatory process. | Very good   |          |  |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                                      | Remarks  |
|---|-------------|----------|--|--|
| Site does not safeguard the threatened biodiversity values.       | Poor        |          | Office records and discussion with Park officials and NGOs | This is a very large area which provides protection to a range of ecosystems and associated threatened habitats and biodiversity. Moreover, the pressures from local people are controlled due to religious and cultural associations, presence of NGOs and ecotourism initiatives to some extent. |
| Site safeguards a few threatened biodiversity values.             | Fair        |          |  |  |
| Site safeguards a large number of threatened biodiversity values. | <b>Good</b> | ✓        |  |  |
| Site safeguards all threatened biodiversity values.               | Very good   |          |  |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Little, if any opportunity for stakeholder participation in planning.            | Poor        |          | Records related to EDCs and discussion with Park officials, NGOs and community representatives | There has been a series of consultations with range of stakeholders. These include EDCs, Panchayats, Tourism Department, Tour Operators, Research Institutions, NGOs, Himil Rakshaks and other civil society representatives. |
| Stakeholders participate in some planning.                                       | Fair        |          |  |   |
| Stakeholders participate in most planning processes.                             | <b>Good</b> | ✓        |  |   |
| Stakeholders routinely and systematically participate in all planning processes. | Very good   |          |  |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-------------|----------|---|--|
| Habitat restoration programmes are entirely adhoc.                               | Poor        |          | Management Plan, Office records and Discussion with Park officials and local NGOs | Management Plan does provide four different zones. The habitat management strategies for different zones are generic and these need to be made specific to address the needs of threatened species, their habitats and movement/ migration patterns. Habitat management strategies in the form of regulations are provided in the plan which includes restoration of degraded areas, water conservation and improvement of watersheds, protection of special habitats, fire protection and management of invasive species. |
| Limited planning and monitoring programmes are in place for habitat restoration. | <b>Fair</b> | ✓        |   |  |
| Habitat restoration programmes are generally well planned and monitored.         | Good        |          |   |  |
| Habitat restoration programmes are thoroughly planned and monitored.             | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-------------|----------|--|--|
| Site has no protection strategy.  | Poor        |          | Management Plan and Discussion with Field officials and NGOs | The protection strategies provided in the plan are generic in nature. There is need to design specific protection strategy after analysis of all threat perceptions by involving all the stakeholders. The role of role communities in protection of the NP as 'Himal Rakshaks' is successful and should be further encouraged. The ecotourism programme being run with the help of local NGOs provides good opportunities of involving local people in information gathering and periodic response to problems. |
| Site has an adhoc protection strategy.                                  | <b>Fair</b> | ✓        |  |  |
| Site has a comprehensive protection strategy but is not very effective. | Good        |          |  |  |
| Site has a comprehensive and very effective protection strategy.        | Very good   |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Human-wildlife conflicts are rampant.                                    | Poor      |          | Management Plan, Office Records, Discussion with Field Officials, NGOs and representatives of local communities. | There is good system of dealing with human - wildlife conflicts with the support of local NGOs (Khangchendzonga Conservation Committee, Mutauchi Lom Aal-Shezum, Pack animal operators, etc. These organizations provide compensations to the affected families due to human - wildlife conflicts. Due to large extent of area and tolerant nature of local people, the problem of human wildlife conflict does not seem to be very serious. |
| Site has been able to mitigate few human-wildlife conflicts.             | Fair      |          |  |  |
| Site has been able to mitigate many human-wildlife conflicts.            | Good      | ✓        |  |  |
| Site has been able effective in mitigating all human-wildlife conflicts. | Very good |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Site not integrated into a wider network/ landscape.                   | Poor      |          | Management Plan, Maps, office records, discussion with park staff and NGOs | This is a large PA which ensures coverage of diverse habitats and ecosystems of the landscapes. Therefore the integration at the landscape level is very good including the KCA in Nepal and PAs to the south in northern West Bengal. |
| Some limited attempts to integrate the site into a network/ landscape. | Fair      |          |  |  |
| Site is generally quite well integrated into a network/ landscape.     | Good      |          |  |  |
| Site is fully integrated into a wider network/ landscape.              | Very good | ✓        |  |  |

## 3. Inputs

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

| Condition   | Category | (Tick ✓) | Reference document(s)   | Remarks  |
|---|----------|----------|---|--|
| Few, if any, personnel explicitly allocated for PA management.  | Poor     |          | Management plan, Information provided by DFO KNP and Discussion with Park officials | Currently about 30 staff including Director and Joint Director are available for the management of the NP and this strength is considered inadequate keeping in view the vastness and difficulty in the area and variety of management activities. |
| Some personnel explicitly allocated for PA management but not systematically linked to management objectives. | Fair     | ✓        |   |  |
| Some personnel explicitly allocated towards achievement of specific management objectives.                    | Good     |          |   |  |

|  |           |  |  |  |
|--|-----------|--|--|--|
| Adequate personnel explicitly allocated towards achievement of specific management objectives. | Very good |  |  |  |
|--|-----------|--|--|--|

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

| Condition   | Category (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------------|---|--|
| Few, if any, resources explicitly allocated for PA management.  | Poor              | Management plan, Asset Register, Information provided by DFO KNP and Discussion with Park officials | The buildings and camping facilities required for the staff are inadequate as compared to the area. More field gears/equipment for the frontline staff are needed. |
| Some resources explicitly allocated for PA management but not systematically linked to management objectives. | Fair              |   |  |
| Some resources explicitly allocated towards achievement of specific management objectives.                    | Good              |   |  |
| Adequate resources explicitly allocated towards achievement of specific management objectives.                | Very good         |   |  |

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

| Condition   | Category (Tick ✓) | Reference document(s)                          | Remarks   |
|---|-------------------|--|---|
| Resource allocation is adhoc, funds are inadequate and seldom released in time and not utilized.  | Poor              | Office records, discussion with Park officials | <p>During last 3 years the position of funds (excluding salaries &amp; office expenses) received by the park is as follows:</p> <p>Integrated development of wildlife habitats</p> <p>2012-13: 33.105 lakhs</p> <p>2013-14: 24.80 lakhs</p> <p>2014-15: 19.90 lakhs</p> <p>Management action plan of KBR</p> <p>2012-13: Nil</p> <p>2013-14: 100.00 lakhs</p> <p>As per the requirement of management, more funds required.</p> |
| Some specific allocation for management of priority action. Funds are inadequate and there is some delay in release, partially utilized.          | Fair              |  |   |
| Comprehensive planning and allocation that meets the most important objectives. Generally funds released with not much delay and mostly utilized. | Good              |  |   |
| Comprehensive planning and allocation of resources for attainment of most objectives. Funds generally released on-time and are fully utilized.    | Very good         |  |   |

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

| Condition  | Category (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------------|--|---|
| NGOs contribute nothing for the management of the site.  | Poor              | Discussion with park officials and representatives of NGOs and records of information centre at Yuksom KNP | The contribution of NGOs such as KCC, MLA in the area is significant. They contribute in terms of manpower efforts, capacity building & awareness programmes. WWF-India is also helping PA management in terms of surveys, awareness and capacity building. |
| NGOs make some contribution to management of the site but opportunities for collaboration are not systematically explored. | Fair              |  |   |
| NGOs contributions are systematically sought and negotiated for the management of some site level activities.              | Good              |  |   |
| NGOs contributions are systematically sought and negotiated for the management of many site level activities.              | Very good         |  |   |

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

| Condition                               | Category (Tick ✓) | Reference document(s)                          | Remarks  |
|---|-------------------|--|--|
| Resources insufficient for most tasks.  | Poor              | Discussion with park officials, Office records | As indicated in 3.1, 3.2 & 3.3, the human and financial resources need to further augmented. |
| Resources sufficient for some tasks.    | Fair              |  |  |
| Resources sufficient for most tasks.    | Good              |  |  |
| Resources are in excess for most tasks. | Very good         |  |  |

## 4. Process

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

| Condition  | Category (Tick ✓) | Reference document(s)   | Remarks   |
|--|-------------------|---|---|
| Very few trained officers and frontline staff in the site.                     | Poor              | Record provided by the park management and discussion with park officials and staff | Local level trainings on different subjects (particularly ecotourism, protection & awareness) have been organized for the staff with help of NGOs, Forest headquarters and other organizations. Formal training in wildlife management is needed. |
| Few trained officers and frontline staff, who are posted in the site.          | Fair              |   |   |
| A large number of trained officers and frontline staff are posted in the site. | Good              |   |   |
| All trained managers and frontline staff posted in the site.                   | Very good         |   |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| No linkage between staff performance management and management objectives.  | Poor      |          | Office records, discussion with park officials and representatives local NGOs | There is no formal system of performance management linked to achievements. However there is a system of awards and rewards for staff, EDCs and NGOs. |
| Some linkage between staff performance management and management objectives, but not consistently or systematically assessed. | Fair      | ✓        |   |   |
| Performance management for most staff is directly linked to achievement of relevant management objectives.                    | Good      |          |   |   |
| Performance management of all staff is directly linked to achievement of relevant management objectives.                      | Very good |          |   |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Little or no public participation in PA management.  | Poor      |          | Office records, discussion with park officials and representatives local NGOs | Due to presence of ecotourism programmes, village level institutions and NGOs, there is participation of local public in activities of PA management. The major areas of community involvement are conservation awareness programmes, ecotourism and protection. |
| Opportunistic public participation in some aspects of PA management.                         | Fair      |          |   |  |
| Systematic public participation in most aspects of PA management.                            | Good      | ✓        |   |  |
| Comprehensive and systematic public participation in all important aspects of PA management. | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)                             | Remarks   |
|---|-----------|----------|---|---|
| No systematic approach to handling complaints.  | Poor      |          | Office records and Discussion with park officials | The complaints handling is generic in nature and there is a need to put in place a formal system to address this issue. |
| Complaints handling system operational but not responsive to individual issues and limited follow up provided.          | Fair      | ✓        |   |   |
| Coordinated system logs and responds effectively to most complaints.  | Good      |          |   |   |
| All complaints systematically logged in coordinated system and timely response provided with minimal repeat complaints. | Very good |          |   |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-------------|----------|---|--|
| No livelihood issues are addressed by PA management.   | Poor        |          | Office records, discussion with park officials and representatives local NGOs | A number of activities are being carried out as part of ecodevelopment programme for the strengthening of livelihoods of EDC members, these include training of handicrafts, ecotourism, distribution of energy saving devices, distribution of organic seedlings, cardamom etc. |
| Few livelihood issues are addressed by PA management.  | Fair        |          |   |  |
| Substantial livelihood issues are addressed by PA management.  | <b>Good</b> | ✓        |   |  |
| Livelihood issues of resource dependent communities especially women are addressed effectively by PA managers. | Very good   |          |   |  |

**5. Output**

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-------------|----------|--|--|
| Little or no information on PA management publicly available.  | Poor        |          | Website, Information Centre, office Records, Sign boards, hoardings, Discussion with officials, NGOs and local communities | This area is prominent tourism destination and an important cultural site. Therefore, good information is available in public domain through website, publicity material and extension through NGOs, Forest and Tourism Departments. |
| Publicly available information is general and has limited relevance to management accountability and the condition of public assets. | Fair        |          |  |  |
| Publicly available information provides detailed insight into major management issues for most PAs or groups of PAs.                 | <b>Good</b> | ✓        |  |  |
| Comprehensive reports are routinely provided on management and condition of public assets in all PAs or groups of PAs.               | Very good   |          |  |  |

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

| Condition  | Category | (Tick ✓) | Reference document(s)  | Remarks  |
|--|----------|----------|--|--|
| Visitor services and facilities are at odds with relevant PA category and/or threaten PA values.         | Poor     |          | Website, Information Centre, office Records, Sign boards, hoardings, Discussion with | Being an important tourism destination of the State, visitor service facilities are available at Yuksom. There is also NGO support for ecotourism programmes |
| Visitor services and facilities generally accord with relevant PA category and don't threaten PA values. | Fair     |          |  |  |

|  |             |   |                                       |   |
|--|-------------|---|---------------------------------------|---|
| All visitor services and facilities accord with relevant PA category and most enhance PA values. | <b>Good</b> | ✓ | officials, NGOs and local communities | and visitor awareness. The information centre and waste management unit at Yuksom are quite informative and useful. |
| All visitor services and facilities accord with relevant PA category and enhance PA values.      | Very good   |   |                                       |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------|----------|--|---|
| Little or no systematic evaluation or routine reporting of trends.  | Poor        |          | Office records, Management Plan and Discussion with park officials | Wildlife Institute of India (WII), G B Pant Institute of Himalayan Environment & Development (GBPIHED), World Wide Fund for nature (WWF)-India, Ashoka Trust for Research in Ecology and the Environment (ATREE), National Centre for Biological Sciences (NCBS) and the Mountain Institute (TMI) have carried out ecological studies in the area which provide information about the species estimates for the site. WII's recent research project also developed a monitoring programme for mammals of KNP. There is a need to regular monitor wildlife in the KNP. |
| Some evaluation and reporting undertaken but neither systematic nor routine.  | <b>Fair</b> | ✓        |  |   |
| Systematic evaluation and routine reporting of management related trends undertaken.  | Good        |          |  |   |
| Systematic evaluation and comprehensive reporting of trends undertaken and attempts made at course corrections as relevant. | Very good   |          |  |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------|----------|--|---|
| No systematic inventory or maintenance schedule.  | Poor        |          | Office records, Asset record. Management Plan and Discussion with park officials | There is no specific system of maintenance for the infrastructure & assets and it depends on availability of funds. |
| Inventory maintenance is adhoc and so is the maintenance schedule.  | <b>Fair</b> | ✓        |  |   |
| Systematic inventory provides the basis for maintenance schedule but funds are inadequately made available. | Good        |          |  |   |
| Systematic inventory provides the basis for maintenance schedule and adequate funds are made available.     | Very good   |          |  |   |

## 6. Outcomes

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| Threatened/ endangered species populations declining.                           | Poor      |          | Office records, Asset record. Management Plan and Discussion with park officials and NGOs | Baseline data is available for Prek Chu catchment of KNP only in the absence of periodic estimates; it is difficult to comment upon the status and trends of major species. However interaction with the NGOs and park officials indicates stable trends on these parameters. |
| Some threatened/ endangered species populations increasing, most others stable. | Fair      | ✓        |   |   |
| Most threatened/ endangered species populations increasing, most others stable. | Good      |          |   |   |
| All threatened/ endangered species populations either increasing or stable.     | Very good |          |   |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| Threats to the Site have not abated but have enhanced.  | Poor      |          | Office records, Asset record. Management Plan and Discussion with park officials and NGOs | Area is large covering a range of ecosystems and habitats, there is significant support of the local communities and NGOs. Therefore threats are minimal. |
| Some threats to the Site have abated, others continue their presence  | Fair      |          |   |   |
| Most threats to the Site have abated. The few remaining are vigorously being addressed  | Good      | ✓        |   |   |
| All threats to the Site have been effectively contained and an efficient system is in place to deal with any emerging situation | Very good |          |   |   |

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

| Condition                                   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Expectations of visitors generally not met. | Poor      |          | Office records and Visitor register at information centre, Management Plan and Discussion with park officials and NGOs | Due to effective ecotourism programmes and interpretation facilities with the support of KCC, MLA, the visitor satisfaction is good |
| Expectations of many visitors are met.      | Fair      |          |  |   |
| Expectations of most visitors are met.      | Good      | ✓        |  |   |
| Good expectations of most visitors are met. | Very good |          |  |   |

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

| Condition  | Category (Tick ✓) | Reference document(s)   | Remarks   |
|--|-------------------|---|---|
| Local communities are hostile.                     | Poor              | Office records, Management Plan, Discussion with park officials, NGOs and community representatives | Due to ongoing ecodevelopment and ecotourism programmes, support of NGOs, recent support for the community activities under JICA project and in general supportive nature of local people, the community support to PA is quite good. |
| Some are supportive.                               | Fair              |   |   |
| Most locals are supportive of PA management.       | <b>Good</b>       |   |   |
| All local communities supportive of PA management. | Very good         |   |   |



## Assessment Criteria for addressing issues relating to Climate Change & Carbon capture in the Protected Areas

### 1. Additional Criteria on Climate Change: Is the protected area being consciously managed to adapt to climate change?

| Condition  | Category  | (Tick ✓) | Comment/Explanation   | Next Steps   |
|--|-----------|----------|---|--|
| There have been no efforts to consider adaptation to climate change in management  | Poor      |          | Office records, Management Plan, Discussion with park officials, NGOs and community representatives | This is an important area which is a favoured site for long term studies by research institutions. Already research programmes have been undertaken in this landscape by organisations such as WII, GBPIHED, WWF-India, ATREE, and NCBS. Under the DST-NMSHE Project, WII would be investigating impacts of climate change on wildlife of Khangchendzonga NP in the near future. |
| Some initial thought has taken place about likely impacts of climate change, but this has yet to be translated into management plans                     | Fair      | ✓        |   |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management. | Good      |          |   |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented                     | Very good |          |   |  |

### 2. Additional Criteria on Climate Change: Is the protected area being consciously managed to prevent carbon loss and to encourage further carbon capture?

| Condition  | Category  | (Tick ✓) | Comment/Explanation   | Next Steps   |
|--|-----------|----------|---|--|
| Carbon storage and carbon dioxide capture have not been considered in management of the protected area   | Poor      |          | Office records, Management Plan, Discussion with park officials, NGOs and community representatives | There are no such conscious efforts. Ecodevelopment, ecotourism programmes and research projects are trying to target the climate change issues. |
| Carbon storage and carbon dioxide capture have been considered in general terms, but has not yet been significantly reflected in management    | Fair      | ✓        |   |  |
| There are active measures in place to reduce carbon loss from the protected area, but no conscious measures to increase carbon dioxide capture | Good      |          |   |  |
| There are active measures in place both to reduce carbon loss from the protected area and to increase carbon dioxide capture                   | Very good |          |   |  |

## MEE Score Card

| Framework Element Number | Framework Element Name | Number of Questions (a) | Maximum Mark per question (b) | Total (a x b) | Marks obtained for the Element | Overall Score & rating |
|--------------------------|------------------------|-------------------------|-------------------------------|---------------|--------------------------------|------------------------|
| 1.                       | Context                | 03                      | 10                            | 30            | 17.5                           | <b>62.50 %</b>         |
| 2.                       | Planning               | 09                      | 10                            | 90            | 60                             |                        |
| 3.                       | Inputs                 | 05                      | 10                            | 50            | 27.5                           |                        |
| 4.                       | Process                | 05                      | 10                            | 50            | 30                             |                        |
| 5.                       | Outputs                | 04                      | 10                            | 40            | 25                             |                        |
| 6.                       | Outcomes               | 04                      | 10                            | 40            | 27.5                           |                        |
| <b>Total</b>             |                        | <b>30</b>               |                               | <b>300</b>    | <b>187.5</b>                   |                        |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above



## Management Strengths, Weaknesses and Actionable Points of Khangchendzonga National Park

### Management Strengths

1. Large biodiversity rich area encompassing range of ecosystems and habitats, providing space for threatened, rare and endangered species, connectivity to Kanchenjunga Conservation Area in Nepal, and associated ecological, geo-morphological and cultural attributes.
2. The area is remote and terrain is difficult, thereby the associated biotic pressures are comparatively less.
3. Area gets good support from the local communities and other stakeholders due to religious and cultural association.
4. The area is a renowned tourist destination thereby gets tremendous national and international attention.
5. Presence of range of active NGOs who are associating the management in ecotourism, waste management, awareness generation, livelihood support for the local people and other related activities.
6. The human-wildlife conflicts are comparatively less.
7. Good site for inscription on the coveted World Natural Heritage list.

### Management Weaknesses

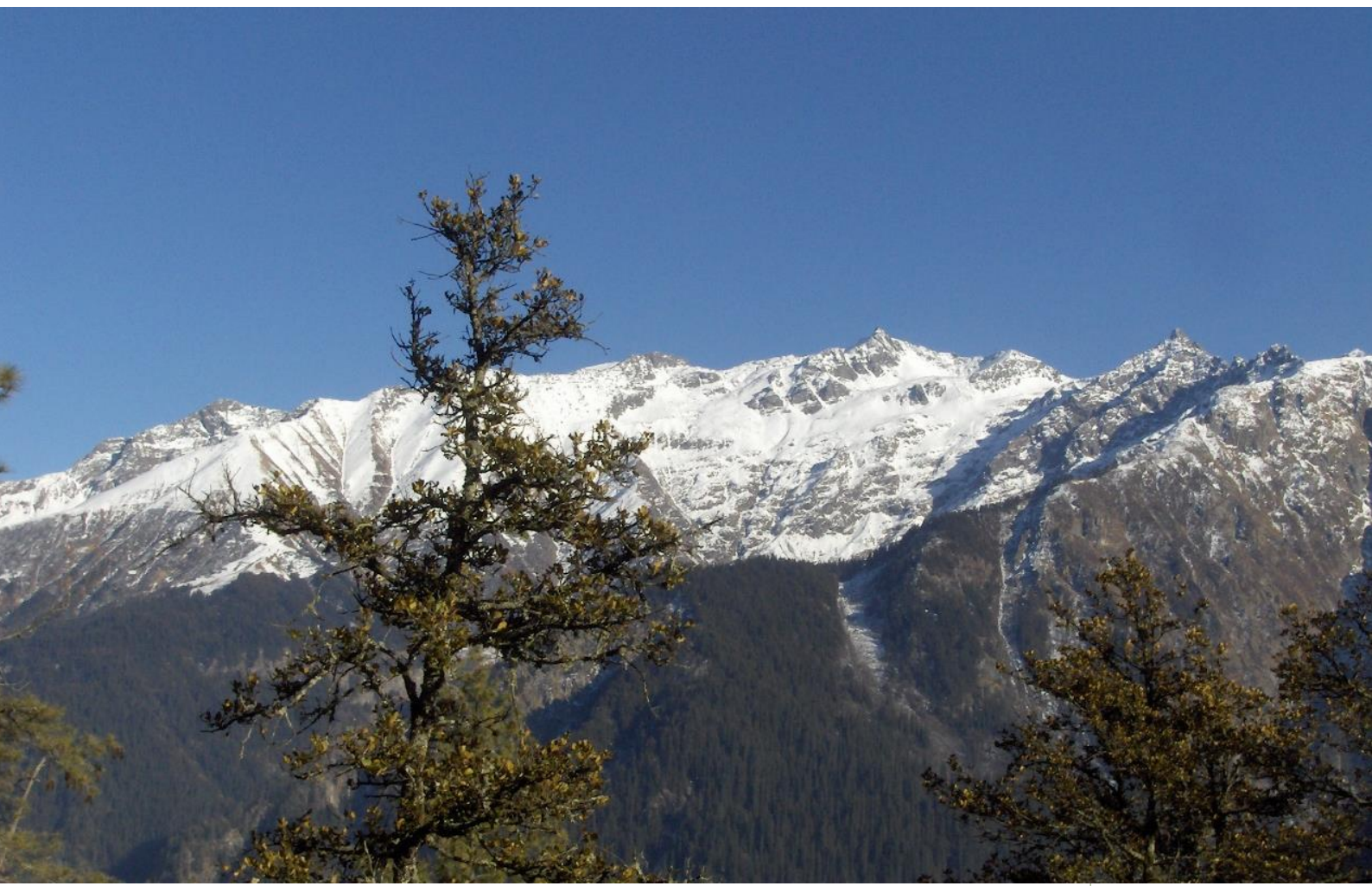
1. Although the management plan exists but it is not very comprehensive.
2. The conservation values have not been systematically assessed and there is scope for putting a good monitoring system.
3. The threat analysis for the NP has not been carried out systematically.
4. Keeping in mind the vastness of the area, difficult terrain and variety of activities, the available manpower and supportive infrastructure as well as financial resources are inadequate.
5. The frontline staff lacks adequate capacity required for the management of the area.
6. Visitor and other tourism facilities are mostly confined towards southern portion of the park i.e. Yuksam.

### Actionable points

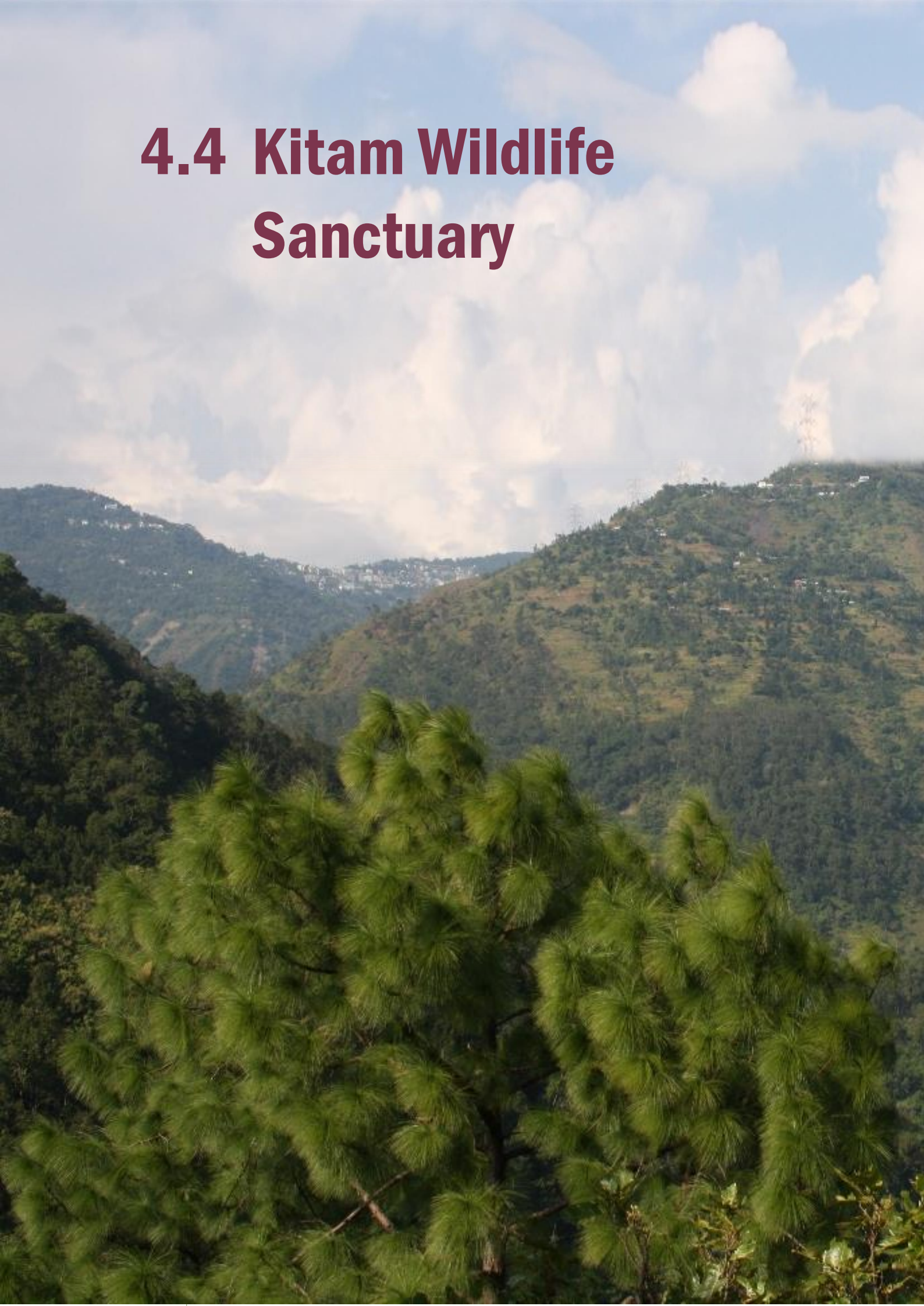
1. The management should identify, assess and document all the conservation values making use of the existing scientific information, with the participation of different research institutions/individuals that have worked extensively in the area and also include other stakeholders.
2. Similarly, the threat analysis for the area need to be carried out spatially and temporarily along with different stakeholders so as to develop a baseline for subsequent monitoring.
3. The existing management plan needs to be further strengthened taking into consideration recommendations from scientific studies carried out in the NP.
4. A comprehensive system of monitoring protocols covering ecological, biological and socio economic and other managerial attributes need to be operationalized immediately. The monitoring strategies, protocol along with information on costs have been prepared for Prek chu catchment area of Khangchendzonga NP by WII, could be

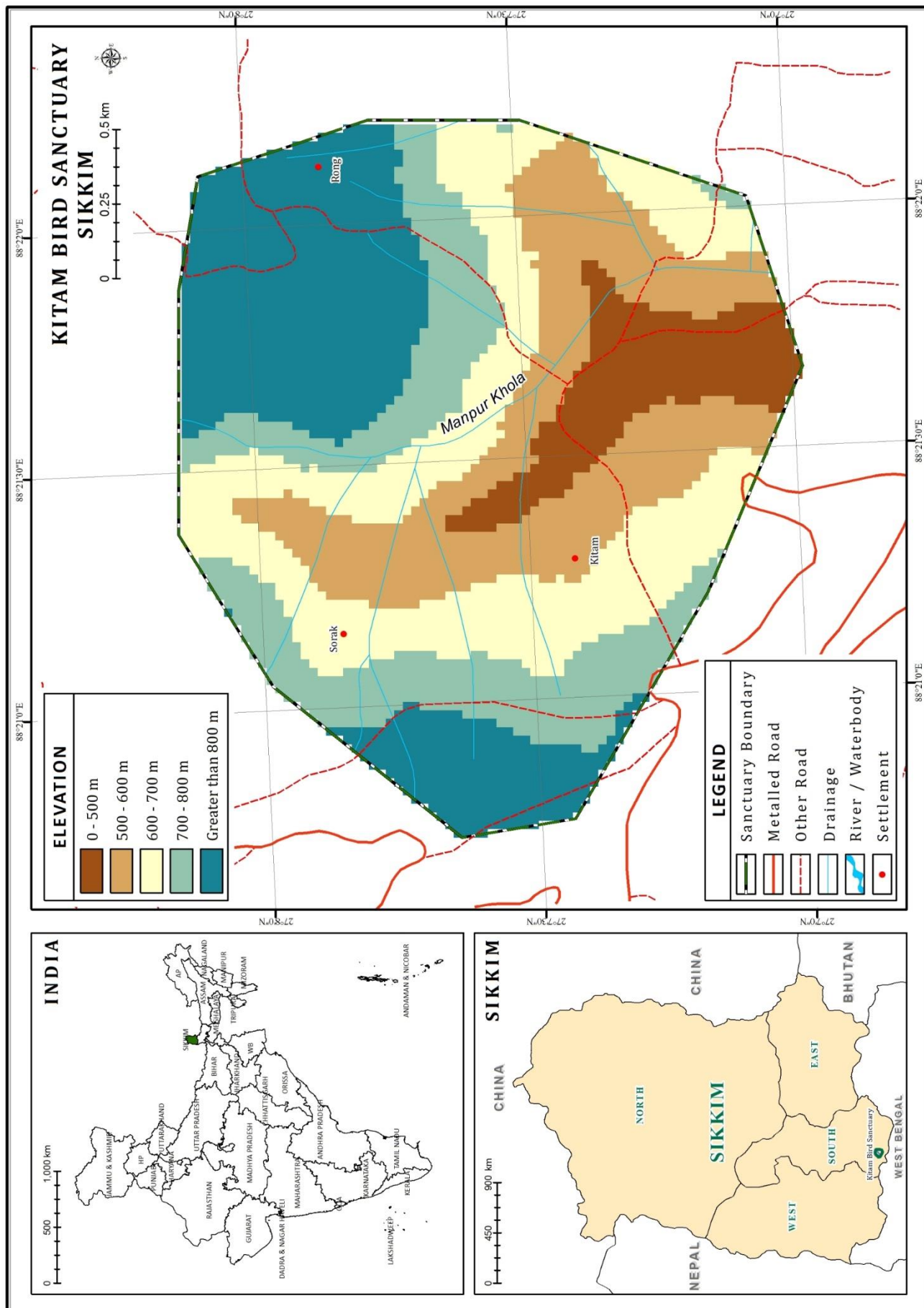
included in the Plan. Efforts to replicate such monitoring protocols for other watersheds need to be done.

5. The existing strength of frontline staff is inadequate and it needs to be enhanced by creation of additional posts or redeployment. The Office of the Divisional Forest Officer, KNP should be located closer to the NP so that management could be effective and the presence of department strongly felt by the local communities. Possibilities of using strength of local communities for protection such as Himal Rakshaks should be further encouraged.
6. Camping gears, other equipment and infrastructure inside park (small patrolling huts, trails, etc.) is inadequate. This needs to be strengthened on a priority basis
7. Area has good support of local communities, NGOs, scientific institutions and other stakeholders. This synergy needs to be utilized for the maximum managerial advantage to the area by improving coordination, communication, transparency and participation.
8. A long term strategy for training of frontline staff on different facets of management need to be designed and put in place. Similar efforts need to be done for the other stakeholders (communities, NGOs and line agencies).
9. Management need to create Rescue /Response teams for management of human wildlife conflict with required training, equipment and communication facilities.
10. Buffer area plan need to be strengthened with the support of local communities through programmes of ecocodevelopment and other ongoing developmental programmes of different agencies.
11. A comprehensive strategy need to be developed for generation of financial and other resources from different sources at the local, state, national and international level.
12. The Park has attracted individuals and institutions for scientific research. This should be continued and further encouraged.



## **4.4 Kitam Wildlife Sanctuary**





| Kitam Wildlife Sanctuary : At a Glance |                                    |  |
|--|------------------------------------|--|
| S. No.                                 | Contents                           | Details  |
| 1.                                     | Notification/Year of Establishment | 39/FEWM/2005 dated 03/03/2005  |
| 2.                                     | Location                           | Namchi Wildlife Division, South Sikkim   |
| 3.                                     | Area                               | 6 sq. km   |
| 4.                                     | Biogeographic location             | 2C (Central Himalayas)   |
| 5.                                     | Latitude, Longitude & Altitude     | Lat: 27°06'27"N 88°20'88"E, Alt: 320-875msl  |
| 6.                                     | Nearest Town                       | Jorethang (10km), Namchi (12km)  |
| 7.                                     | Major Forest Types                 | Sal Forests, Chir pine Forests, Mixed Broad leaves Forests   |
| 8.                                     | Key Flora                          | <i>Garug apinnata</i> , <i>Terminalia crenulata</i> , <i>Schima wallichii</i> , <i>Terminalia belerica</i> , <i>Terminalia chebula</i> , <i>Tiktona grandis</i> , <i>Terminalia crenulata</i> , <i>Bauhinia purpurea</i> , <i>Bassian</i> , <i>butyracea</i> , <i>Toona ciliata</i> , <i>Pandonus Species</i> , <i>Holarrhena antidysenterica</i> , <i>Bauni kath</i> , <i>Wightia gignea</i> , <i>Pieris ovalifolia</i> , <i>Phoenix acaulis</i> etc. |
| 9.                                     | Key Fauna                          | Assamese macaque, Barking Deer, Common Leopard, Common Palm Civet, Crestless Porcupine, Chines Pangolin, Common Langur, Eurasian Otter, Fruit Bats, Golden Jackal, Himalayan Rat, Orange bellied Himalayan Squirrel, Tailed Hare, Rhesus Macaque, Jackal, Sikkim Mouse, Wild Boar.   |
| 10.                                    | Fringe Area Villages               | Goam, Kitam, Majhitar, Rong, Sumbuk  |
| 11.                                    | Major Threats                      | Forest Fire, Cattle grazing and fodder collection, Hunting and poaching of wildlife and Birdlife, Noise levels from the highway and link road passes through the Sanctuary, Encroachment and trespassing, Phoenix Species invasion, Scouring activities along the course of Goam and Manpur Khola, and Soil erosion at Gully areas.  |
| 12.                                    | Others                             | The major issue for the Sanctuary is the crop predation by Wild Boar <i>Sus scrofa</i> .   |

The Kitam WLS is a bird sanctuary located along the southern boundary of Sikkim State and touches the boundary with West Bengal. It is the smallest PA in Sikkim and the only PA in the tropical eco-region (below 1,200 msl), where vegetation of Sal trees dominates. The major significance of this PA is that it includes habitats for number of birds such as the Indian Peafowl *Pavo cristatus*, Red Junglefowl *Gallus gallus murghii* and other animals. The PA was included in the Important Bird Area list by Bird Life International, in the name of Lowland forests of South Sikkim. The Sanctuary is bounded by two perennial rivers namely, Gom in the west and Manpur in the east.

## MEE Assessment Criteria of Kitam Wildlife Sanctuary

May 2015: Information collected by the WII Team

### 1. Context

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Values not systematically documented, assessed or monitored.               | Poor      |          | 1.Existing and Draft Mngt. Plan,   | Existing management plan does have most of the values documented, however there are few important research reports/dissertations which provide additional information on these values. Currently the management plan is being revised to incorporate all available information on the conservation values. As for as assessment of these values and monitoring is concerned it is not available. |
| Values generally identified but not systematically assessed and monitored. | Fair      | ✓        | 2. M.Sc. Thesis Survey of birds in Kitam by Abhishek Subba Doon P.G. College   |  |
| Most values systematically identified and assessed and monitored.          | Good      |          | 3. M.Sc. Thesis on human Wildlife Conflict   |  |
| All values systematically identified and assessed and monitored.           | Very good |          | 4. M.Sc. thesis on floristic diversity<br>5. M.Sc. thesis by Benoy Roy on Water mangt. in kitam Bird Sanctuary by Doon P.G. College. |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)          | Remarks  |
|---|-----------|----------|--------------------------------|--|
| Threats not systematically documented or assessed.            | Poor      |          | Management Plan Office records | Identification of threats is sketchy. However, there are important official records/registers which provide information on some of the threats like fire, weeds, offence encroachment and local dependence on forest resources. Similarly, information on human - wildlife conflict is also available in the office records. All this information need to be compiled analyzed and incorporated in the management plan under revision. |
| Threats generally identified but not systematically assessed. | Fair      | ✓        | Discussions with PA staff      |  |
| Most threats systematically identified and assessed.          | Good      |          |                                |  |
| All threats systematically identified and assessed.           | Very good |          |                                |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------|----------|--|---|
| The site has extensive human and biotic interference. | Poor        |          | Office records and discussion with PA managers, his staff, EDC members and representatives of Monal Club | Even though there is no major pressure on the forest, there is some times trespass of the local people from the adjoining villages and occasional fires. There is also some problem of firewood collection. However, overall the pressures are being managed with the help of local EDCs and NGOs |
| The site has some human and biotic interference.      | Fair        |          |  |   |
| The site has little human and biotic interference.    | <b>Good</b> | ✓        |  |   |
| The site has no human and biotic interference.        | Very good   |          |  |   |

## 2. Planning

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-------------|----------|---|---|
| Site not identified correctly or categorized.  | Poor        |          | Existing Mangt. Plan and maps. Discussion of PA managers, his staff and representatives of Monal Club | Due to small size (6km <sup>2</sup> ) of PA, no zonation has been attempted by the management. Ground verification of the WLS area is currently being done. This PA has good connectivity with the adjoining territorial division. However, the management is mainly focused to the PA. |
| Site identified correctly but not categorized.                                       | Fair        |          |   |   |
| Site identified correctly but not systematically categorized.                        | <b>Good</b> | ✓        |   |   |
| Site identified correctly and systematically categorized with proper zonation plans. | Very good   |          |   |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-------------|----------|---|---|
| No relevant Management Plan in place.   | Poor        |          | Existing Mangt. Plan, Draft revised mangt. Plan Discussion with PA managers | This is the first management Plan prepared in 2008, plan is not comprehensive and therefore under revision. |
| Management Plan exist but not comprehensive.  | <b>Fair</b> | ✓        |   |   |
| Site has a comprehensive Management Plan.   | Good        |          |   |   |
| Site has a comprehensive, science based Management Plan prepared through a participatory process. | Very good   |          |   |   |

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

| Condition   | Category (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------------|--|---|
| No process in place for systematic review and update of Management Plan.                              | Poor              | Existing Mangt. Plan Draft revised mangt. Plan Discussion with PA managers | This is the first management plan prepared in 2008; plan is being revised for the first time. Therefore, it is difficult to comment upon the systematic updation of plan at this stage. |
| Management Plan sometimes updated in adhoc manner.  | Fair              |  |   |
| Management Plan routinely and systematically updated.   | Good              |  |   |
| Management Plan routinely, systematically and scientifically updated through a participatory process. | Very good         |  |   |

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

| Condition  | Category (Tick ✓) | Reference document(s)                   | Remarks   |
|--|-------------------|---|---|
| Sites does not safeguard the threatened biodiversity values.       | Poor              | Existing and draft revised Managt. Plan | The strategies provided in the plan are general and even implementation is adhoc depending upon the availability of fund. Connectivity areas do exist but are outside the PA boundaries. Safeguarding of the threatened biodiversity values requires more clarity and action. |
| Sites safeguards a few threatened biodiversity values.             | Fair              |   |   |
| Sites safeguards a large number of threatened biodiversity values. | Good              |   |   |
| Sites safeguards all threatened biodiversity values.               | Very good         |   |   |

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

| Condition  | Category (Tick ✓) | Reference document(s)                       | Remarks   |
|--|-------------------|---|---|
| Little, if any opportunity for stakeholder participation in planning.            | Poor              | Mangt. plan and discussion with PA managers | The participation of stakeholders during plan preparation has been limited and mostly this exercise was an internal affair of the planning officials. |
| Stakeholders participate in some planning.                                       | Fair              |   |   |
| Stakeholders participate in most planning processes.                             | Good              |   |   |
| Stakeholders routinely and systematically participate in all planning processes. | Very good         |   |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-------------|----------|---|--|
| Habitat restoration programmes are entirely adhoc.                               | Poor        |          | Existing and draft Mangt. Plan and discussion with PA staff and officials | Except for offence and fire, there is no specific periodic monitoring going on. The plan is under revision and monitoring protocols for habitat restoration are proposed to be incorporated for habitat enrichment, water management and weed eradication. |
| Limited planning and monitoring programmes are in place for habitat restoration. | <b>Fair</b> | ✓        |   |  |
| Habitat restoration programmes are generally well planned and monitored.         | Good        |          |   |  |
| Habitat restoration programmes are thoroughly planned and monitored.             | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                             | Remarks  |
|---|-------------|----------|---|--|
| Site has no protection strategy.  | Poor        |          | Existing and draft management Plan and discussion | Protection strategy is adhoc because of shortage of staff, less clarity of roles of staff and also due to jurisdiction even outside PA particularly to deal with problem of human wildlife conflict. There is also a fire watch tower located at a strategic point of the sanctuary which is used for detection of fire during season. |
| Site has an adhoc protection strategy.                                  | <b>Fair</b> | ✓        |   |  |
| Site has a comprehensive protection strategy but is not very effective. | Good        |          |   |  |
| Site has a comprehensive and very effective protection strategy.        | Very good   |          |   |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-------------|----------|---|--|
| Human-wildlife conflicts are rampant.                                    | Poor        |          | Existing and draft Mangt. Plan and discussion with PA manager and Human wildlife conflict registers | The problem of crop damage due to wild pig and other ungulates is an issue. One solar fencing on boundary of the PA and adjoin villages has been established which is providing some relief. However, animals do come out to the habitations from forest patches outside the PA. There is a system of paying compensation which is inadequate due to limited funds and delay in release of finds. Cases of human injury and death are very rare. |
| Site has been able to mitigate few human-wildlife conflicts.             | <b>Fair</b> | ✓        |   |  |
| Site has been able to mitigate many human-wildlife conflicts.            | Good        |          |   |  |
| Site has been able effective in mitigating all human-wildlife conflicts. | Very good   |          |   |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Site not integrated into a wider network/ landscape.                   | Poor      |          | Existing and draft Mangt. Plan and discussion with staff and officials | As explained above area small and it has reasonable connectivity to the adjoining territorial division areas. However, the management planning does not extend beyond the boundaries of PA |
| Some limited attempts to integrate the site into a network/ landscape. | Fair      | ✓        |  |  |
| Site is generally quite well integrated into a network/ landscape.     | Good      |          |  |  |
| Site is fully integrated into a wider network/ landscape.              | Very good |          |  |  |

**3. Inputs**

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Few, if any, personnel explicitly allocated for PA management.  | Poor      |          | Existing and draft Mangt. Plan and discussion with staff and officials | Existing strengths of forest guards is three against sanctioned strength of five. There is no proper deployment of staff for different duties. Staff are also looking after the areas of territorial division with respect to wildlife matters due to overlapping jurisdictions. Human - wildlife conflict remains one of the major responsibility of the staff and 70% of their time goes for this issue particularly during conflict seasons. The resources are meagre. The equipment is inadequate. There is no system of training of staff in wildlife matters. |
| Some personnel explicitly allocated for PA management but not systematically linked to management objectives. | Fair      | ✓        |  |   |
| Some personnel explicitly allocated towards achievement of specific management objectives.                    | Good      |          |  |   |
| Adequate personnel explicitly allocated towards achievement of specific management objectives.                | Very good |          |  |   |

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

| Condition   | Category | (Tick ✓) | Reference document(s)                           | Remarks   |
|---|----------|----------|---|---|
| Few, if any, resources explicitly allocated for PA management.  | Poor     |          | Management plan and discussion with PA managers | There is no vehicle even with the Range officer. Half of the Wireless sets are under repair. Funds for movement of vehicles are erratic. However, this year some infrastructure development has started using JICA funds. |
| Some resources explicitly allocated for PA management but not systematically linked to management objectives. | Fair     | ✓        |   |   |
| Some resources explicitly allocated towards achievement   | Good     |          |   |   |

|  |           |  |  |  |
|--|-----------|--|--|--|
| of specific management objectives.   |           |  |  |  |
| Adequate resources explicitly allocated towards achievement of specific management objectives. | Very good |  |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s) | Remarks  |
|---|-----------|----------|-----------------------|--|
| Resource allocation is adhoc, funds are inadequate and seldom released in time and not utilized.  | Poor      |          | Management Plan       | Funds in general are inadequate and erratic. Therefore, many of the priority actions do not materialize. This year using JICA funds, some efforts are being made to address priority action of infrastructure development for protection staff, tourism facility and interpretation. |
| Some specific allocation for management of priority action. Funds are inadequate and there is some delay in release, partially utilized.          | Fair      | ✓        |                       |  |
| Comprehensive planning and allocation that meets the most important objectives. Generally funds released with not much delay and mostly utilized. | Good      |          |                       |  |
| Comprehensive planning and allocation of resources for attainment of most objectives. Funds generally released on-time and are fully utilized.    | Very good |          |                       |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                         | Remarks  |
|--|-----------|----------|---|--|
| NGOs contribute nothing for the management of the site.  | Poor      |          | Discussion with Monal Club NGO and PA manager | Local NGOs that is Monal and Lakshya club are participating in some of the protection activities. However there is no contribution in terms of money from any NGO. |
| NGOs make some contribution to management of the site but opportunities for collaboration are not systematically explored. | Fair      | ✓        |   |  |
| NGOs contributions are systematically sought and negotiated for the management of some site level activities.              | Good      |          |   |  |
| NGOs contributions are systematically sought and negotiated for the management of many site level activities.              | Very good |          |   |  |

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

| Condition                               | Category  | (Tick ✓) | Reference document(s)        | Remarks   |
|---|-----------|----------|------------------------------|---|
| Resources insufficient for most tasks.  | Poor      |          | Discussions with PA managers | Resources are inadequate and erratic as per the version of PA manager. There is a hope of fund contribution from JICA after the revision of the plan. During this year, project is funding some of the infrastructure development activities. |
| Resources sufficient for some tasks.    | Fair      | ✓        |                              |   |
| Resources sufficient for most tasks.    | Good      |          |                              |   |
| Resources are in excess for most tasks. | Very good |          |                              |   |

## 4. Process

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                         | Remarks  |
|--|-----------|----------|---|--|
| Very few trained officers and frontline staff in the site.                     | Poor      | ✓        | Management Plan and Discussion with PA manger | There is practically no staff trained in wildlife management. Also there is no system of such trainings. |
| Few trained officers and frontline staff, who are posted in the site.          | Fair      |          |   |  |
| A large number of trained officers and frontline staff are posted in the site. | Good      |          |   |  |
| All trained managers and frontline staff posted in the site.                   | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)                                    | Remarks  |
|---|-----------|----------|--|--|
| No linkage between staff performance management and management objectives.  | Poor      |          | Management Plan and Discussion with PA manager and staff | There is no such system in place. However state level Chief Minister's award for best performing staff does exist. |
| Some linkage between staff performance management and management objectives, but not consistently or systematically assessed. | Fair      | ✓        |  |  |
| Performance management for most staff is directly linked to achievement of relevant management objectives.                    | Good      |          |  |  |
| Performance management of all staff is directly linked to achievement of relevant management objectives.                      | Very good |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                                    | Remarks   |
|--|-----------|----------|--|---|
| Little or no public participation in PA management.  | Poor      |          | Management Plan and Discussion with PA manager and staff | There is some participation of EDCs but it is mainly for activities for them. EDC members do participate and join the staff for protection activities. As such there is no system of participation for the general activities of PA management. Monal Club and Akshya Club also occasionally participate in the programmes of PA. |
| Opportunistic public participation in some aspects of PA management.                         | Fair      | ✓        |  |   |
| Systematic public participation in most aspects of PA management.                            | Good      |          |  |   |
| Comprehensive and systematic public participation in all important aspects of PA management. | Very good |          |  |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)                            | Remarks  |
|---|-----------|----------|--|--|
| No systematic approach to handling complaints.  | Poor      |          | Discussion with PA managers and visitor register | There is no system in place in the PA as the area is not opened for regular visitors. However, there is a guest register which is used for taking suggestions of the officials and other visitors of the park. At the DFO level, there is the normal system of complain redressal. |
| Complaints handling system operational but not responsive to individual issues and limited follow up provided.          | Fair      | ✓        |  |  |
| Coordinated system logs and responds effectively to most complaints.  | Good      |          |  |  |
| All complaints systematically logged in coordinated system and timely response provided with minimal repeat complaints. | Very good |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                                       | Remarks  |
|--|-----------|----------|---|--|
| No livelihood issues are addressed by PA management.   | Poor      |          | Management plan, discussion with PA manager and EDC members | Some activities for providing supplemental incomes to few EDCs have been put in place. These include community assets in the form of furniture, utensils etc. which EDCs can hire to the members for their local functions. Members of some of the EDCs have also been provided LPG cylinders. |
| Few livelihood issues are addressed by PA management.  | Fair      | ✓        |   |  |
| Substantial livelihood issues are addressed by PA management.  | Good      |          |   |  |
| Livelihood issues of resource dependent communities especially women are addressed effectively by PA managers. | Very good |          |   |  |

## 5. Outputs

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                                       | Remarks   |
|--|-----------|----------|---|---|
| Little or no information on PA management publicly available.  | Poor      |          | Management plan, discussion with PA manager and EDC members | There is one website for forest department which has basic information about the PA. Publicity materials were created but it is out of stock, therefore as such this component is weak. In the revised management plan this issues are being addressed. |
| Publicly available information is general and has limited relevance to management accountability and the condition of public assets. | Fair      | ✓        |   |   |
| Publicly available information provides detailed insight into major management issues for most PAs or groups of PAs.                 | Good      |          |   |   |
| Comprehensive reports are routinely provided on management and condition of public assets in all PAs or groups of PAs.               | Very good |          |   |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)                                       | Remarks  |
|--|-----------|----------|---|--|
| Visitor services and facilities are at odds with relevant PA category and/or threaten PA values.         | Poor      |          | Management plan, discussion with PA manager and EDC members | Visitor services are as such very poor. Recently a building for resting of day visitors is under construction. Building for the interpretation centre was started during previous years but it not be completed due to lack of funds. There are few trails for the visitors and the members of the Monal Club and Lakshya Club provide some guide facilities for the visitors. |
| Visitor services and facilities generally accord with relevant PA category and don't threaten PA values. | Fair      | ✓        |   |  |
| All visitor services and facilities accord with relevant PA category and most enhance PA values.         | Good      |          |   |  |
| All visitor services and facilities accord with relevant PA category and enhance PA values.              | Very good |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                                       | Remarks   |
|---|-------------|----------|---|---|
| Little or no systematic evaluation or routine reporting of trends.  | Poor        |          | Management plan, discussion with PA manager and EDC members | This system is weak. There is no population estimation exercise carried out so far. Only available information is on listing of plants, birds and water structures. |
| Some evaluation and reporting undertaken but neither systematic nor routine.  | <b>Fair</b> | ✓        |   |   |
| Systematic evaluation and routine reporting of management related trends undertaken.  | Good        |          |   |   |
| Systematic evaluation and comprehensive reporting of trends undertaken and attempts made at course corrections as relevant. | Very good   |          |   |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                                       | Remarks   |
|---|-------------|----------|---|---|
| No systematic inventory or maintenance schedule.  | Poor        |          | Management plan, discussion with PA manager and EDC members | There is no systematic arrangement and schedule for maintenance. Some information about assets exists in records. Maintenance depends upon the availability of funds. |
| Inventory maintenance is adhoc and so is the maintenance schedule.  | <b>Fair</b> | ✓        |   |   |
| Systematic inventory provides the basis for maintenance schedule but funds are inadequately made available. | Good        |          |   |   |
| Systematic inventory provides the basis for maintenance schedule and adequate funds are made available.     | Very good   |          |   |   |

## 6. Outcomes

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| Threatened/ endangered species populations declining.                           | Poor      |          | Management plan, discussion with PA manager and EDC members and local NGOs. | As per the discussion with staff, EDC members and Monal Club and Lakshya Club, the population of major species is increasing. However, there is no record about the periodic population estimation. In fact, the available information is only through research reports. |
| Some threatened/ endangered species populations increasing, most others stable. | Fair      | ✓        |   |  |
| Most threatened/ endangered species populations increasing, most others stable. | Good      |          |   |  |
| All threatened/ endangered species populations either increasing or stable.     | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| Threats to the Site have not abated but have enhanced.  | Poor      |          | Management plan, discussion with PA manager and EDC members and NGO representatives | As per the discussion with NGO representatives and EDC members, the problem of illicit felling and poaching has drastically reduced after establishment of this sanctuary. However, there are no records for any of the threat parameters trends. |
| Some threats to the Site have abated, others continue their presence  | Fair      | ✓        |   |   |
| Most threats to the Site have abated. The few remaining are vigorously being addressed  | Good      |          |   |   |
| All threats to the Site have been effectively contained and an efficient system is in place to deal with any emerging situation | Very good |          |   |   |

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

| Condition                                   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| Expectations of visitors generally not met. | Poor      |          | Management plan, discussion with PA manager and EDC members and NGO representatives | As such there is no established system of visitors and visitor management. From the guest registers being maintained in the WLS, it is revealed that generally the visitors go satisfied from this area. |
| Expectations of many visitors are met.      | Fair      | ✓        |   |  |
| Expectations of most visitors are met.      | Good      |          |   |  |
| Good expectations of most visitors are met. | Very good |          |   |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                | Remarks   |
|--|-------------|----------|--------------------------------------|---|
| Local communities are hostile.                     | Poor        |          | Discussion with EDC members and Club | Local communities seen to be supportive in general due to ongoing ecodevelopment activities being carried out by Park Management and functional local NGOs. One of the major issue concerning local communities is crop damage which requires more interventions and timely adequate funding support. |
| Some are supportive.                               | Fair        |          |                                      |   |
| Most locals are supportive of PA management.       | <b>Good</b> | ✓        |                                      |   |
| All local communities supportive of PA management. | Very good   |          |                                      |   |



## Assessment Criteria for addressing issues relating to Climate Change & Carbon capture in the Protected Areas

### 1. Additional Criteria on Climate Change: Is the protected area being consciously managed to adapt to climate change?

| Condition  | Category  | (Tick ✓) | Comment/Explanation   | Next Steps  |
|--|-----------|----------|---|---|
| There have been no efforts to consider adaptation to climate change in management  | Poor      |          | There is no such effort directly except for the protection and ecodevelopment programme which indirectly contribute for climate change. | Specific guidelines need to be issued at national and state level to address the issues of climate change in the management plan and activities. In the revised management plan, these issues should be addressed |
| Some initial thought has taken place about likely impacts of climate change, but this has yet to be translated into management plans                     | Fair      | ✓        |   |   |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management. | Good      |          |   |   |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented                     | Very good |          |   |   |

### 2. Additional Criteria on Climate Change: Is the protected area being consciously managed to prevent carbon loss and to encourage further carbon capture?

| Condition  | Category  | (Tick ✓) | Comment/Explanation  | Next Steps   |
|--|-----------|----------|--|--|
| Carbon storage and carbon dioxide capture have not been considered in management of the protected area   | Poor      |          | There is no such initiative and concern in the management. However, the protection and supporting activity of community livelihoods through ecodevelopment and ecotourism will help in enhanced carbon capture | Specific guidelines need to be issued at national and state level to address the issues of climate change in the management plan and activities. |
| Carbon storage and carbon dioxide capture have been considered in general terms, but has not yet been significantly reflected in management    | Fair      | ✓        |  |  |
| There are active measures in place to reduce carbon loss from the protected area, but no conscious measures to increase carbon dioxide capture | Good      |          |  |  |
| There are active measures in place both to reduce carbon loss from the protected area and to increase carbon dioxide capture                   | Very good |          |  |  |

## MEE Score Card

| Framework Element Number | Framework Element Name | Number of Questions (a) | Maximum Mark per question (b) | Total (a x b) | Marks obtained for the Element | Overall Score |
|--------------------------|------------------------|-------------------------|-------------------------------|---------------|--------------------------------|---------------|
| 1.                       | Context                | 03                      | 10                            | 30            | 17.5                           | <b>51.67%</b> |
| 2.                       | Planning               | 09                      | 10                            | 90            | 47.5                           |               |
| 3.                       | Inputs                 | 05                      | 10                            | 50            | 25                             |               |
| 4.                       | Process                | 05                      | 10                            | 50            | 22.5                           |               |
| 5.                       | Outputs                | 04                      | 10                            | 40            | 20                             |               |
| 6.                       | Outcomes               | 04                      | 10                            | 40            | 22.5                           |               |
| <b>Total</b>             |                        | <b>30</b>               |                               | <b>300</b>    | <b>155</b>                     |               |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above



## Management Strengths, Weaknesses and Actionable Points of Kitam Wildlife Sanctuary

### Management Strengths

1. Small area with reasonable connectivity to the adjoining landscape. Due to good accessibility and nearness to other tourism destination, it has a potential of developing into a good ecotourism and birding destination.
2. Adequate baseline information exists in the form of research report and other publications.
3. There is adequate support of local communities, particularly due to the presence of two active local NGOs and ongoing ecodevelopment initiatives by the management under JICA project.

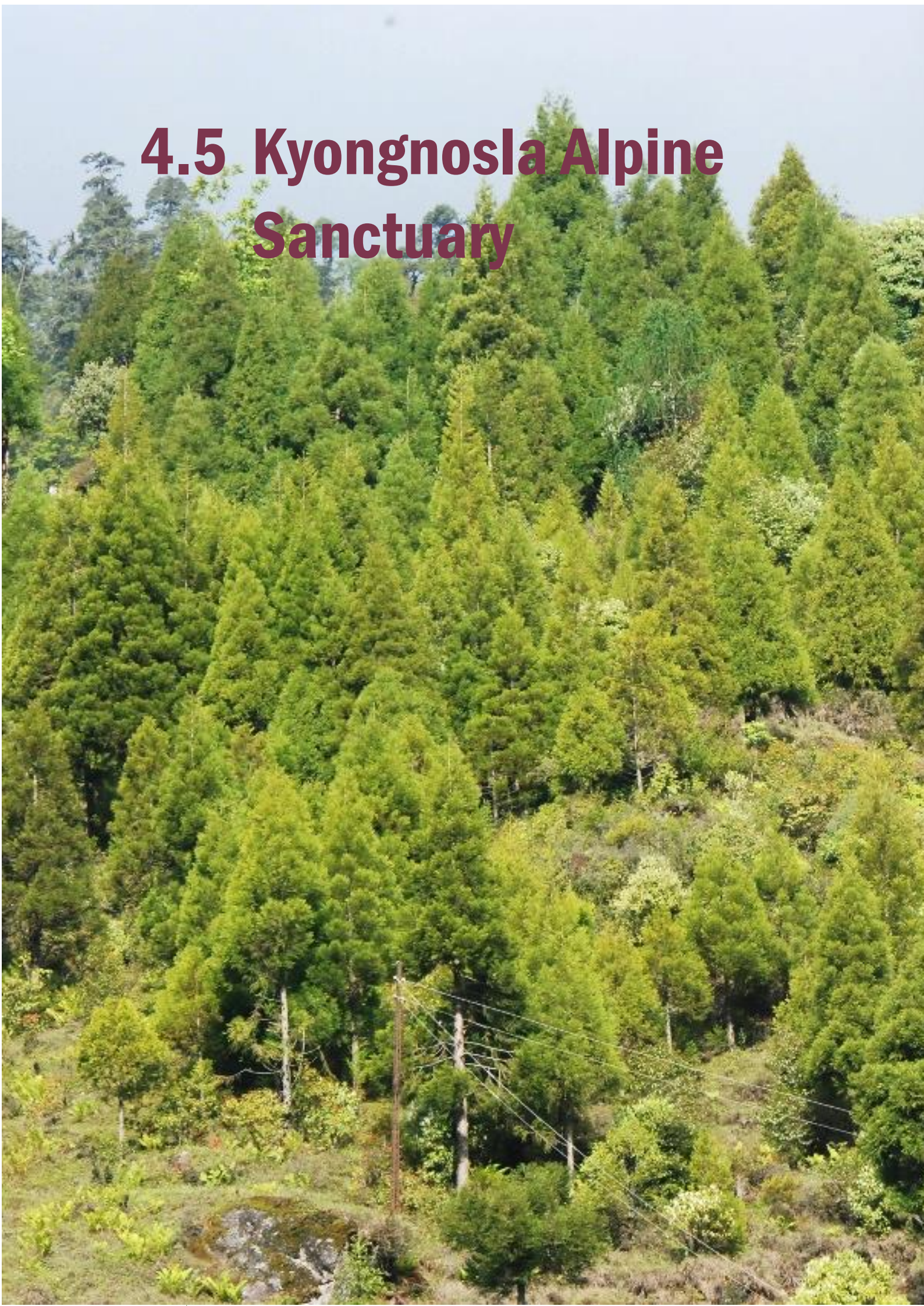
### Management Weaknesses

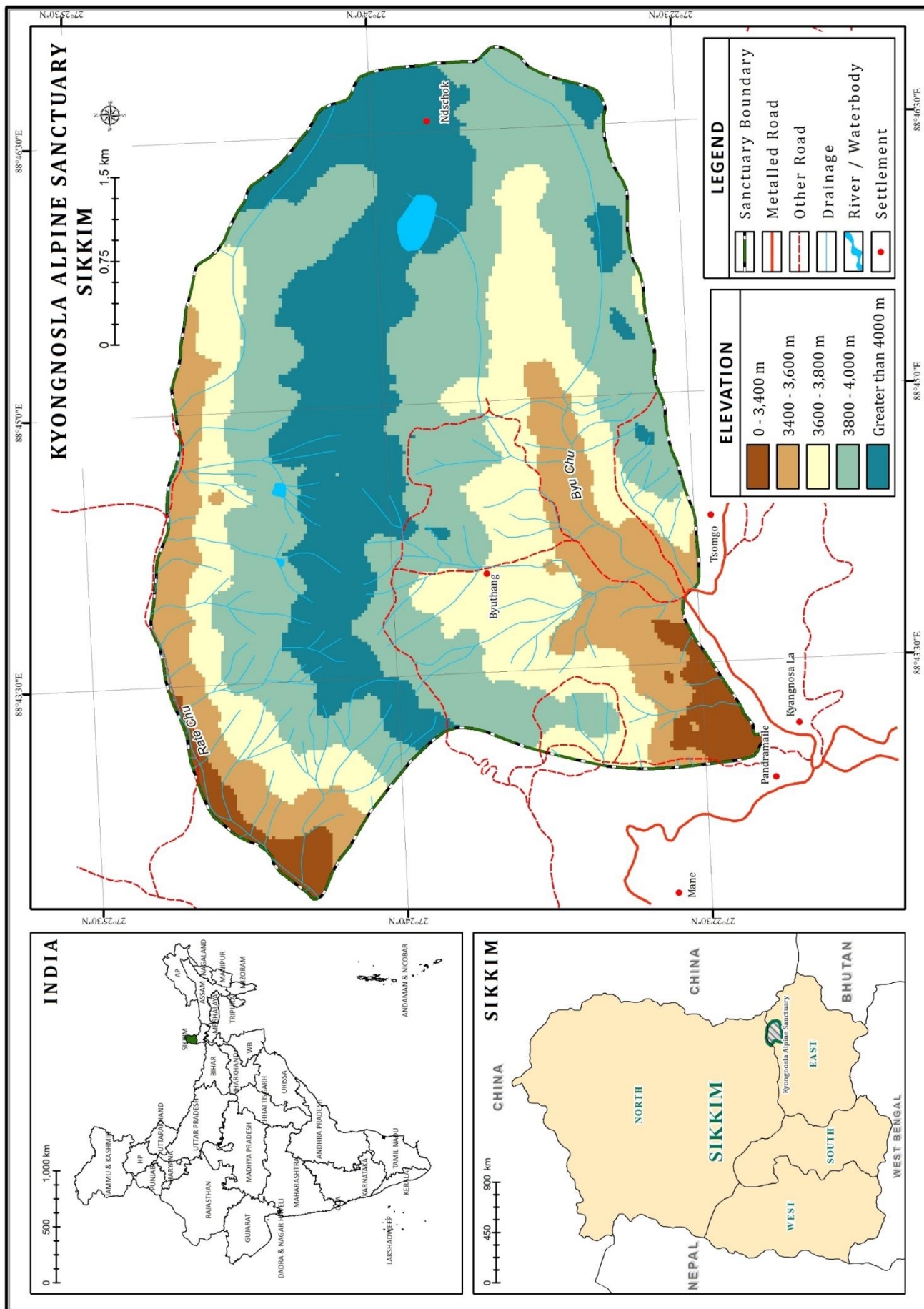
1. Management plan is not comprehensive.
2. The staff strength is inadequate with dual responsibility of PA as well as outside areas. They are also not trained in wildlife management.
3. Resources are inadequate in terms of funds and equipment.
4. There is some problem of human-wildlife conflict. Also occasional trespassing, firewood collection and fires remain as important issues.
5. Habitats are not properly identified and categorize and there is no system of monitoring.
6. Visitor facilities are inadequate and as such there is no system of visitor management.

### Actionable points

1. The management plan need to be revised with due participation of stakeholders and also making use of the available baseline information from research reports and publications.
2. PA has potential of developing into an important ecotourism and birding destination due to its location and accessibility. Steps should be taken to develop this area as tourism destination with adequate interpretive and visitor management facilities.
3. The existing advantage of support of local communities and NGOs should be continued and further strengthen by improving the ongoing ecodevelopment programme and addressing human-wildlife conflict issues.
4. Habitat identification and categorization should be carried out and proper system of monitoring with different protocols need to be put in place.
5. The resource mobilization strategy for the PA from different sources needs to be developed and put in place.
6. The strength of the staff needs to be improved and a system of training of staff should be initiated and replicated periodically.

## 4.5 Kyongnosla Alpine Sanctuary





| Kyongnosla Alpine Sanctuary: At a Glance |                                    |   |
|--|------------------------------------|---|
| S. No.                                   | Contents                           | Details   |
| 1.                                       | Notification/Year of Establishment | 45/WL/83/625 dated 29.08.19984  |
| 2.                                       | Location                           | Kyongnosla Wildlife Division, East Sikkim   |
| 3.                                       | Area                               | 31 sq. km   |
| 4.                                       | Biogeographic location             | 2C (Central Himalayas)  |
| 5.                                       | Latitude, Longitude & Altitude     | Lat: 27°22'37"N, Long: 88°44'28 E, Alt: 3292 – 4116m  |
| 6.                                       | Nearest Town                       | Gangtok   |
| 7.                                       | Major Forest Types                 | East Himalayan sub-alpine birch/fir forest and Birch-Rhododendron scrub forest  |
| 8.                                       | Key Flora                          | <i>Abies densa</i> , <i>Juniperus wallichiana</i> , <i>Sorbus foliolosa</i> , <i>Rhododendron thomonii</i> , <i>R. campylocarpus</i> , <i>R. aeruginosum</i> , <i>R. barbatukn</i> , <i>R. glaucophyllum</i> , <i>R. hodsonii</i> , <i>r. arboretum</i> , <i>R. aeruginosum</i> , <i>R. cinnabnarium</i> , etc. |
| 9.                                       | Key Fauna                          | Red Panda, Musk Deer, Serow, Satyr Tragopan, Himalayan Black Bear, Goral, Monal Pheasant, Blood Pheasant  |
| 10.                                      | Fringe Area Villages               | Temporary settlements of Local communities namely Nepalese, Bhutia and Lepcha inhabit the fringe areas of the sanctuary   |
| 11.                                      | Major Threats                      | Erosion and Floods, Snow, Weeds, Wind, Grazing, Fire, Poaching, Grazing, Tourism  |
| 12.                                      | Others                             | Heavy Pressure of Tourism going for Nathula passing the Sanctuary   |

The Kyongnosla Alpine Sanctuary is situated in east Sikkim around the area adjoining to Tsomgo Lake along the Nathula Road on the way to Nathula Pass for China and shares international boundary with Tibet Autonomous Region of China in the North. The WLS is famous for rare and endangered alpine flora, wide variety of rhododendrons and various associated fauna. The sanctuary has tremendous significance for its watershed value, being the only perennial source of water in this region. There are steep cliffs that are snowbound throughout the year, as also open areas used by livestock in summer, until a recent ban by the government on grazing in forest areas. This PA is also an IBA and is a popular tourist destination barely 40 km from the State capital, Gangtok. The major threats in this sanctuary include human bear conflict, feral dogs and pressure of tourists going to Nathula pass.

## MEE Assessment Criteria form of Kyongnosla Alpine Sanctuary, May 2015

Information collected by the WII, Team.

### 1. Context

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Values not systematically documented, assessed or monitored.               | Poor        |          | Management plan for 2008-09, WWF Report on Red Panda and discussions with PA manager and staff | Values in terms of flora, vegetation and fauna generally documented. However, there is still a scope of systematic documentation of other conservation values like catchment, social and economic, etc. These values are not assessed and as such there is no system of regular monitoring. |
| Values generally identified but not systematically assessed and monitored. | <b>Fair</b> | ✓        |  |   |
| Most values systematically identified and assessed and monitored.          | Good        |          |  |   |
| All values systematically identified and assessed and monitored.           | Very good   |          |  |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-------------|----------|--|--|
| Threats not systematically documented or assessed.            | Poor        |          | Management plan for 2008-09, and discussions with PA manager and staff | The sanctuary has the problem of feral dogs related to the presence of Army establishment, Border Roads Organisation (BRO), Indo Tibetan Border Police (ITBP) establishments as well some local establishments. The feral dogs are often responsible for killing of wild herbivores. Destruction of habitat due to illegal felling and NTFP collection is another issue. Much of this problem is due to migrant labour. There is also problem of animals straying out. There are many cases of Black Bear rescued from the Habitations in the past. Area is also impacted by growing tourism along the boundaries. The threats are documented but need to be assessed properly and then monitored systematically |
| Threats generally identified but not systematically assessed. | <b>Fair</b> | ✓        |  |  |
| Most threats systematically identified and assessed.          | Good        |          |  |  |
| All threats systematically identified and assessed.           | Very good   |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| The site has extensive human and biotic interference. | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and local community representatives | Even though there is no establishment inside the WLS there are biotic pressures due the presence of establishments of Army, ITBP, BRO, etc. as well as some local establishments on the fringes. Tourism is another source of biotic interference as the road to Nathula Pass along the boundary of WLS and at few places there are local small markets/shops for the tourists and also the animal movement extends on the other side of the WLS which is a reserve forest. |
| The site has some human and biotic interference.      | Fair      | ✓        |   |   |
| The site has little human and biotic interference.    | Good      |          |   |   |
| The site has no human and biotic interference.        | Very good |          |   |   |

## 2. Planning

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Site not identified correctly or categorized.  | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | Site identified but there are surrounding areas which provide habitat to the straying animals and these areas are of the status of RF which needs to be either included in the WLS or integrated at the landscape level. There is also no categorization of the area into different zones. |
| Site identified correctly but not categorized.                                       | Fair      | ✓        |   |  |
| Site identified correctly but not systematically categorized.                        | Good      |          |   |  |
| Site identified correctly and systematically categorized with proper zonation plans. | Very good |          |   |  |

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

| Condition                                    | Category | (Tick ✓) | Reference document(s)  | Remarks   |
|--|----------|----------|--|---|
| No relevant Management Plan in place.        | Poor     |          | Management plan for 2008-09, WWF-India Report on Red Panda and discussions | Plan exists but it is sketchy. There is need to strengthen the Part I of the plan incorporating the existing research information, quantification |
| Management Plan exist but not comprehensive. | Fair     | ✓        |  |   |
| Site has a comprehensive Management Plan.    | Good     |          |  |   |

|   |           |  |                           |   |
|---|-----------|--|---------------------------|---|
| Site has a comprehensive, science based Management Plan prepared through a participatory process. | Very good |  | with PA manager and staff | of threats and Part II of the plan with proper zonation, zone plans and up gradation of the theme plans. This is also an opportunity of strengthening the processes of management planning. Conservation values also have scope of improvement both in terms of documentation and assessment. |
|---|-----------|--|---------------------------|---|

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-----------|----------|--|--|
| No process in place for systematic review and update of Management Plan.                              | Poor      | ✓        | Management plan for 2008-09, and discussions with PA manager and staff | This is the first effort of preparing a management plan and it is difficult to comment upon the process of updation. |
| Management Plan sometimes updated in adhoc manner.  | Fair      |          |  |  |
| Management Plan routinely and systematically updated.   | Good      |          |  |  |
| Management Plan routinely, systematically and scientifically updated through a participatory process. | Very good |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-----------|----------|--|---|
| Sites does not safeguard the threatened biodiversity values.       | Poor      |          | Management plan for 2008-09, WWF-India Report on Red Panda and discussions with PA manager and staff | Current WLS is part of a larger patch of similar ecosystem. Therefore, this safeguards the biodiversity values to some extent but there are possibilities of better protection of values and biodiversity if more areas from adjoining reserve forest of East Sikkim Division (Kyongnosla Range) are included in the sanctuary or integrated at landscape level. This probably should help in better dispersal of animal populations and perhaps mitigation of human-wildlife conflicts to some extent. |
| Sites safeguards a few threatened biodiversity values.             | Fair      | ✓        |  |   |
| Sites safeguards a large number of threatened biodiversity values. | Good      |          |  |   |
| Sites safeguards all threatened biodiversity values.               | Very good |          |  |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Little, if any opportunity for stakeholder participation in planning.            | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | During planning process there had been consultations with stakeholders. Panchayats had given their consent for the activities of the management plan. The participation of stakeholders has been further strengthened through the process of microplanning. However, some of the important stakeholders like Army, ITBP and Tourism Department could also be involved in the plan. |
| Stakeholders participate in some planning.                                       | Fair      | ✓        |   |  |
| Stakeholders participate in most planning processes.                             | Good      |          |   |  |
| Stakeholders routinely and systematically participate in all planning processes. | Very good |          |   |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-----------|----------|---|---|
| Habitat restoration programmes are entirely adhoc.                               | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | Habitat restoration is limited to maintenance of water holes, habitat enrichment and maintenance of salt licks. The planning and monitoring is adhoc. |
| Limited planning and monitoring programmes are in place for habitat restoration. | Fair      | ✓        |   |   |
| Habitat restoration programmes are generally well planned and monitored.         | Good      |          |   |   |
| Habitat restoration programmes are thoroughly planned and monitored.             | Very good |          |   |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| Site has no protection strategy.  | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | There are regular patrolling trails in the sanctuary. Protection had been a problem in the past, now it has improved significantly because of better patrolling systems and efficient information and support from adjoining communities. |
| Site has an adhoc protection strategy.                                  | Fair      |          |   |   |
| Site has a comprehensive protection strategy but is not very effective. | Good      | ✓        |   |   |
| Site has a comprehensive and very effective protection strategy.        | Very good |          |   |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Human-wildlife conflicts are rampant.                                    | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | In spite of constraint of man power and formal training, the park management has been able to handle the problem of human - wildlife conflict reasonably. In this process they have built linkages with Veterinarians of the Gangtok zoo and also procured required cages and equipment. |
| Site has been able to mitigate few human-wildlife conflicts.             | Fair      |          |   |  |
| Site has been able to mitigate many human-wildlife conflicts.            | Good      | ✓        |   |  |
| Site has been able effective in mitigating all human-wildlife conflicts. | Very good |          |   |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-----------|----------|---|---|
| Site not integrated into a wider network/ landscape.                   | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | The WLS has large area as reserve forest which provides equally good habitats to the wild animals and could act as dispersal habitat as well as connectivity with Panglakhha WLS. |
| Some limited attempts to integrate the site into a network/ landscape. | Fair      | ✓        |   |   |
| Site is generally quite well integrated into a network/ landscape.     | Good      |          |   |   |
| Site is fully integrated into a wider network/ landscape.              | Very good |          |   |   |

## 3. Inputs

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| Few, if any, personnel explicitly allocated for PA management.  | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | Keeping in mind the problem of human - wildlife conflict and interface issues the staff is inadequate. Systematic deployment is lacking and many times the deployment becomes adhoc. |
| Some personnel explicitly allocated for PA management but not systematically linked to management objectives. | Fair      | ✓        |   |  |
| Some personnel explicitly allocated towards achievement of specific management objectives.                    | Good      |          |   |  |
| Adequate personnel explicitly allocated towards achievement of specific management objectives.                | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-----------|----------|--|--|
| Few, if any, resources explicitly allocated for PA management.  | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representative | The infrastructure for accommodation of staff and offices is poor. There is no vehicle for Range. Therefore allocation of resources is adhoc |
| Some resources explicitly allocated for PA management but not systematically linked to management objectives. | Fair      | ✓        |  |  |
| Some resources explicitly allocated towards achievement of specific management objectives.                    | Good      |          |  |  |
| Adequate resources explicitly allocated towards achievement of specific management objectives.                | Very good |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)       | Remarks  |
|---|-----------|----------|-----------------------------|--|
| Resource allocation is adhoc, funds are inadequate and seldom released in time and not utilized.  | Poor      | ✓        | Discussions with PA manager | Major funding source is from Government of India. State is able to pay only for salaries. The release of funds usually late. 13 <sup>th</sup> Finance commission had provided other source of funding which will be closed from this year. Allocation from CAMPA is also adhoc. Therefore it is difficult to allocate the resources to priority actions. |
| Some specific allocation for management of priority action. Funds are inadequate and there is some delay in release, partially utilized.          | Fair      |          |                             |  |
| Comprehensive planning and allocation that meets the most important objectives. Generally funds released with not much delay and mostly utilized. | Good      |          |                             |  |
| Comprehensive planning and allocation of resources for attainment of most objectives. Funds generally released on-time and are fully utilized.    | Very good |          |                             |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| NGOs contribute nothing for the management of the site.  | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | There is no financial contribution by NGOs. However WWF and ATREE have contributed for this area in terms of research. |
| NGOs make some contribution to management of the site but opportunities for collaboration are not systematically explored. | Fair      | ✓        |   |  |
| NGOs contributions are systematically sought and negotiated for the management of some site level activities.              | Good      |          |   |  |
| NGOs contributions are systematically sought and negotiated for the management of many site level activities.              | Very good |          |   |  |

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

| Condition                               | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Resources insufficient for most tasks.  | Poor      | ✓        | Management plan for 2008-09, and discussions with PA manager, staff and community representative | As per discussion the manager thinks the resources to be in adequate. |
| Resources sufficient for some tasks.    | Fair      |          |  |   |
| Resources sufficient for most tasks.    | Good      |          |  |   |
| Resources are in excess for most tasks. | Very good |          |  |   |

## 4. Process

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Very few trained officers and frontline staff in the site.                     | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | There is no staff formally trained in Wildlife Management. However, some of the forest guards have been trained through internal capacity building programmes. |
| Few trained officers and frontline staff, who are posted in the site.          | Fair      | ✓        |   |  |
| A large number of trained officers and frontline staff are posted in the site. | Good      |          |   |  |
| All trained managers and frontline staff posted in the site.                   | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-----------|----------|--|--|
| No linkage between staff performance management and management objectives.  | Poor      | ✓        | Management plan for 2008-09, and discussions with PA manager, staff and community representative | There no such system. However state level award for best performing staff does exists. |
| Some linkage between staff performance management and management objectives, but not consistently or systematically assessed. | Fair      |          |  |  |
| Performance management for most staff is directly linked to achievement of relevant management objectives.                    | Good      |          |  |  |
| Performance management of all staff is directly linked to achievement of relevant management objectives.                      | Very good |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Little or no public participation in PA management.  | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | In the last few years Ecodevelopment programmes has been initiated in 2 EDCs (7 villages). Microplans have also been prepared. These microplans mostly provide alternate opportunities of supplemental incomes to the EDCs. The participation is still opportunistic and there is no stable system of involvement of locals in different PA management activities. |
| Opportunistic public participation in some aspects of PA management.                         | Fair      | ✓        |   |  |
| Systematic public participation in most aspects of PA management.                            | Good      |          |   |  |
| Comprehensive and systematic public participation in all important aspects of PA management. | Very good |          |   |  |

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

| Condition  | Category | (Tick ✓) | Reference document(s)   | Remarks   |
|--|----------|----------|---|---|
| No systematic approach to handling complaints.   | Poor     |          | Management plan for 2008-09, and discussions with PA manager, staff and | The Park Management is currently responsive to the handling of the complaints. However, a system of receiving |
| Complaints handling system operational but not responsive to individual issues and limited follow up provided. | Fair     | ✓        |   |   |

|   |           |  |                           |  |
|---|-----------|--|---------------------------|--|
| Coordinated system logs and responds effectively to most complaints.  | Good      |  | community representatives | complaints and necessary follow up is lacking. |
| All complaints systematically logged in coordinated system and timely response provided with minimal repeat complaints. | Very good |  |                           |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s) | Remarks   |
|--|-------------|----------|-----------------------|---|
| No livelihood issues are addressed by PA management.   | Poor        |          | Meeting with EDCs     | EDC were initiated long back. The entry point activates have also been carried out by construction of Samaj Ghars, distribution of LPG, improvement of play grounds, improvement of paths and distribution of sound systems, food warmer sets, provision of furniture to the schools, construction on toilets etc. The issues of livelihoods have not been dealt so far. One of the reasons for this is that many of the EDC members came as laborers for different constructions programmes and settled here. Therefore, they did not have traditional resource dependencies in these forests. |
| Few livelihood issues are addressed by PA management.  | Fair        |          |                       |   |
| Substantial livelihood issues are addressed by PA management.  | <b>Good</b> | ✓        |                       |   |
| Livelihood issues of resource dependent communities especially women are addressed effectively by PA managers. | Very good   |          |                       |   |

**5. Output**

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-------------|----------|---|--|
| Little or no information on PA management publicly available.  | Poor        |          | Management plan for 2008-09, and discussions with PA manager, staff and | Common website of Sikkim Forest exists which provide information about this PA. However, information is inadequate. Information signage are poor and there is no |
| Publicly available information is general and has limited relevance to management accountability and the condition of public assets. | <b>Fair</b> | ✓        |   |  |

|  |           |  |                           |  |
|--|-----------|--|---------------------------|--|
| Publicly available information provides detailed insight into major management issues for most PAs or groups of PAs.   | Good      |  | community representatives | interpretation centre. One brochure is available for the visitors. |
| Comprehensive reports are routinely provided on management and condition of public assets in all PAs or groups of PAs. | Very good |  |                           |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-----------|----------|--|---|
| Visitor services and facilities are at odds with relevant PA category and/or threaten PA values.         | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representative | Visitors services are inadequate. Now some initiatives of camping facilities and trails are being undertaken. |
| Visitor services and facilities generally accord with relevant PA category and don't threaten PA values. | Fair      | ✓        |  |   |
| All visitor services and facilities accord with relevant PA category and most enhance PA values.         | Good      |          |  |   |
| All visitor services and facilities accord with relevant PA category and enhance PA values.              | Very good |          |  |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| Little or no systematic evaluation or routine reporting of trends.  | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | Some research reports are available. Information on Red Panda has been generated. ATREE has also carried out studies on vegetation. There are few other studies carried out by different individuals but reports are not available. The monitoring systems are practically absent. |
| Some evaluation and reporting undertaken but neither systematic nor routine.  | Fair      | ✓        |   |  |
| Systematic evaluation and routine reporting of management related trends undertaken.  | Good      |          |   |  |
| Systematic evaluation and comprehensive reporting of trends undertaken and attempts made at course corrections as relevant. | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| No systematic inventory or maintenance schedule.  | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | Inventory of assets is adhoc and the maintenance schedules non-existent. Maintenance activities are carried out depending upon the availability of funds. |
| Inventory maintenance is adhoc and so is the maintenance schedule.  | Fair      | ✓        |   |   |
| Systematic inventory provides the basis for maintenance schedule but funds are inadequately made available. | Good      |          |   |   |
| Systematic inventory provides the basis for maintenance schedule and adequate funds are made available.     | Very good |          |   |   |

**6. Outcomes**

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| Threatened/ endangered species populations declining.                           | Poor      |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | Actual information is not available but discussion with the Park manager and EDC members indicate that the Goral population is decreasing because of feral dogs. Population of Black Bear seems to be increasing. This is supplemented with the information about straying animals. Three Camera Traps have been put in place and through these Snow Leopard presence has been captured. |
| Some threatened/ endangered species populations increasing, most others stable. | Fair      | ✓        |   |  |
| Most threatened/ endangered species populations increasing, most others stable. | Good      |          |   |  |
| All threatened/ endangered species populations either increasing or stable.     | Very good |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-------------|----------|---|---|
| Threats to the Site have not abated but have enhanced.  | Poor        |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | Illicit collection of firewood is coming down. Biotic pressures of grazing and resource use are declining. However, problem of feral dogs is increasing. Tourism pressures are also increasing. |
| Some threats to the Site have abated, others continue their presence  | <b>Fair</b> | ✓        |   |   |
| Most threats to the Site have abated. The few remaining are vigorously being addressed  | Good        |          |   |   |
| All threats to the Site have been effectively contained and an efficient system is in place to deal with any emerging situation | Very good   |          |   |   |

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

| Condition                                   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| Expectations of visitors generally not met. | Poor        |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | Visitors are few in number. They have mentioned about inadequacy of facilities and resources for the sanctuary in the visitor register. Most of the visitors come because of their personal enthusiast. They have gone satisfied by seeing the richness of the area but the visitor management as such quite inadequate. |
| Expectations of many visitors are met.      | <b>Fair</b> | ✓        |   |  |
| Expectations of most visitors are met.      | Good        |          |   |  |
| Good expectations of most visitors are met. | Very good   |          |   |  |

## 6.4 Are local communities supportive of PA management?

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-------------|----------|---|---|
| Local communities are hostile.                     | Poor        |          | Management plan for 2008-09, and discussions with PA manager, staff and community representatives | Due to ongoing initiatives of ecodevelopment and the general temperament of the adjoining local communities, local support for WLS is quite good. |
| Some are supportive.                               | Fair        |          |   |   |
| Most locals are supportive of PA management.       | <b>Good</b> | ✓        |   |   |
| All local communities supportive of PA management. | Very good   |          |   |   |

## Assessment Criteria for addressing issues relating to Climate Change & Carbon capture in the Protected Areas

### 1. Additional Criteria on Climate Change: Is the protected area being consciously managed to adapt to climate change?

| Condition  | Category  | (Tick ✓) | Comment/Explanation  | Next Steps   |
|--|-----------|----------|--|--|
| There have been no efforts to consider adaptation to climate change in management  | Poor      |          | There is no conscious effort to deal with the issues of climate change in the activities of PA management. However, initiatives of ecotourism and ecodevelopment do contribute in directly for this issue. | Specific guidelines need to be issued at national and state level to address the issues of climate change in the management plan and activities. |
| Some initial thought has taken place about likely impacts of climate change, but this has yet to be translated into management plans                     | Fair      | ✓        |  |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management. | Good      |          |  |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented                     | Very good |          |  |  |

### 2. Additional Criteria on Climate Change: Is the protected area being consciously managed to prevent carbon loss and to encourage further carbon capture?

| Condition  | Category  | (Tick ✓) | Comment/Explanation  | Next Steps   |
|--|-----------|----------|--|--|
| Carbon storage and carbon dioxide capture have not been considered in management of the protected area   | Poor      |          | There is no such initiative and concern in the management. However, the protection and supporting activity of community support through ecodevelopment and ecotourism will help in enhanced carbon capture | Specific guidelines need to be issued at national and state level to address the issues of climate change in the management plan and activities. |
| Carbon storage and carbon dioxide capture have been considered in general terms, but has not yet been significantly reflected in management    | Fair      | ✓        |  |  |
| There are active measures in place to reduce carbon loss from the protected area, but no conscious measures to increase carbon dioxide capture | Good      |          |  |  |
| There are active measures in place both to reduce carbon loss from the protected area and to increase carbon dioxide capture                   | Very good |          |  |  |

## MEE Score Card

| Framework Element Number | Framework Element Name | Number of Questions (a) | Maximum Mark per question (b) | Total (a x b) | Marks obtained for the Element | Overall Score |
|--------------------------|------------------------|-------------------------|-------------------------------|---------------|--------------------------------|---------------|
| 1.                       | Context                | 03                      | 10                            | 30            | 15                             | 50.00%        |
| 2.                       | Planning               | 09                      | 10                            | 90            | 47.5                           |               |
| 3.                       | Inputs                 | 05                      | 10                            | 50            | 20                             |               |
| 4.                       | Process                | 05                      | 10                            | 50            | 25                             |               |
| 5.                       | Outputs                | 04                      | 10                            | 40            | 20                             |               |
| 6.                       | Outcomes               | 04                      | 10                            | 40            | 22.5                           |               |
| <b>Total</b>             |                        | <b>30</b>               |                               | <b>300</b>    | <b>150</b>                     |               |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above



## Management Strengths, Weaknesses and Actionable Points Kyongnosla Alpine Sanctuary

### Management Strengths

1. This PA is known for its rich biodiversity and alpine habitats in east Sikkim and located in the way to Nathula- an important tourism destination having border with China.
2. The local communities are supportive and take part in various Ecodevelopment activities.
3. The stakeholders especially Panchayats, local communities have been involved in various planning processes by the park management.
4. The PA management is reasonably effective in handling the issues of human - wildlife conflicts.

### Management Weaknesses

1. A lot of tourism pressure because of strategically located on the way to Nathula Pass and China border.
2. Although rich biodiversity area, no systematic monitoring of wildlife and related biodiversity have been done.
3. Threats are not properly documented and not systematically monitored.
4. Very high biotic pressure due to the presence of army/ITBP camps. Feral dogs are creating much problems for faunal biodiversity of the sanctuary.
5. Army/ITBP and Tourism department are major stakeholders in this area, but not involved in planning processes.
6. Management plan is not comprehensive.
7. The conservation values have not been systematically assessed and there is inadequate system of monitoring
8. The threat analysis for the park has not been carried out systematically.
9. The available manpower and supportive infrastructure as well as financial resources are inadequate.
10. The frontline staff lacks adequate capacities required for the management of the area.

### Actionable points

1. The management should identify, assess and document all the conservation values making use of the existing scientific information,
2. Threat analysis for the area need to be carried out spatially and temporarily along with different stakeholders (especially with Army, ITBP and Tourism Department) so as to develop a baseline for subsequent monitoring.
3. The existing management plan is not very comprehensive and it needs to be revised with a focus on the scientific zonation, comprehensive protection strategies, habitat management plan addressing the management.
4. The existing strength of frontline staff is highly inadequate and it needs to be enhanced.
5. A long term strategy for training of frontline staff on different facets of management need to be designed and put in place.
6. A comprehensive strategy need to be developed for generation of financial and other resources from different sources at the local, state, national and international level and

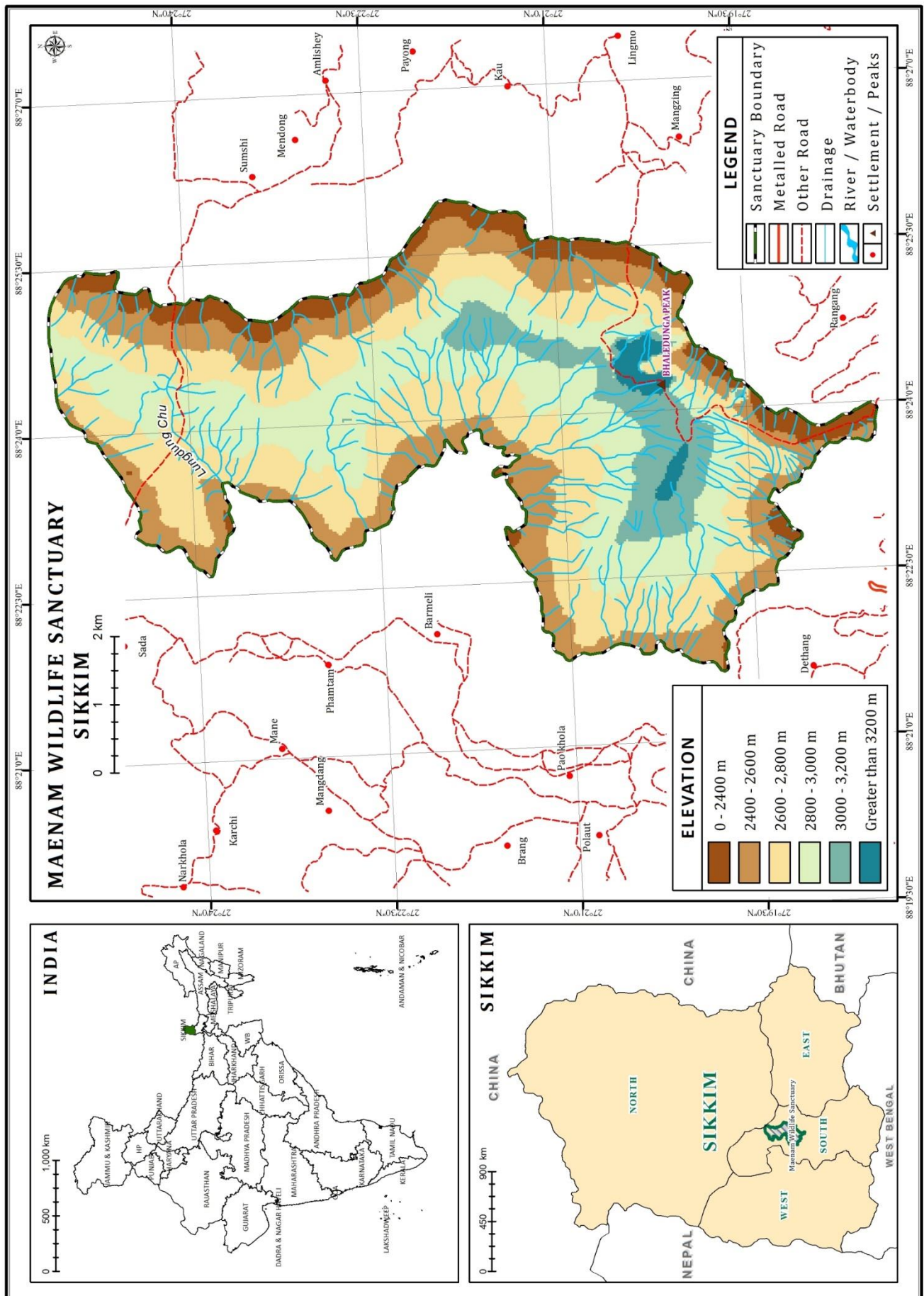
new institutional mechanism for ensuring timely availability of funds for different activities of sanctuary need to be evolved.

7. The problem of feral dogs should be mitigated by involving Army and ITBP establishments.
8. Large areas of surrounding reserve forests which form continuous habitat are out of wildlife sanctuary. If possible the control of these areas should be handed over to sanctuary administration for management. This will ensure better connectivity and proper management at landscape level.



## **4.6. Maenam Wildlife Sanctuary**





| Maenam Wildlife Sanctuary: At a Glance |                                    |  |
|--|------------------------------------|--|
| S. No.                                 | Contents                           | Details  |
| 1.                                     | Notification/Year of Establishment | 63/WL/F/86 dated 09.03.19987   |
| 2.                                     | Location                           | Ravangla Wildlife Division, South Sikkim   |
| 3.                                     | Area                               | 35.34 sq. km   |
| 4.                                     | Biogeographic location             | 2C (Central Himalayas)   |
| 5.                                     | Latitude, Longitude & Altitude     | Lat: 27° 21' to 27° to 25'N, Long: 88° 21'to 88° to 25'E, Alt: 2300 m – 3263 m   |
| 6.                                     | Nearest Town                       | Ravangla (2 km)  |
| 7.                                     | Major Forest Types                 | Upper Hill Forests, Mixed Broad-leaf Forest and Conifer Forests  |
| 8.                                     | Key Flora                          | <i>Abies densa</i> , <i>Betula alnoides</i> , <i>Machilus spp</i> , <i>Quercus rboretum</i> , <i>Q. rboret</i> , <i>Rhododendron spp.</i> , <i>Castanoipsis hystrix</i> , <i>Symplocos spicata</i> , <i>Leocosceptum canum</i> , <i>Lithocarpus pachyphylla</i> etc. |
| 9.                                     | Key Fauna                          | Red Panda, Musk Deer, Leopard, Serow, Chinese Pangolin, Satyr Tragopan, Himalayan Black Bear, Leopard Cat  |
| 10.                                    | Fringe Area Villages               | Ravangala, Lingmoo and Ralang  |
| 11.                                    | Major Threats                      | Erosion and Floods, Snow, Weeds, Wind, Grazing, Fire, Poaching, Grazing, Tourism   |
| 12.                                    | Others                             | Nothing specific   |

Maenam Wildlife Sanctuary is located on the Maenam-Tendong ridge which runs north-south bisecting Sikkim longitudinally and is drained by the Teesta River to the East and Rangit River in the West. PA is only 65 Km from Gangtok, the capital of Sikkim. The literal meaning of maenam-la is "treasure-house of medicines", and accordingly the floral wealth of PA is rich in plants of medicinal value. The PA is a popular tourist destination and is famous for trekking and tourism. The altitudinal gradient of 2,100 m - 3,300 m provides for a range of microclimates and floral diversity from subtropical forests to stabilized scree slopes. These diverse forest types in turn shelter a wide range of faunal elements. The Sanctuary has tremendous watershed value, being the only source of perennial water on this ridge. The South District headquarters, Namchi, situated 30 km due south totally depends on the water piped from the Burmelly stream originating from within the Sanctuary. The adjoining town of Ravangla also depends on the Sanctuary for potable water. The PA has also been identified as one of the important IBA in Sikkim by Birdlife International due to its rich avifaunal biodiversity. There is also a historical Buddhist monastery, the Maenam Gompa, at the top of the ridge.

## MEE Assessment Criteria of Maenam Wildlife Sanctuary

May 2015: Information collected by the WII Team

### 1. Context

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

| Condition  | Category    | (Tick ✓) | Reference document(s)     | Remarks   |
|--|-------------|----------|---------------------------|---|
| Values not systematically documented, assessed or monitored.               | Poor        |          | Management Plan 2008-2018 | The values for vegetation, flora and fauna are generally identified. However, some of the other conservation values in terms of connectivity, cultural attributes etc. need to be more clearly spelt out. |
| Values generally identified but not systematically assessed and monitored. | Fair        |          |                           |   |
| Most values systematically identified and assessed and monitored.          | <b>Good</b> | ✓        |                           |   |
| All values systematically identified and assessed and monitored.           | Very good   |          |                           |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------|----------|--|---|
| Threats not systematically documented or assessed.            | Poor        |          | Report on removal of Cattle sheds and improvement in Bamboo. (2003-2004) | In 2003 & 2004 the Livestock sheds made by the locals for grazing the livestock were removed with the cooperation of the eight EDCs. Further these sites were taken up for improvement of the habitat. This in turn had resulted in frequent sightings of the key species like Red Panda. Bamboo has improved in the area. However, there is no systematic monitoring of the population of key species. The hunting that was prevalent earlier, has completely stopped. |
| Threats generally identified but not systematically assessed. | <b>Fair</b> | ✓        |  |   |
| Most threats systematically identified and assessed.          | Good        |          |  |   |
| All threats systematically identified and assessed.           | Very good   |          |  |   |

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

| Condition   | Category         | (Tick ✓) | Reference document(s) | Remarks  |
|---|------------------|----------|-----------------------|--|
| The site has extensive human and biotic interference. | Poor             |          |                       | There are no human settlements inside. Livelihood dependency is on the Reserved Forest. The large Cardamom Cultivation which was there in the adjoining Reserved Forest has also been removed. |
| The site has some human and biotic interference.      | Fair             |          |                       |  |
| The site has little human and biotic interference.    | Good             |          |                       |  |
| The site has no human and biotic interference.        | <b>Very good</b> | ✓        |                       |  |

## 2. Planning

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Site not identified correctly or categorized.  | Poor        |          | Refer Chapter 6 on Strategies in the Management plan 2008-2018 | The Site has identified Wilderness zone, which is the actual core zone. Actually the entire PA is identified as core and 1 km width of buffer is identified from the reserve forest in the adjoining areas around the PA. However, Eco-tourism zone has identified but it has not been marked on the map. Map need to be provided |
| Site identified correctly but not categorized.                                       | Fair        |          |  |   |
| Site identified correctly but not systematically categorized.                        | <b>Good</b> | ✓        |  |   |
| Site identified correctly and systematically categorized with proper zonation plans. | Very good   |          |  |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)                             | Remarks  |
|---|-------------|----------|---|--|
| No relevant Management Plan in place.   | Poor        |          | Minutes of the Public involvement / participation | The management plan is consistent with the WII Guidelines, and most of the concerns of the stakeholders has been incorporated. |
| Management Plan exist but not comprehensive.  | Fair        |          |   |  |
| Site has a comprehensive Management Plan.   | <b>Good</b> | ✓        |   |  |
| Site has a comprehensive, science based Management Plan prepared through a participatory process. | Very good   |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)     | Remarks   |
|---|-----------|----------|---------------------------|---|
| No process in place for systematic review and update of Management Plan.                              | Poor      |          | Management Plan 2008-2018 | Initiation has been made to update the management plan with the help of WII guidelines. However till date there has not been any systematic updation. |
| Management Plan sometimes updated in adhoc manner.  | Fair      | ✓        |                           |   |
| Management Plan routinely and systematically updated.   | Good      |          |                           |   |
| Management Plan routinely, systematically and scientifically updated through a participatory process. | Very good |          |                           |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Sites does not safeguard the threatened biodiversity values.       | Poor      |          | Monthly Patrolling Reporting Register and Patrolling report of Range Officer | There are two patrolling huts, one well maintained and other not so maintained. A patrolling mechanism is in place. Patrolling is at Ranger level on weekly basis and at field staff on daily basis. They have also a biannual patrolling in which the DFO also joins. There is an annual patrolling also in which all the line departments are involved. The monitoring system is through cross checking with the EDCs as to whether the field staff went on their regular patrolling duties. The local EDCs are also involved in the weekly and other patrolling programmes. |
| Sites safeguards a few threatened biodiversity values.             | Fair      |          |  |  |
| Sites safeguards a large number of threatened biodiversity values. | Good      | ✓        |  |  |
| Sites safeguards all threatened biodiversity values.               | Very good |          |  |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-------------|----------|---|---|
| Little, if any opportunity for stakeholder participation in planning.            | Poor        |          | EDC meeting register, Stakeholder participatory meeting report / document | The minutes of the meeting available it needs to be more systematic and organized. Further, there is scope for putting in public domain the minutes of meetings so as to get their concern and remarks. |
| Stakeholders participate in some planning.                                       | Fair        |          |   |   |
| Stakeholders participate in most planning processes.                             | <b>Good</b> | ✓        |   |   |
| Stakeholders routinely and systematically participate in all planning processes. | Very good   |          |   |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)     | Remarks   |
|--|-------------|----------|---------------------------|---|
| Habitat restoration programmes are entirely adhoc.                               | Poor        |          | Management Plan 2008-2018 | Bamboo has been planted in the areas where Red Panda (key species) is present, as part of habitat improvement. In addition, water availability is being improved through development of water holes in water deficient areas. |
| Limited planning and monitoring programmes are in place for habitat restoration. | <b>Fair</b> | ✓        |                           |   |
| Habitat restoration programmes are generally well planned and monitored.         | Good        |          |                           |   |
| Habitat restoration programmes are thoroughly planned and monitored.             | Very good   |          |                           |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s) | Remarks   |
|---|-------------|----------|-----------------------|---|
| Site has no protection strategy.  | Poor        |          | Patrolling report     | As already explained there are two patrolling huts. A system of daily, weekly and annual patrolling is also in place involving different level of officers. Local EDCs are involved in the weekly and other patrolling. There is a biannual anti-poaching and trap demolition patrolling carried out regularly. |
| Site has an adhoc protection strategy.                                  | <b>Fair</b> | ✓        |                       |   |
| Site has a comprehensive protection strategy but is not very effective. | Good        |          |                       |   |
| Site has a comprehensive and very effective protection strategy.        | Very good   |          |                       |   |

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

| Condition  | Category         | (Tick ✓) | Reference document(s)                              | Remarks   |
|--|------------------|----------|--|---|
| Human-wildlife conflicts are rampant.                                    | Poor             |          | Report on Compensation paid in the last two years. | The division being very small, the trained staff is at the Chief Wildlife Warden's office. The equipment and the related logistics are also available in the CWLW's office. In case of any serious conflict the staff with equipment reaches within three hours. Very Limited Human - Wildlife Conflict is observed. This is mainly in the form of crop damage by monkeys and wild pigs. The mitigation towards crop raiding is done in the form of vegetative fencing, improving the food availability inside the forest so as to reduce the crop depredation. |
| Site has been able to mitigate few human-wildlife conflicts.             | Fair             |          |  |   |
| Site has been able to mitigate many human-wildlife conflicts.            | Good             |          |  |   |
| Site has been able effective in mitigating all human-wildlife conflicts. | <b>Very good</b> | ✓        |  |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)                  | Remarks  |
|--|-------------|----------|--|--|
| Site not integrated into a wider network/ landscape.                   | Poor        |          | Management Plan & Map of the KNP & KBR | PA is part of the Khangchendzonga Biosphere Reserve, the contiguity is available only in the north west part, which is Kargi RF. Even though there are no management strategies planned in line with the plan of PA, there are no felling operations in the RF area. |
| Some limited attempts to integrate the site into a network/ landscape. | Fair        |          |  |  |
| Site is generally quite well integrated into a network/ landscape.     | <b>Good</b> | ✓        |  |  |
| Site is fully integrated into a wider network/ landscape.              | Very good   |          |  |  |

### 3. Inputs

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

| Condition   | Category  | (Tick ✓) | Reference document(s)     | Remarks  |
|---|-----------|----------|---------------------------|--|
| Few, if any, personnel explicitly allocated for PA management.  | Poor      |          | Management Plan 2008-2018 | As per management plan 15 staff are required / sanctioned, but presently there are only seven staff (<50%). On the whole the staff is inadequate |
| Some personnel explicitly allocated for PA management but not systematically linked to management objectives. | Fair      | ✓        |                           |  |
| Some personnel explicitly allocated towards achievement of specific management objectives.                    | Good      |          |                           |  |
| Adequate personnel explicitly allocated towards achievement of specific management objectives.                | Very good |          |                           |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)    | Remarks  |
|---|-----------|----------|--------------------------|--|
| Few, if any, resources explicitly allocated for PA management.  | Poor      |          | Equipment Stock Register | Except for range officer, none of the staff below have any sort of buildings for stay and vehicles for movement. Other equipment like GPS - 3, Tents -5, cameras -2, Camera Traps – 4, are available. Resources in general are inadequate. |
| Some resources explicitly allocated for PA management but not systematically linked to management objectives. | Fair      | ✓        |                          |  |
| Some resources explicitly allocated towards achievement of specific management objectives.                    | Good      |          |                          |  |
| Adequate resources explicitly allocated towards achievement of specific management objectives.                | Very good |          |                          |  |

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

| Condition  | Category | (Tick ✓) | Reference document(s)                    | Remarks  |
|--|----------|----------|--|--|
| Resource allocation is adhoc, funds are inadequate and seldom released in time and not utilized. | Poor     |          | Three year APO & Fund utilization record | The funds are not Adequate, as only 25% of funds are released by CSS and that too is released only at the end of the financial |
| Some specific allocation for management of priority action. Funds are inadequate and there       | Fair     | ✓        |  |  |

|   |           |  |  |   |
|---|-----------|--|--|---|
| is some delay in release, partially utilized.   |           |  |  | year. State gives only negligible amount. |
| Comprehensive planning and allocation that meets the most important objectives. Generally funds released with not much delay and mostly utilized. | Good      |  |  |   |
| Comprehensive planning and allocation of resources for attainment of most objectives. Funds generally released on-time and are fully utilized.    | Very good |  |  |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)    | Remarks  |
|--|-----------|----------|--------------------------|--|
| NGOs contribute nothing for the management of the site.  | Poor      | ✓        | Discussion with PA staff | NGOs assist in micro planning, patrolling and awareness campaign. But no financial or resource assistance in the form of equipment is being provided |
| NGOs make some contribution to management of the site but opportunities for collaboration are not systematically explored. | Fair      |          |                          |  |
| NGOs contributions are systematically sought and negotiated for the management of some site level activities.              | Good      |          |                          |  |
| NGOs contributions are systematically sought and negotiated for the management of many site level activities.              | Very good |          |                          |  |

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

| Condition                               | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-----------|----------|--|--|
| Resources insufficient for most tasks.  | Poor      |          | Financial records, management plan and discussion with PA staff. | Resources are inadequate for meeting the desired inputs of the management. |
| Resources sufficient for some tasks.    | Fair      | ✓        |  |  |
| Resources sufficient for most tasks.    | Good      |          |  |  |
| Resources are in excess for most tasks. | Very good |          |  |  |

#### 4. Process

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Very few trained officers and frontline staff in the site.                     | Poor      |          | Management plan, office records and discussion with PA staff and EDC representatives. | Assistant Conservator of Forests posted in the PA is wildlife trained (Certificate course from WII). Range officer has undergone one-week training in wildlife from Assam Training College. Other staff are receiving some inputs through in house departmental training programmes regularly. |
| Few trained officers and frontline staff, who are posted in the site.          | Fair      | ✓        |   |  |
| A large number of trained officers and frontline staff are posted in the site. | Good      |          |   |  |
| All trained managers and frontline staff posted in the site.                   | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| No linkage between staff performance management and management objectives.  | Poor      |          | Management plan, office records and discussion with PA staff and EDC representatives. | Except for the ACRs, no other system of performance evaluation exists. No awards and appreciation are presently in place for this PA for staff. But on adhoc basis appreciation is being done by the present DFO. However, there is no written system of appreciation and rewards that can be followed by all. |
| Some linkage between staff performance management and management objectives, but not consistently or systematically assessed. | Fair      | ✓        |   |  |
| Performance management for most staff is directly linked to achievement of relevant management objectives.                    | Good      |          |   |  |
| Performance management of all staff is directly linked to achievement of relevant management objectives.                      | Very good |          |   |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-----------|----------|---|---|
| Little or no public participation in PA management.  | Poor      |          | Management plan, office records and discussion with PA staff and EDC representatives. | Nine EDCs have been formed who participate in management activities like Fire-fighting, patrolling for protection, habitat improvement works, etc.. |
| Opportunistic public participation in some aspects of PA management.                         | Fair      |          |   |   |
| Systematic public participation in most aspects of PA management.                            | Good      | ✓        |   |   |
| Comprehensive and systematic public participation in all important aspects of PA management. | Very good |          |   |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| No systematic approach to handling complaints.  | Poor      |          | Management plan, office records and discussion with PA staff and EDC representatives. | This has been initiated only last year. But that too on the division basis. Only one case (RTI) was registered and it was responded that was specific to this PA. So as such system of handling complaints is still adhoc. |
| Complaints handling system operational but not responsive to individual issues and limited follow up provided.          | Fair      | ✓        |   |  |
| Coordinated system logs and responds effectively to most complaints.  | Good      |          |   |  |
| All complaints systematically logged in coordinated system and timely response provided with minimal repeat complaints. | Very good |          |   |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| No livelihood issues are addressed by PA management.   | Poor      |          | Management plan, office records and discussion with PA staff and EDC representatives. | Training has been given to ladies on making Bamboo craft and holy thread and bans. In addition gas cylinders have been provide, assistance in the form of material for the marriage ceremony is also provided. |
| Few livelihood issues are addressed by PA management.  | Fair      |          |   |  |
| Substantial livelihood issues are addressed by PA management.  | Good      | ✓        |   |  |
| Livelihood issues of resource dependent communities especially women are addressed effectively by PA managers. | Very good |          |   |  |

### 5. Output

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Little or no information on PA management publicly available.  | Poor      |          | Management plan, office records and discussion with PA staff and EDC representatives. | There is no separate web site for this PA. Only information available is about the PA is in the Forest Department Web Site |
| Publicly available information is general and has limited relevance to management accountability and the condition of public assets. | Fair      | ✓        |   |  |
| Publicly available information provides detailed insight into major management issues for most PAs or groups of PAs.                 | Good      |          |   |  |
| Comprehensive reports are routinely provided on management and condition of public assets in all PAs or groups of PAs.               | Very good |          |   |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-----------|----------|---|---|
| Visitor services and facilities are at odds with relevant PA category and/or threaten PA values.         | Poor      | ✓        | Management plan, visitor register and discussion with PA staff and EDC representatives. | No road is present inside the PA. Only nature trails are available through which visitors are taken. There are no facilities in the form of guest houses or other infrastructure. No regular tourism activities are undertaken by forest department |
| Visitor services and facilities generally accord with relevant PA category and don't threaten PA values. | Fair      |          |   |   |
| All visitor services and facilities accord with relevant PA category and most enhance PA values.         | Good      |          |   |   |
| All visitor services and facilities accord with relevant PA category and enhance PA values.              | Very good |          |   |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| Little or no systematic evaluation or routine reporting of trends.  | Poor      | ✓        | Management plan, office records and discussion with PA staff. | No specific research has been undertaken in this PA that is relevant to Management of the PA |
| Some evaluation and reporting undertaken but neither systematic nor routine.  | Fair      |          |   |  |
| Systematic evaluation and routine reporting of management related trends undertaken.  | Good      |          |   |  |
| Systematic evaluation and comprehensive reporting of trends undertaken and attempts made at course corrections as relevant. | Very good |          |   |  |

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

| Condition  | Category | (Tick ✓) | Reference document(s)   | Remarks   |
|--|----------|----------|---|---|
| No systematic inventory or maintenance schedule.                   | Poor     |          | Management plan, office records and discussion with PA staff. | Only range officer's quarters and an office building are the main infrastructure available. There is no other infrastructure in the area. Basically the |
| Inventory maintenance is adhoc and so is the maintenance schedule. | Fair     | ✓        |   |   |
| Systematic inventory provides the basis for maintenance schedule   | Good     |          |   |   |

|   |           |  |  |                                       |
|---|-----------|--|--|---------------------------------------|
| but funds are inadequately made available.  |           |  |  | maintenance is done on an adhoc basis |
| Systematic inventory provides the basis for maintenance schedule and adequate funds are made available. | Very good |  |  |                                       |

## 6. Outcomes

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-------------|----------|---|---|
| Threatened/ endangered species populations declining.                           | Poor        |          | Management plan, office records and discussion with PA staff. | No specific monitoring of the threatened species and general wildlife is being done, but based on opportunistic visits it is said that the Red Panda sightings have increased. WWF-India is carrying out a study in population and site suitability of Red Panda in the PAs and this PA is part of this larger study. |
| Some threatened/ endangered species populations increasing, most others stable. | <b>Fair</b> | ✓        |   |   |
| Most threatened/ endangered species populations increasing, most others stable. | Good        |          |   |   |
| All threatened/ endangered species populations either increasing or stable.     | Very good   |          |   |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| Threats to the Site have not abated but have enhanced.  | Poor        |          | Management plan, office records and discussion with PA staff and EDC representatives. | There is no system as such but these have been vigorously addressed and reduced. |
| Some threats to the Site have abated, others continue their presence  | Fair        |          |   |  |
| Most threats to the Site have abated. The few remaining are vigorously being addressed  | <b>Good</b> | ✓        |   |  |
| All threats to the Site have been effectively contained and an efficient system is in place to deal with any emerging situation | Very good   |          |   |  |

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

| Condition                                   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| Expectations of visitors generally not met. | Poor        |          | Management plan, visitor register and discussion with PA staff and EDC representatives. | Very less tourists visit this PA. Therefore, as such minimum visitor facilities are needed. Further except for the nature trails through which visitors are taken, there is no other facility available in the PA. |
| Expectations of many visitors are met.      | Fair        |          |   |  |
| Expectations of most visitors are met.      | <b>Good</b> | ✓        |   |  |
| Good expectations of most visitors are met. | Very good   |          |   |  |

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

| Condition  | Category         | (Tick ✓) | Reference document(s)  | Remarks  |
|--|------------------|----------|--|--|
| Local communities are hostile.                     | Poor             |          | No reference documents available. However our grading is based on interaction with few local residents | There has been no conflict or resentment. More than 90% of the local communities are supportive. |
| Some are supportive.                               | Fair             |          |  |  |
| Most locals are supportive of PA management.       | Good             |          |  |  |
| All local communities supportive of PA management. | <b>Very good</b> | ✓        |  |  |



## Assessment Criteria for addressing issues relating to Climate Change & Carbon capture in the Protected Areas

### 1. Additional Criteria on Climate Change: Is the protected area being consciously managed to adapt to climate change?

| Condition  | Category  | (Tick ✓) | Comment/ Explanation  | Next Steps   |
|--|-----------|----------|---|--|
| There have been no efforts to consider adaptation to climate change in management  | Poor      | ✓        | PA manger are not trained to incorporate activities/ parameters in their management plan about climate change issues. | Need to be addressed in the revised management plan. |
| Some initial thought has taken place about likely impacts of climate change, but this has yet to be translated into management plans                     | Fair      |          |   |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management. | Good      |          |   |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented                     | Very good |          |   |  |

### 2. Additional Criteria on Climate Change: Is the protected area being consciously managed to prevent carbon loss and to encourage further carbon capture?

| Condition  | Category  | (Tick ✓) | Comment/ Explanation  | Next Steps  |
|--|-----------|----------|---|---|
| Carbon storage and carbon dioxide capture have not been considered in management of the protected area   | Poor      | ✓        | PA manger are not trained to incorporate activities/ parameters in their management plan about carbon storage and capture | Need to be addressed in the revised management plan |
| Carbon storage and carbon dioxide capture have been considered in general terms, but has not yet been significantly reflected in management    | Fair      |          |   |   |
| There are active measures in place to reduce carbon loss from the protected area, but no conscious measures to increase carbon dioxide capture | Good      |          |   |   |
| There are active measures in place both to reduce carbon loss from the protected area and to increase carbon dioxide capture                   | Very good |          |   |   |

## MEE Score Card

| Framework Element Number | Framework Element Name | Number of Questions (a) | Maximum Mark per question (b) | Total (a x b) | Marks obtained for the Element | Overall Score |
|--------------------------|------------------------|-------------------------|-------------------------------|---------------|--------------------------------|---------------|
| 1.                       | Context                | 03                      | 10                            | 30            | 22.5                           | 60.83%        |
| 2.                       | Planning               | 09                      | 10                            | 90            | 62.5                           |               |
| 3.                       | Inputs                 | 05                      | 10                            | 50            | 22.5                           |               |
| 4.                       | Process                | 05                      | 10                            | 50            | 30.0                           |               |
| 5.                       | Outputs                | 04                      | 10                            | 40            | 15.0                           |               |
| 6.                       | Outcomes               | 04                      | 10                            | 40            | 30.0                           |               |
| <b>Total</b>             |                        | <b>30</b>               |                               | <b>300</b>    | <b>182.5</b>                   |               |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above



## Management Strengths, Weaknesses and Actionable Points of Maenam Wildlife Sanctuary

### Strengths

1. PA comprises of virgin forest with negligible human impacts.
2. Sufficient buffer area exists around PA as Reserved Forest, which is also under the control of the DFO of Maenam WLS.
3. It has connectivity with Khangchendzonga NP to ensure landscape level wildlife conservation.
4. No highways or other linear projects passing through the PA.
5. Presence of eight functional eco-development committees around the PA and their support

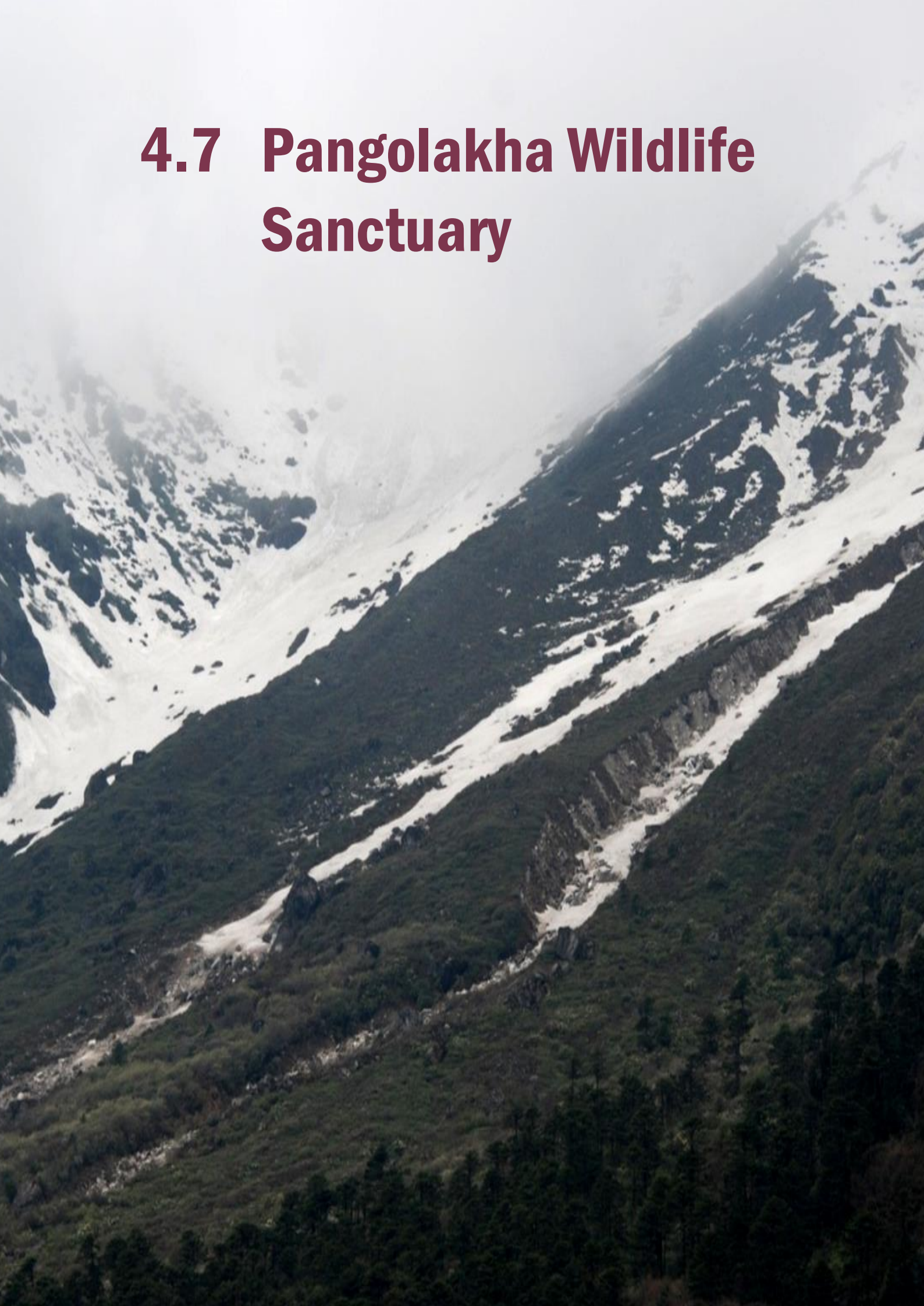
### Weakness

1. There is no comprehensive management plan and it is not systematically being updated.
2. Basic infrastructure for protection of PA like check-post, forest guard quarters, watch towers etc. are inadequate.
3. Baseline information of floral and faunal species, habitats is weak.
4. The communication facilities are inadequate.
5. Insufficient staff strength at field level to undertake regular patrolling and other management related works.
6. The existing staff are not trained in wildlife management including legal provisions to deal with wildlife crime.
7. Insufficient and late release of funds to undertake various activities. Also resource from state grant is less.
8. The PA staff are also involved in crime prevention and human- animal conflict in the Territorial division areas / RF.

### Actionable Points

1. A comprehensive scientific management plan needs to be prepared and finalized on immediate priority, along with proper zonation. Further this should also be updated systematically.
2. Co-ordination with research institutions and universities is needed for generating the baseline information on the biodiversity value of the PA.
3. Basic infrastructure for protection of the PA like check posts, frontline staff quarters, watch towers, dedicated vehicle for staff need to be provided.
4. Urgent steps are to be taken to sanction and appoint the required frontline staff to undertake systematic patrolling.
5. The officers below Range Officer and frontline staff need to be given proper training on Wildlife management and legal provision for wildlife crime control.
6. Adequate resource allocation and timely release of funds are needed for effective management, in addition to augmenting the human and financial resources immediately.
7. The resource provided by the State must be enhanced.
8. The PA staff should not be involved overlapping duties of territorial areas/ Reserved Forest.
9. Involvement of the locals should be enhanced through appropriate Eco-development Programme by forming EDCs. Ecotourism for livelihood improvement could be tried as one of alternative activity.

## **4.7 Pangolakha Wildlife Sanctuary**





| Pangolakha Wildlife Sanctuary: At a Glance |                                    |   |
|--|------------------------------------|---|
| S. No.                                     | Contents                           | Details   |
| 13.  | Notification/Year of Establishment | 10/9/WLC/02/127 dated 05.09.2002  |
| 14.  | Location                           | Pangolakha Range, East Wildlife Division, East Sikkim   |
| 15.  | Area                               | 128 sq. km  |
| 16.  | Biogeographic location             | 2C (Central Himalayas)  |
| 17.  | Latitude, Longitude & Altitude     | Lat: 27° 10' to 27° 23'N, Long: 88° 29' to 88° 35'E, Alt: 1800m-4345m   |
| 18.  | Nearest Town                       | Rongli and Rhenock  |
| 19.  | Major Forest Types                 | East Himalayan sub-tropical wet hill forest, East Himalayan wet temperate forest, Lauraceous forest, Bulk-oak forest, High-level Oak Forest, East Himalayan mixed temperate Forest, East Himalayan mixed conifer forest, East Himalayan sub-alpine birch/fir forest, Birch-Rhododendron scrub forest, Deciduous alpine scrub forest, Alpine pastures  |
| 20.  | Key Flora                          | <i>Andromeda elliptica</i> , <i>Mallotus nepalensis</i> , <i>R. arboreum</i> , <i>Rhus griffithi</i> , <i>Glochidion</i> sp., <i>Machilus</i> sp., <i>Buchlandea populnea</i> , <i>Acer</i> sp., <i>Quercus lineate</i> , <i>Endospermum chininse</i> , <i>R. falconeri</i> , <i>Lithocarpus</i> sp., <i>Pentapanax leschenaulti</i> , <i>Eleocarpus sikkimensia</i> , <i>Quercus lanacaeefolia</i> , <i>Michelia</i> sp. |
| 21.  | Key Fauna                          | Satyr Tragopan, Blood Pheasant, Red Panda, Leopard, Himalayan Vulture, Himalayan Black bear, Jungle cat, Flying squirrels, Fox, Goral, Wild pig, Musk Deer  |
| 22.  | Fringe Area Villages               | Rhenock, Aritar, Hattichirey, Dalapchen-Phadamchen-Lingtam-Nimachen, Jaluk-Gnathang-Kupup   |
| 23.  | Major Threats                      | Erosion and Floods, Snow, Weeds, Wind, Grazing, Fire, Poaching, Grazing, Tourism  |
| 24.  | Others                             | Nothing specific  |

The Pangolakha WLS lies in the eastern part of the State and shares international boundaries with the Tibet Autonomous Region of China in the North-East and the Kingdom of Bhutan in the East. The State of West Bengal borders the southern part of the WLS. The Pangolakha Range, extending below the Chola Range, separates Sikkim from Bhutan. Hathichirey (the place where elephants can penetrate) forms the tri-junction between Bhutan, Sikkim and West Bengal where further down the forest continues as the Neora Valley National Park (an IBA in West Bengal). Rich floral and faunal diversity, high altitude wetlands/water bodies are found in and adjacent to the sanctuary forming the catchments for the streams/rivers of the Rongli Sub-Division of Sikkim, the Kalimpong Sub-Division of West Bengal and even the Ha region of Bhutan and the high altitude lakes like the Bidangtsho “the lake of the cow-yak” are in the north-western part of the sanctuary. The Jaldakha River which flows through Bhutan and West Bengal originates from the Sanctuary. The PA has also been identified as one of the important bird area (IBA) of Sikkim by Birdlife International.

## MEE Assessment Criteria form for Pangolakha Wildlife Sanctuary

May 2015: Information collected by the WII-team

### 1. Context

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Values not systematically documented, assessed or monitored.               | Poor      |          | Management Plan 2008-09, research reports of WWF, field reports of PA manager, IBA book of Bombay Natural History Society (BNHS) and discussion with park manager | The values for vegetation, flora and fauna are generally identified. However, the status of different species except Red Panda is yet not assessed. Some of the other conservation values in terms of connectivity, cultural attributes etc. need to be more clearly spelt out. However, park management has made some initiatives for monitoring of the species and habitats which need to be formalized. |
| Values generally identified but not systematically assessed and monitored. | Fair      | ✓        |   |  |
| Most values systematically identified and assessed and monitored.          | Good      |          |   |  |
| All values systematically identified and assessed and monitored.           | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| Threats not systematically documented or assessed.            | Poor      |          | Management plan, micro-plans for 6 EDCs, offence records and discussions with Park Management | Most of the threats are identified. Similarly, the threats like offence, resource use by communities, area used by Army and areas diverted for development projects have been recorded. The threat of Feral dog is important but it needs to be systematically assessed. Assessment of illegal felling of trees from across the border need to be further refined. |
| Threats generally identified but not systematically assessed. | Fair      |          |   |  |
| Most threats systematically identified and assessed.          | Good      | ✓        |   |  |
| All threats systematically identified and assessed.           | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| The site has extensive human and biotic interference. | Poor      |          | Management plan, monitoring reports, Eco Sensitive Zone (ESZ) notification, micro-plans | As such there are no villages inside the sanctuary. However, the presence of Army establishments leads to problem of Feral dogs. Also there is problem of illicit felling, grazing and collection of NTFP by the people illegally entering from the Interstate Border. Eleven fringe area villages falling in ESZ, which have some biotic pressures on the sanctuary, have been covered under the ecodevelopment programme. |
| The site has some human and biotic interference.      | Fair      | ✓        |   |   |
| The site has little human and biotic interference.    | Good      |          |   |   |
| The site has no human and biotic interference.        | Very good |          |   |   |

## 2. Planning

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Site not identified correctly or categorized.  | Poor      |          | Government Notification of PA and Eco Sensitive Zone (ESZ) notification, Management Plan | PA is small and it provides connectivity values to the adjoining- Jigme Dorji National Park of Bhutan and Neora Valley NP of West Bengal. Already the ESZ for the PA has been notified. The park management broadly understands the categorization of areas for different activities like tourism, vulnerable areas etc. But these are yet to be put in different zones. |
| Site identified correctly but not categorized.                                       | Fair      | ✓        |  |  |
| Site identified correctly but not systematically categorized.                        | Good      |          |  |  |
| Site identified correctly and systematically categorized with proper zonation plans. | Very good |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| No relevant Management Plan in place.   | Poor      |          | Management plan, office records, research reports and discussion with PA staff | Management plan exists but it is not comprehensive. Currently the process of revision of plan has been initiated but the task is lying pending. |
| Management Plan exist but not comprehensive.  | Fair      | ✓        |  |   |
| Site has a comprehensive Management Plan.   | Good      |          |  |   |
| Site has a comprehensive, science based Management Plan prepared through a participatory process. | Very good |          |  |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| No process in place for systematic review and update of Management Plan.                              | Poor      | ✓        | Management plan, office records, research reports and discussion with PA staff | This is the first time that the comprehensive exercise being carried out for the evaluation and upgradation of the management plan. |
| Management Plan sometimes updated in adhoc manner.  | Fair      |          |  |   |
| Management Plan routinely and systematically updated.   | Good      |          |  |   |
| Management Plan routinely, systematically and scientifically updated through a participatory process. | Very good |          |  |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Sites does not safeguard the threatened biodiversity values.       | Poor      |          | Management plan, office records, research reports and discussion with PA staff | All the areas important from conservation point of view have been included in the PA. The outside areas are mostly private revenue/agriculture/ cardamom lands. Cardamom plantation do offer suitable habitat for the species. |
| Sites safeguards a few threatened biodiversity values.             | Fair      |          |  |  |
| Sites safeguards a large number of threatened biodiversity values. | Good      | ✓        |  |  |
| Sites safeguards all threatened biodiversity values.               | Very good |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Little, if any opportunity for stakeholder participation in planning.            | Poor      |          | Management plan, office records, research reports, discussion with PA staff and other stakeholders | During planning process, discussions took place with the stakeholders which also included village level Panchayats. Villagers, Line agencies, Panchayats are stakeholders. However, the process of stakeholder involvement had been opportunistic. |
| Stakeholders participate in some planning.                                       | Fair      | ✓        |  |  |
| Stakeholders participate in most planning processes.                             | Good      |          |  |  |
| Stakeholders routinely and systematically participate in all planning processes. | Very good |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Habitat restoration programmes are entirely adhoc.                               | Poor      |          | Management plan, office records, research reports and discussion with PA staff | Habitat improvement works in the PA include management of water holes, salt licks, planting of fruiting trees, management of fire lines, etc. For this activity, the money had been received only from Integrated development of Wildlife Habitats Scheme. Now some support from CAMPA is expected. However, the habitat improvement remains adhoc and dependent upon funds. |
| Limited planning and monitoring programmes are in place for habitat restoration. | Fair      | ✓        |  |  |
| Habitat restoration programmes are generally well planned and monitored.         | Good      |          |  |  |
| Habitat restoration programmes are thoroughly planned and monitored.             | Very good |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Site has no protection strategy.  | Poor      |          | Management plan, office records, research reports and discussion with PA staff | There is shortage of staff. Combined patrolling programme are being undertaken to compensate this shortage. For accommodating the staff, buildings are under construction. EDCs are also helping protection |
| Site has an adhoc protection strategy.                                  | Fair      |          |  |   |
| Site has a comprehensive protection strategy but is not very effective. | Good      | ✓        |  |   |
| Site has a comprehensive and very effective protection strategy.        | Very good |          |  |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Human-wildlife conflicts are rampant.                                    | Poor        |          | Management plan, office records, research reports and discussion with PA staff | Major problems of human-wildlife conflict are Cattle lifting and crop damage. The damages are from Black Bear. However, inadequate compensation are being paid to the victims of conflicts. |
| Site has been able to mitigate few human-wildlife conflicts.             | <b>Fair</b> | ✓        |  |   |
| Site has been able to mitigate many human-wildlife conflicts.            | Good        |          |  |   |
| Site has been able effective in mitigating all human-wildlife conflicts. | Very good   |          |  |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Site not integrated into a wider network/ landscape.                   | Poor        |          | Management plan, office records, research reports and discussion with PA staff | More or less there are connectivity with the adjoining areas. However, the management of these areas need to be strengthen to protect the wildlife and their habitats outside PA. |
| Some limited attempts to integrate the site into a network/ landscape. | Fair        |          |  |   |
| Site is generally quite well integrated into a network/ landscape.     | <b>Good</b> | ✓        |  |   |
| Site is fully integrated into a wider network/ landscape.              | Very good   |          |  |   |

## 3. Inputs

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-------------|----------|--|--|
| Few, if any, personnel explicitly allocated for PA management.  | Poor        |          | Management plan, office records, research reports and discussion with PA staff | Due to overlapping duties, the RO and Staff have to look after the cases of Human - Wildlife Conflict outside their jurisdiction. Therefore, the system is comparatively inadequate. |
| Some personnel explicitly allocated for PA management but not systematically linked to management objectives. | <b>Fair</b> | ✓        |  |  |
| Some personnel explicitly allocated towards achievement of specific management objectives.                    | Good        |          |  |  |
| Adequate personnel explicitly allocated towards achievement of specific management objectives.                | Very good   |          |  |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Few, if any, resources explicitly allocated for PA management.  | Poor      |          | Management plan, office records, research reports and discussion with PA staff | The allocation of resources for management activities have been inadequate. However, now the situation is improving, particularly because of support of JICA project. |
| Some resources explicitly allocated for PA management but not systematically linked to management objectives. | Fair      | ✓        |  |   |
| Some resources explicitly allocated towards achievement of specific management objectives.                    | Good      |          |  |   |
| Adequate resources explicitly allocated towards achievement of specific management objectives.                | Very good |          |  |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Resource allocation is adhoc, funds are inadequate and seldom released in time and not utilized.  | Poor      | ✓        | Management plan, office records, research reports and discussion with PA staff | Funds are inadequate and adhoc and released late. |
| Some specific allocation for management of priority action. Funds are inadequate and there is some delay in release, partially utilized.          | Fair      |          |  |   |
| Comprehensive planning and allocation that meets the most important objectives. Generally funds released with not much delay and mostly utilized. | Good      |          |  |   |
| Comprehensive planning and allocation of resources for attainment of most objectives. Funds generally released on-time and are fully utilized.    | Very good |          |  |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| NGOs contribute nothing for the management of the site.  | Poor      | ✓        | Management plan, office records, research reports and discussion with PA staff | NGO support is in terms of Research and awareness programmes by WWF. However, there is no support in terms of resources. |
| NGOs make some contribution to management of the site but opportunities for collaboration are not systematically explored. | Fair      |          |  |  |
| NGOs contributions are systematically sought and negotiated for the management of some site level activities.              | Good      |          |  |  |
| NGOs contributions are systematically sought and negotiated for the management of many site level activities.              | Very good |          |  |  |

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

| Condition                               | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Resources insufficient for most tasks.  | Poor      | ✓        | Management plan, office records, research reports and discussion with PA staff | Funds are mostly insufficient and the manpower for the management is also less as compared to the activities. |
| Resources sufficient for some tasks.    | Fair      |          |  |   |
| Resources sufficient for most tasks.    | Good      |          |  |   |
| Resources are in excess for most tasks. | Very good |          |  |   |

## 4. Process

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-----------|----------|--|---|
| Very few trained officers and frontline staff in the site.                     | Poor      | ✓        | Management plan, office records, research reports and discussion with PA staff | As such there are no trained staff in the area. However, internal arrangement for some training programme on ecotourism and legal issue have been made. |
| Few trained officers and frontline staff, who are posted in the site.          | Fair      |          |  |   |
| A large number of trained officers and frontline staff are posted in the site. | Good      |          |  |   |
| All trained managers and frontline staff posted in the site.                   | Very good |          |  |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-----------|----------|--|--|
| No linkage between staff performance management and management objectives.  | Poor      | ✓        | Management plan, office records, research reports and discussion with PA staff | There is no such system in place except for the state level award for best performing staff. |
| Some linkage between staff performance management and management objectives, but not consistently or systematically assessed. | Fair      |          |  |  |
| Performance management for most staff is directly linked to achievement of relevant management objectives.                    | Good      |          |  |  |
| Performance management of all staff is directly linked to achievement of relevant management objectives.                      | Very good |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-----------|----------|---|---|
| Little or no public participation in PA management.  | Poor      |          | Management plan, office records, research reports and discussion with PA staff and other stakeholders | The participation of communities and other stakeholders had been opportunistic. |
| Opportunistic public participation in some aspects of PA management.                         | Fair      | ✓        |   |   |
| Systematic public participation in most aspects of PA management.                            | Good      |          |   |   |
| Comprehensive and systematic public participation in all important aspects of PA management. | Very good |          |   |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| No systematic approach to handling complaints.  | Poor      |          | Management plan, office records, research reports and discussion with PA staff | There is no established system of documentation and handling of complaints. It is informal and depends upon the in-charge official of the PA. |
| Complaints handling system operational but not responsive to individual issues and limited follow up provided.          | Fair      | ✓        |  |   |
| Coordinated system logs and responds effectively to most complaints.  | Good      |          |  |   |
| All complaints systematically logged in coordinated system and timely response provided with minimal repeat complaints. | Very good |          |  |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-----------|----------|--|---|
| No livelihood issues are addressed by PA management.   | Poor      |          | Management plan, office records, research reports and discussion with PA staff | Under ecodevelopment programme, some community welfare activities like construction of community buildings and income generation have been undertaken. As such the programme is weak. |
| Few livelihood issues are addressed by PA management.  | Fair      | ✓        |  |   |
| Substantial livelihood issues are addressed by PA management.  | Good      |          |  |   |
| Livelihood issues of resource dependent communities especially women are addressed effectively by PA managers. | Very good |          |  |   |

**5. Output**

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

| Condition  | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-----------|----------|--|--|
| Little or no information on PA management publicly available.  | Poor      |          | Management plan, office records, research reports and discussion with PA staff | Information exists in terms of brochures, ENVIS Website, etc., Information is also being provided to Tourism department. All reports of PA are on website of the department. |
| Publicly available information is general and has limited relevance to management accountability and the condition of public assets. | Fair      | ✓        |  |  |
| Publicly available information provides detailed insight into major management issues for most PAs or groups of PAs.                 | Good      |          |  |  |
| Comprehensive reports are routinely provided on management and condition of public assets in all PAs or groups of PAs.               | Very good |          |  |  |

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

| Condition  | Category | (Tick ✓) | Reference document(s)  | Remarks   |
|--|----------|----------|--|---|
| Visitor services and facilities are at odds with relevant PA category and/or threaten PA values.         | Poor     | ✓        | Management plan, office records, research reports and discussion with PA staff | Currently, there are no tourism services and no visitors except for few informal visitors in Padamchin range. However, there are proposals to develop the |
| Visitor services and facilities generally accord with relevant PA category and don't threaten PA values. | Fair     |          |  |   |

|  |           |  |  |                                       |
|--|-----------|--|--|---------------------------------------|
| All visitor services and facilities accord with relevant PA category and most enhance PA values. | Good      |  |  | interoperation facilities for the PA. |
| All visitor services and facilities accord with relevant PA category and enhance PA values.      | Very good |  |  |                                       |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-----------|----------|--|---|
| Little or no systematic evaluation or routine reporting of trends.  | Poor      | ✓        | Management plan, office records, research reports and discussion with PA staff | There is no such system of monitoring and research. Some information has been generated for Red Panda by WWF-India. |
| Some evaluation and reporting undertaken but neither systematic nor routine.  | Fair      |          |  |   |
| Systematic evaluation and routine reporting of management related trends undertaken.  | Good      |          |  |   |
| Systematic evaluation and comprehensive reporting of trends undertaken and attempts made at course corrections as relevant. | Very good |          |  |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-----------|----------|--|--|
| No systematic inventory or maintenance schedule.  | Poor      |          | Management plan, office records, research reports and discussion with PA staff | Maintenance is as per the availability of funds and the system is adhoc. |
| Inventory maintenance is adhoc and so is the maintenance schedule.  | Fair      | ✓        |  |  |
| Systematic inventory provides the basis for maintenance schedule but funds are inadequately made available. | Good      |          |  |  |
| Systematic inventory provides the basis for maintenance schedule and adequate funds are made available.     | Very good |          |  |  |

## 6. Outcomes

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

| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-------------|----------|--|--|
| Threatened/ endangered species populations declining.                           | Poor        |          | Management plan, office records, research reports and discussion with PA staff | Only information available is for Red Panda. There is no information on other species. |
| Some threatened/ endangered species populations increasing, most others stable. | <b>Fair</b> | ✓        |  |  |
| Most threatened/ endangered species populations increasing, most others stable. | Good        |          |  |  |
| All threatened/ endangered species populations either increasing or stable.     | Very good   |          |  |  |

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

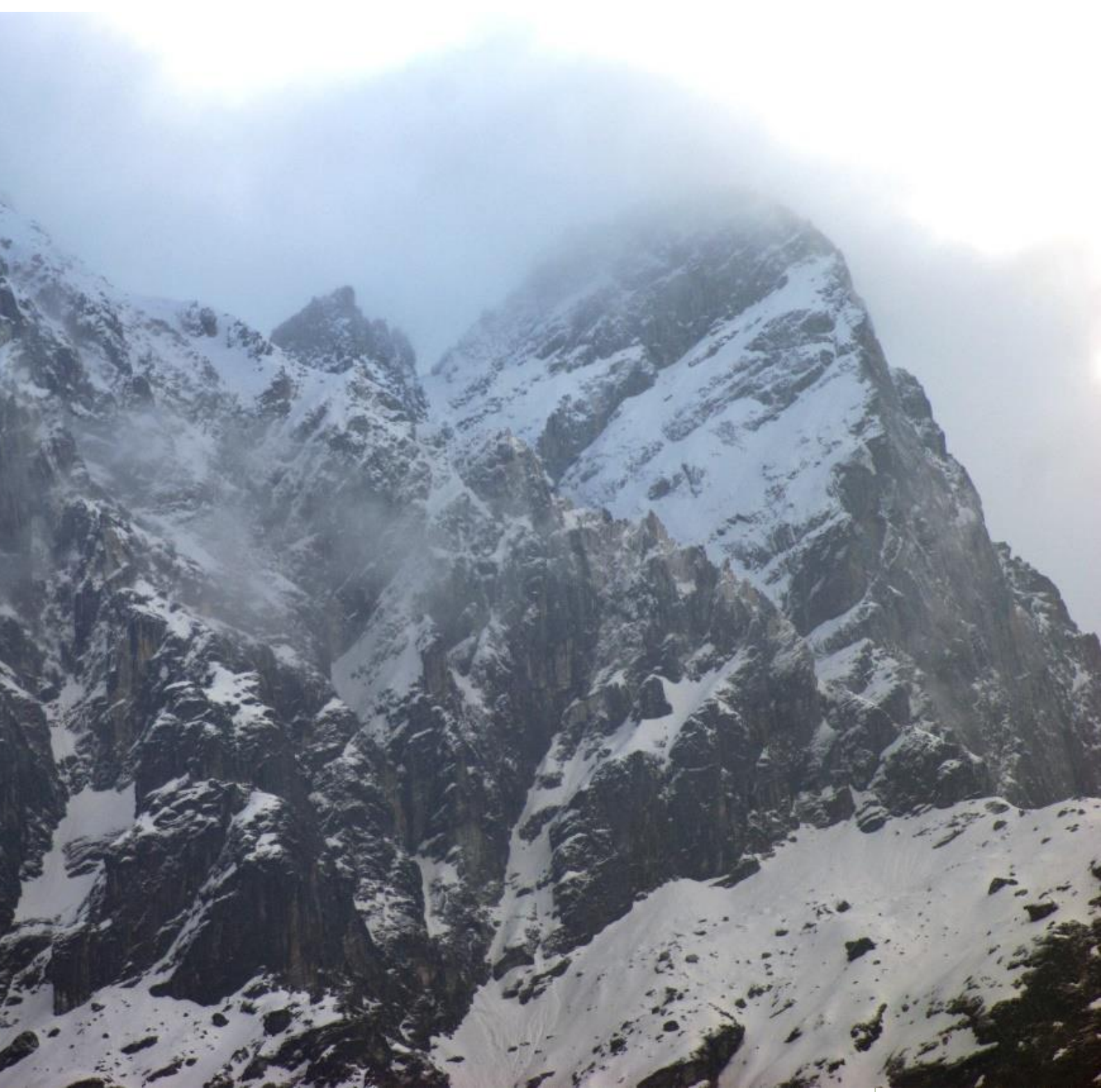
| Condition   | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|---|-------------|----------|--|---|
| Threats to the Site have not abated but have enhanced.  | Poor        |          | Management plan, office records, research reports and discussion with PA staff and community | As per the discussions, it is revealed that the threats are either decreasing or stable. However, there are no records to substantiate this. From the records and the discussions, it is revealed that there is no problem of poaching. |
| Some threats to the Site have abated, others continue their presence  | <b>Fair</b> | ✓        |  |   |
| Most threats to the Site have abated. The few remaining are vigorously being addressed  | Good        |          |  |   |
| All threats to the Site have been effectively contained and an efficient system is in place to deal with any emerging situation | Very good   |          |  |   |

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

| Condition                                   | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|---|-------------|----------|--|--|
| Expectations of visitors generally not met. | Poor        |          | Management plan, office records, research reports and discussion with PA staff | There are few tourists. Wildlife sightings and other expectation of the tourist are not met satisfactorily. The visitor infrastructure is also inadequate. |
| Expectations of many visitors are met.      | <b>Fair</b> | ✓        |  |  |
| Expectations of most visitors are met.      | Good        |          |  |  |
| Good expectations of most visitors are met. | Very good   |          |  |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks   |
|--|-------------|----------|--|---|
| Local communities are hostile.                     | Poor        |          | Management plan, office records, research reports and discussion with PA staff | Communities in general are supporting, particularly due to some initiatives of ecodevelopment |
| Some are supportive.                               | Fair        |          |  |   |
| Most locals are supportive of PA management.       | <b>Good</b> | ✓        |  |   |
| All local communities supportive of PA management. | Very good   |          |  |   |



## Assessment Criteria for addressing issues relating to Climate Change & Carbon capture in the Protected Areas

### 1. Additional Criteria on Climate Change: Is the protected area being consciously managed to adapt to climate change?

| Condition  | Category  | (Tick ✓) | Comment/ Explanation  | Next Steps   |
|--|-----------|----------|---|--|
| There have been no efforts to consider adaptation to climate change in management  | Poor      | ✓        | PA manger are not trained to incorporate activities/ parameters in their management plan about climate change issues. | Need to be addressed in the revised management plan. |
| Some initial thought has taken place about likely impacts of climate change, but this has yet to be translated into management plans                     | Fair      |          |   |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management. | Good      |          |   |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented                     | Very good |          |   |  |

### 2. Additional Criteria on Climate Change: Is the protected area being consciously managed to prevent carbon loss and to encourage further carbon capture?

| Condition  | Category  | (Tick ✓) | Comment/ Explanation  | Next Steps   |
|--|-----------|----------|---|--|
| Carbon storage and carbon dioxide capture have not been considered in management of the protected area   | Poor      |          | PA manger are not trained to incorporate activities/ parameters in their management plan about climate change and carbon capture. | Need to be addressed in the revised management plan. |
| Carbon storage and carbon dioxide capture have been considered in general terms, but has not yet been significantly reflected in management    | Fair      | ✓        |   |  |
| There are active measures in place to reduce carbon loss from the protected area, but no conscious measures to increase carbon dioxide capture | Good      |          |   |  |
| There are active measures in place both to reduce carbon loss from the protected area and to increase carbon dioxide capture                   | Very good |          |   |  |

## MEE Score Card

| Framework Element Number | Framework Element Name | Number of Questions (a) | Maximum Mark per question (b) | Total (a x b) | Marks obtained for the Element | Overall Score |
|--------------------------|------------------------|-------------------------|-------------------------------|---------------|--------------------------------|---------------|
| 1.                       | Context                | 03                      | 10                            | 30            | 17.5                           | <b>47.50%</b> |
| 2.                       | Planning               | 09                      | 10                            | 90            | 50                             |               |
| 3.                       | Inputs                 | 05                      | 10                            | 50            | 17.5                           |               |
| 4.                       | Process                | 05                      | 10                            | 50            | 20                             |               |
| 5.                       | Outputs                | 04                      | 10                            | 40            | 15                             |               |
| 6.                       | Outcomes               | 04                      | 10                            | 40            | 22.5                           |               |
| <b>Total</b>             |                        | <b>30</b>               |                               | <b>300</b>    | <b>142.50</b>                  |               |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above



## Management Strengths, Weaknesses and Actionable Points of Pangolakha Wildlife Sanctuary

### Management Strengths

1. The site has been identified and categorized adequately. A GIS map is being prepared using GPS data collected along the boundary of the site as well as from the compartments or zones.
2. Though the management plan has been prepared but it is not comprehensive.
3. The population density in the area is very low and management is involving the local people in most of the planning processes.
4. The site is integrated well into landscape and adjoining PAs. The site is close to or contiguous with Neora NP of West Bengal in the south, Torsa Nature Reserve of Bhutan in the east, Pangola, Salami and Yali reserve forests in the north-west and Kyongnosla Wildlife Sanctuary.
5. In terms of NGO contribution, WWF India gives immense technical support to the site.
6. The tasks performed by the staff are directly linked to management objectives. Additionally, the staffs are taken on exposure trips outside the state as an incentive.
7. There is public participation in some of the important aspects of the PA management.
8. Some tourist facilities are available just outside the PA.
9. The red panda population was estimated jointly by the forest department and WWF-India in a pocket in the northern range of the PA.

### Management Weaknesses

1. Although the threats and values have been identified, but these have not been systematically assessed. Feral dogs are a major threat for the local wildlife animals. The labour forces used by the army to construct roads are another threat. The labourers often settle in the peripheral areas of the PA, depending on the PA for firewood (mainly for their space-heating needs). Improved access through a couple of roads built by the army-one from Bheembase to Dokola and the other from Flaghill to Dokola-may facilitate resource extraction and other adverse impacts on the PA.
2. There are inadequate resources - both financial and human.
3. The DFO is responsible for managing three wildlife sanctuaries and has only one patrolling vehicle and three motorcycles.
4. Government accommodation is almost non-existent, except for the living quarters of the forest guards and a trekking hut.
5. The funds provided for infrastructure development, transport and communication facilities are inadequate.
6. NGOs do contribute to the management of the site, but opportunities for collaboration are not systematically explored. Only WWF-India is helping the PA.
7. There is no interpretation centre for tourists.
8. The PA management is unable to carry out routine maintenance of assets/infrastructure due to a poor availability of funds.
9. Scientific censuses have not been carried out for flora and fauna other than the Red Panda.

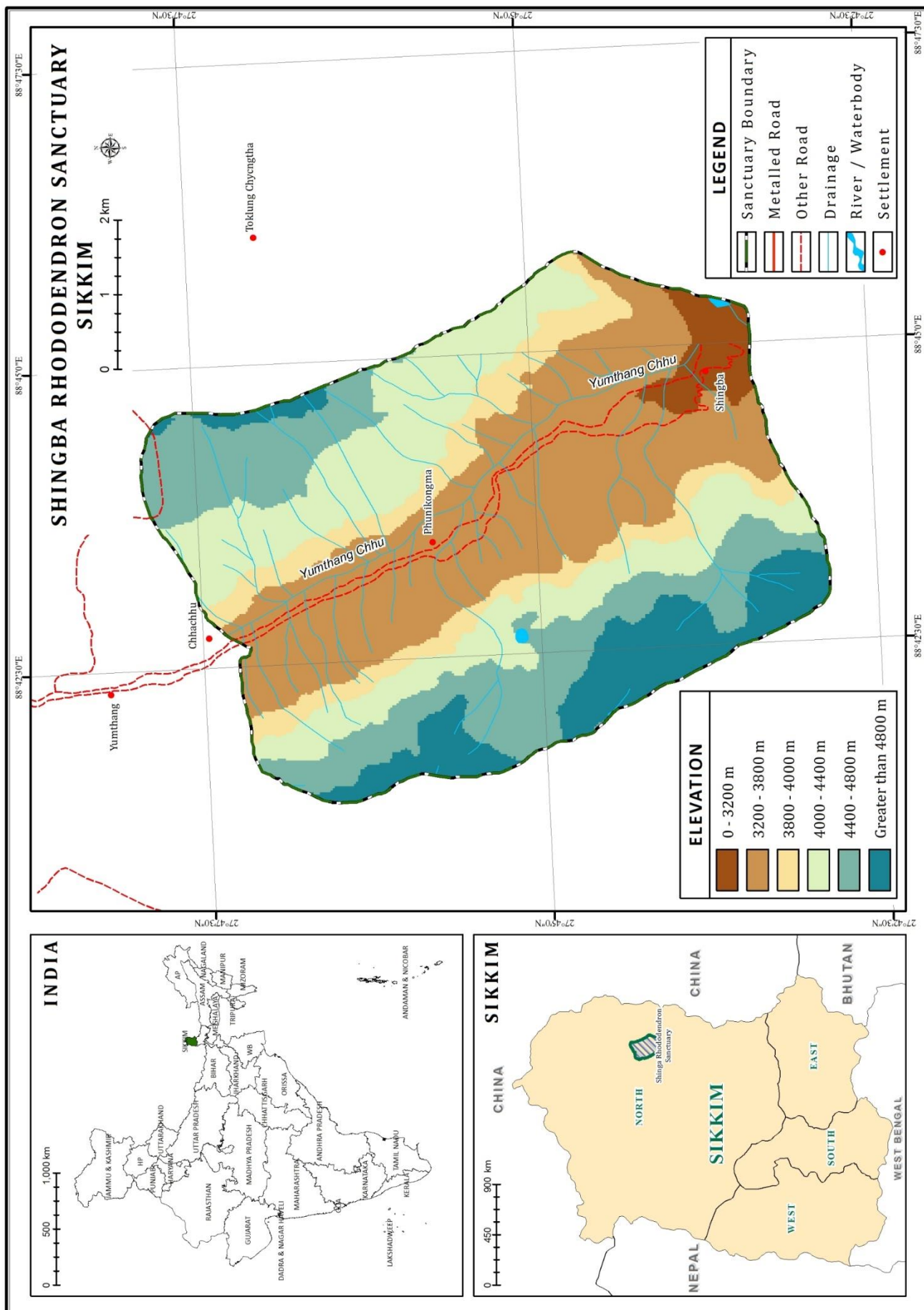
### Actionable Points

1. The management should identify, assess and document all the conservation values making use of the existing scientific information, with the participation of different research institutions/individuals who have worked in the area and other stakeholders
2. The existing management plan is not very comprehensive and it needs to be revised with a focus on the scientific zonation, comprehensive protection strategies, habitat management plan, adaptive management and ecodevelopment through due process of stakeholder participation.
3. The threat analysis for the area needs (especially areas bordering West Bengal) to be carried out spatially and temporarily along with different stakeholders so as to develop a baseline for subsequent monitoring.
4. A comprehensive system of monitoring protocols covering ecological, biological and socio economic and other managerial attributes need to be developed and operationalized immediately
5. The lack of human and financial resources needs urgent attention, especially in terms of infrastructure development, transport, communication facilities and appointment of the requisite staff. There is a need to enhance the resources allocated for management of the site.
6. Steps need to be taken to develop a nature interpretation centre for improving the tourism facilities.
7. Contribution of NGOs for management of PA needs to be enhanced through adequate support and persuasion.



## 4.8 Shingba Rhododendron Sanctuary





| Shingba Rhododendron Sanctuary : At A Glance |                                    |  |
|--|------------------------------------|--|
| S. No.                                       | Contents                           | Details  |
| 1.   | Notification/Year of Establishment | 46/WL/F/92/1585/F&WL dated 05.12.1992  |
| 2.   | Location                           | Shingba Range, North Wildlife Division, North Sikkim   |
| 3.   | Area                               | 43 sq. km  |
| 4.   | Biogeographic location             | 2C (Central Himalayas)   |
| 5.   | Latitude, Longitude & Altitude     | Lat: 27°50'28"N, Long: 88°44'21"E, Alt: 3048m-4575m  |
| 6.   | Nearest Town                       | Lachung  |
| 7.   | Major Forest Types                 | East Himalayan Mixed Coniferous Forest, Birch-Rhododendron Scrub Forest and Alpine pasture Types   |
| 8.   | Key Flora                          | <i>Abies densa</i> , <i>Picea smithiana</i> , <i>Tsuga dumosa</i> , <i>Betula alnoides</i> , <i>Salix babylonica</i> , <i>Salix sikkimensis</i> , <i>Rhododendron spp</i> , <i>Betula utilis</i> , <i>Acer campelli</i> , <i>Larix griffithiana</i> , <i>Juniperus indica</i> , <i>J. recurva</i> , <i>Primula</i> , <i>Anemone</i> , <i>Fritillaria</i> , <i>Iris</i> , <i>Gentiana</i> , <i>Arisaema</i> , <i>Saussurea</i> etc. |
| 9.   | Key Fauna                          | Red Panda, Musk Deer, Blue Sheep, Serow, Wild Yak, Blood Pheasants, Tragopan Pheasants   |
| 10.  | Fringe Area Villages               | No Villages inside, however Lachungpas belonging to Bhutia Local communities inhabit the fringe areas of the sanctuary.  |
| 11.  | Major Threats                      | Erosion and Floods, Snow, Weeds, Wind, Grazing, Fire, Poaching, Grazing, Tourism   |
| 12.  | Others                             | Nothing specific   |

Shingba Rhododendron WLS is one of the most beautiful PA in Sikkim State. It is situated in the famous Yumthang Valley in North Sikkim and bordered with high rugged Chuba-Sagochen mountain ranges on the east and Chomzomei Tso extending upto Lava pass on the west. The picturesque Yumthang Chu (river) flows through the wide valley offering a breathtaking landscape. Lachung is the last frontier village before reaching the WLS. The PA has been created to protect the magnificent Rhododendron forests, along with its unique fauna and its flagship species here. Approximately 40 species of Rhododendrons have been recorded from here including the endemic *Rhododendron neivium* (the state tree of Sikkim) found naturally only in this PA. Rhododendron trees laden with trailing lichens provide good habitat for avifauna and flora. As the sanctuary is located at higher elevations only about 27 % area is forested, whereas permanent snow and moraines cover about 13 %, alpine scrub covers 10.3 % and barren rocky slopes constitutes 48 % area of the sanctuary.

## MEE Assessment Criteria Form for Shingba (Rhododendron) Wildlife Sanctuary

May 2015: Information collected by the WII-team

### 1. Context

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Values not systematically documented, assessed or monitored.               | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | The values of the site have been documented partly through research reports, inventories carried out by the department and the rapid biodiversity survey carried under JICA. These are also documented for tourism and nature education. However, the quantification of these values and monitoring is not done. |
| Values generally identified but not systematically assessed and monitored. | Fair      |          |   |  |
| Most values systematically identified and assessed and monitored.          | Good      | ✓        |   |  |
| All values systematically identified and assessed and monitored.           | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| Threats not systematically documented or assessed.            | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | There are no villages inside PA. All potential threats have been identified but no systematic assessment and monitoring is carried out. |
| Threats generally identified but not systematically assessed. | Fair      | ✓        |   |   |
| Most threats systematically identified and assessed.          | Good      |          |   |   |
| All threats systematically identified and assessed.           | Very good |          |   |   |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| The site has extensive human and biotic interference. | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | There are temporary cattle shed just outside the WLS and these do have some pressure in the form of grazing. There is also the issue of stray cattle and other pressure from the local people of the Lachung area for fuel wood and other medicinal plants. Lack of adequate infrastructure |
| The site has some human and biotic interference.      | Fair      | ✓        |   |   |
| The site has little human and biotic interference.    | Good      |          |   |   |
| The site has no human and biotic interference.        | Very good |          |   |   |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  | for efficient management and protection and the transitional grazing during the pre- monsoon season for a short period add to the problems of PA. The main threat to the biodiversity values of this sanctuary is from the temporary cattle sheds (Goths). |
|--|--|--|--|--|

## 2. Planning

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-------------|----------|---|---|
| Site not identified correctly or categorized.  | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | Site has been correctly identified, but categorization of different zones is yet to be done. Area forms part of large landscape with its ecological boundaries to the adjoining reserve forest. |
| Site identified correctly but not categorized.                                       | <b>Fair</b> | ✓        |   |   |
| Site identified correctly but not systematically categorized.                        | Good        |          |   |   |
| Site identified correctly and systematically categorized with proper zonation plans. | Very good   |          |   |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| No relevant Management Plan in place.   | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | The management plan has been prepared with reasonable details. For different theme plans and zone plan strategies have been identified. Some of the strategies are quite clear while others need details. The site has a Management Plan for the period 2008-2018. |
| Management Plan exist but not comprehensive.  | Fair        |          |   |  |
| Site has a comprehensive Management Plan.   | <b>Good</b> | ✓        |   |  |
| Site has a comprehensive, science based Management Plan prepared through a participatory process. | Very good   |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| No process in place for systematic review and update of Management Plan.                              | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | This is the first management plan. The plan needs further upgradation to some extent. The plan as such has not been updated since it has been prepared. The existing Management Plan for Shingba Rhododendron Sanctuary is not comprehensive and science based. It needs to be updated. |
| Management Plan sometimes updated in adhoc manner.  | Fair      | ✓        |   |   |
| Management Plan routinely and systematically updated.   | Good      |          |   |   |
| Management Plan routinely, systematically and scientifically updated through a participatory process. | Very good |          |   |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-----------|----------|---|---|
| Sites does not safeguard the threatened biodiversity values.       | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | The area is highly significant in terms of rich biodiversity, complex composition with rare and endangered flora and fauna which is adequately safeguarded. |
| Sites safeguards a few threatened biodiversity values.             | Fair      |          |   |   |
| Sites safeguards a large number of threatened biodiversity values. | Good      | ✓        |   |   |
| Sites safeguards all threatened biodiversity values.               | Very good |          |   |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s) | Remarks  |
|--|-----------|----------|-----------------------|--|
| Little, if any opportunity for stakeholder participation in planning.            | Poor      |          |                       | The Dzumsa System prevails in Lachung which facilitates the participation of all stakeholders through various public meetings and co-ordination. |
| Stakeholders participate in some planning.                                       | Fair      |          |                       |  |
| Stakeholders participate in most planning processes.                             | Good      | ✓        |                       |  |
| Stakeholders routinely and systematically participate in all planning processes. | Very good |          |                       |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-------------|----------|---|--|
| Habitat restoration programmes are entirely adhoc.                               | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | The habitat restoration and soil & moisture conservation works are being carried out to a large extent to protect the fragile ecosystem. Plantation of Rhododendron and other associated trees is carried out actively in WLS as a part of habitat improvement. Fire lines are created inside the sanctuary. However, proper monitoring needs to be carried out. |
| Limited planning and monitoring programmes are in place for habitat restoration. | Fair        |          |   |  |
| Habitat restoration programmes are generally well planned and monitored.         | <b>Good</b> | ✓        |   |  |
| Habitat restoration programmes are thoroughly planned and monitored.             | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| Site has no protection strategy.  | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | There are no local protection issues. Two times a week patrolling is carried out by the staff. WLS has three forest guards and seven chowkidars/ watchers who patrol the area regularly. |
| Site has an adhoc protection strategy.                                  | Fair        |          |   |  |
| Site has a comprehensive protection strategy but is not very effective. | <b>Good</b> | ✓        |   |  |
| Site has a comprehensive and very effective protection strategy.        | Very good   |          |   |  |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)  | Remarks  |
|--|-------------|----------|--|--|
| Human-wildlife conflicts are rampant.                                    | Poor        |          | Existing management plan, research report, office records and discussion with the PA management. | Black Bear, Himalayan langur and Monkeys damage the crops. So far no human injury and mortality has been reported. Mobilization of rescue teams during Himalayan black bear menace period is done. Ex- gratia payment for crop damages and domestic animal killing by wild animals are paid. |
| Site has been able to mitigate few human-wildlife conflicts.             | Fair        |          |  |  |
| Site has been able to mitigate many human-wildlife conflicts.            | <b>Good</b> | ✓        |  |  |
| Site has been able effective in mitigating all human-wildlife conflicts. | Very good   |          |  |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Site not integrated into a wider network/ landscape.                   | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | WLS is a part of the Khangchendzonga landscape but still the landscape approach of management is in a nascent stage. Integration of reserve forest as part of the landscape is being thought of. |
| Some limited attempts to integrate the site into a network/ landscape. | Fair      |          |   |  |
| Site is generally quite well integrated into a network/ landscape.     | Good      | ✓        |   |  |
| Site is fully integrated into a wider network/ landscape.              | Very good |          |   |  |

**3. Inputs**

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-----------|----------|---|---|
| Few, if any, personnel explicitly allocated for PA management.  | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | There is scarcity of lower staffs. The post of a forester is vacant. However, due to the presence of watchers, the protection is not a serious issue. |
| Some personnel explicitly allocated for PA management but not systematically linked to management objectives. | Fair      | ✓        |   |   |
| Some personnel explicitly allocated towards achievement of specific management objectives.                    | Good      |          |   |   |
| Adequate personnel explicitly allocated towards achievement of specific management objectives.                | Very good |          |   |   |

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

| Condition   | Category | (Tick ✓) | Reference document(s)   | Remarks  |
|---|----------|----------|---|--|
| Few, if any, resources explicitly allocated for PA management.  | Poor     |          | Existing management plan, research report, office records and discussion with the PA management | There is some infrastructure but this is inadequate. There is need of equipment's in the form of Camera traps, camping gears and other communication facilities. |
| Some resources explicitly allocated for PA management but not systematically linked to management objectives. | Fair     | ✓        |   |  |
| Some resources explicitly allocated towards achievement of specific management objectives.                    | Good     |          |   |  |

|  |           |  |  |  |
|--|-----------|--|--|--|
| Adequate resources explicitly allocated towards achievement of specific management objectives. | Very good |  |  |  |
|--|-----------|--|--|--|

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| Resource allocation is adhoc, funds are inadequate and seldom released in time and not utilized.  | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | This is one of the major constraints of the PA. The resources are not adequate and many priority actions are not taken because of lack of funds. |
| Some specific allocation for management of priority action. Funds are inadequate and there is some delay in release, partially utilized.          | Fair      | ✓        |   |  |
| Comprehensive planning and allocation that meets the most important objectives. Generally funds released with not much delay and mostly utilized. | Good      |          |   |  |
| Comprehensive planning and allocation of resources for attainment of most objectives. Funds generally released on-time and are fully utilized.    | Very good |          |   |  |

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

| Condition*   | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-----------|----------|---|---|
| NGOs contribute nothing for the management of the site.  | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | There is no support from NGO's in terms of finances. However, NGOs have contributed in terms of research information. |
| NGOs make some contribution to management of the site but opportunities for collaboration are not systematically explored. | Fair      | ✓        |   |   |
| NGOs contributions are systematically sought and negotiated for the management of some site level activities.              | Good      |          |   |   |
| NGOs contributions are systematically sought and negotiated for the management of many site level activities.              | Very good |          |   |   |

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

| Condition                               | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| Resources insufficient for most tasks.  | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | The resources are inadequate and this is a constraint for the PA management. |
| Resources sufficient for some tasks.    | <b>Fair</b> | ✓        |   |  |
| Resources sufficient for most tasks.    | Good        |          |   |  |
| Resources are in excess for most tasks. | Very good   |          |   |  |

## 4. Process

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-------------|----------|---|--|
| Very few trained officers and frontline staff in the site.                     | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | Some of the previous managers were wildlife trained from WII. At present one ACF is undergoing 10 months P.G. Diploma Course in Advanced Wildlife Management from WII. The lower staff have not been wildlife trained. All lower staff has been trained in general forestry. |
| Few trained officers and frontline staff, who are posted in the site.          | <b>Fair</b> | ✓        |   |  |
| A large number of trained officers and frontline staff are posted in the site. | Good        |          |   |  |
| All trained managers and frontline staff posted in the site.                   | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| No linkage between staff performance management and management objectives.  | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | No specific system for this is existing. However, the state level award for best performance staff is available. |
| Some linkage between staff performance management and management objectives, but not consistently or systematically assessed. | <b>Fair</b> | ✓        |   |  |
| Performance management for most staff is directly linked to achievement of relevant management objectives.                    | Good        |          |   |  |
| Performance management of all staff is directly linked to achievement of relevant management objectives.                      | Very good   |          |   |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Little or no public participation in PA management.  | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | The public participation in PA management is good as there are few activities being carried out for the local people under ecodevelopment and some people are benefitted through tourism directly or indirectly. |
| Opportunistic public participation in some aspects of PA management.                         | Fair      |          |   |  |
| Systematic public participation in most aspects of PA management.                            | Good      | ✓        |   |  |
| Comprehensive and systematic public participation in all important aspects of PA management. | Very good |          |   |  |

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

| Condition   | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-----------|----------|---|--|
| No systematic approach to handling complaints.  | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | For complaints, public directly approach the Manager and is being properly responded. Being small area the follow up is good.. |
| Complaints handling system operational but not responsive to individual issues and limited follow up provided.          | Fair      |          |   |  |
| Coordinated system logs and responds effectively to most complaints.  | Good      | ✓        |   |  |
| All complaints systematically logged in coordinated system and timely response provided with minimal repeat complaints. | Very good |          |   |  |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| No livelihood issues are addressed by PA management.   | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | There is one EDC and in their area some entry point activities have been carried out. EDC engages local communities for all the works undertaken in WLS. |
| Few livelihood issues are addressed by PA management.  | Fair      | ✓        |   |  |
| Substantial livelihood issues are addressed by PA management.  | Good      |          |   |  |
| Livelihood issues of resource dependent communities especially women are addressed effectively by PA managers. | Very good |          |   |  |

## 5. Output

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-----------|----------|---|---|
| Little or no information on PA management publicly available.  | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | The Forest Department Portal holds information about the Sanctuary which is publicly available. Brochures have been published to provide information about the sanctuary. Some of the research carried out in the PA is available online. |
| Publicly available information is general and has limited relevance to management accountability and the condition of public assets. | Fair      | ✓        |   |   |
| Publicly available information provides detailed insight into major management issues for most PAs or groups of PAs.                 | Good      |          |   |   |
| Comprehensive reports are routinely provided on management and condition of public assets in all PAs or groups of PAs.               | Very good |          |   |   |

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

| Condition  | Category  | (Tick ✓) | Reference document(s)   | Remarks  |
|--|-----------|----------|---|--|
| Visitor services and facilities are at odds with relevant PA category and/or threaten PA values.         | Poor      |          | Existing management plan, research report, office records and discussion with the PA management | Some facilities exist but these are not adequate. Interpretation centre is lacking. Rhodo reception centre exists but is not properly furnished due to fund crunch. It is proposed to be converted to Interpretation Centre in days to come. |
| Visitor services and facilities generally accord with relevant PA category and don't threaten PA values. | Fair      | ✓        |   |  |
| All visitor services and facilities accord with relevant PA category and most enhance PA values.         | Good      |          |   |  |
| All visitor services and facilities accord with relevant PA category and enhance PA values.              | Very good |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| Little or no systematic evaluation or routine reporting of trends.  | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | The reporting system prevails but proper evaluation is lacking. No wildlife population estimation exercise has been carried out so far |
| Some evaluation and reporting undertaken but neither systematic nor routine.  | <b>Fair</b> | ✓        |   |  |
| Systematic evaluation and routine reporting of management related trends undertaken.  | Good        |          |   |  |
| Systematic evaluation and comprehensive reporting of trends undertaken and attempts made at course corrections as relevant. | Very good   |          |   |  |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-------------|----------|---|---|
| No systematic inventory or maintenance schedule.  | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | There are adhoc inventories and systems of maintenance. Maintenance works are carried out as per the availability of funds. |
| Inventory maintenance is adhoc and so is the maintenance schedule.  | <b>Fair</b> | ✓        |   |   |
| Systematic inventory provides the basis for maintenance schedule but funds are inadequately made available. | Good        |          |   |   |
| Systematic inventory provides the basis for maintenance schedule and adequate funds are made available.     | Very good   |          |   |   |



## 6. Outcomes

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-------------|----------|---|---|
| Threatened/ endangered species populations declining.                           | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | No wildlife population estimation has been carried out except the rapid biodiversity survey carried out by JICA and some research report which show the presence of threatened/ endangered species in WLS. All the flora and fauna in the PA is of native species and the area supports native biodiversity. No invasive alien species have been sighted so far from the PA. There is problem of feral dogs as per the local information. |
| Some threatened/ endangered species populations increasing, most others stable. | <b>Fair</b> | ✓        |   |   |
| Most threatened/ endangered species populations increasing, most others stable. | Good        |          |   |   |
| All threatened/ endangered species populations either increasing or stable.     | Very good   |          |   |   |

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

| Condition   | Category    | (Tick ✓) | Reference document(s)   | Remarks  |
|---|-------------|----------|---|--|
| Threats to the Site have not abated but have enhanced.  | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | There is good public support which has led to reduction in the threats. The problem of feral dogs is increasing. Efforts are being made by the Managers, staff and EDCs to reduce the threats. |
| Some threats to the Site have abated, others continue their presence  | Fair        |          |   |  |
| Most threats to the Site have abated. The few remaining are vigorously being addressed  | <b>Good</b> | ✓        |   |  |
| All threats to the Site have been effectively contained and an efficient system is in place to deal with any emerging situation | Very good   |          |   |  |

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

| Condition                                   | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|---|-------------|----------|---|---|
| Expectations of visitors generally not met. | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | There is no visitor register. Even though the visitor facilities are very less, the tourist visits the PA because of its scenic beauty and the wilderness experience. |
| Expectations of many visitors are met.      | <b>Fair</b> | ✓        |   |   |
| Expectations of most visitors are met.      | Good        |          |   |   |
| Good expectations of most visitors are met. | Very good   |          |   |   |

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

| Condition  | Category    | (Tick ✓) | Reference document(s)   | Remarks   |
|--|-------------|----------|---|---|
| Local communities are hostile.                     | Poor        |          | Existing management plan, research report, office records and discussion with the PA management | The Forest Department gets good support from the locals because of ecotourism and some ecodevelopment activities. |
| Some are supportive.                               | Fair        |          |   |   |
| Most locals are supportive of PA management.       | <b>Good</b> | ✓        |   |   |
| All local communities supportive of PA management. | Very good   |          |   |   |



## Assessment Criteria for addressing issues relating to Climate Change & Carbon capture in the Protected Areas

### 1. Additional Criteria on Climate Change: Is the protected area being consciously managed to adapt to climate change?

| Condition  | Category  | (Tick ✓) | Comment/Explanation  | Next Steps   |
|--|-----------|----------|--|--|
| There have been no efforts to consider adaptation to climate change in management  | Poor      |          | PA manger are not trained to incorporate activities/ parameters in their management plan about climate change. However, the protection and ecodevelopment activities do indirectly contribute for climate change mitigation. | Need to be addressed in the revised management plan. |
| Some initial thought has taken place about likely impacts of climate change, but this has yet to be translated into management plans                     | Fair      | ✓        |  |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management. | Good      |          |  |  |
| Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented                     | Very good |          |  |  |

### 2. Additional Criteria on Climate Change: Is the protected area being consciously managed to prevent carbon loss and to encourage further carbon capture?

| Condition  | Category  | (Tick ✓) | Comment/Explanation   | Next Steps  |
|--|-----------|----------|---|---|
| Carbon storage and carbon dioxide capture have not been considered in management of the protected area   | Poor      |          | PA manger are not trained to incorporate activities/ parameters in their management plan about carbon capture. However, the protection and ecodevelopment activities do indirectly contribute for carbon capture. | Need to be proactively addressed in the revised management plan through strategies. |
| Carbon storage and carbon dioxide capture have been considered in general terms, but has not yet been significantly reflected in management    | Fair      | ✓        |   |   |
| There are active measures in place to reduce carbon loss from the protected area, but no conscious measures to increase carbon dioxide capture | Good      |          |   |   |
| There are active measures in place both to reduce carbon loss from the protected area and to increase carbon dioxide capture                   | Very good |          |   |   |

## MEE Score Card

| Framework Element Number | Framework Element Name | Number of Questions (a) | Maximum Mark per question (b) | Total (a x b) | Marks obtained for the Element | Overall Score |
|--------------------------|------------------------|-------------------------|-------------------------------|---------------|--------------------------------|---------------|
| 1.                       | Context                | 03                      | 10                            | 30            | 17.5                           | 60%           |
| 2.                       | Planning               | 09                      | 10                            | 90            | 62.5                           |               |
| 3.                       | Inputs                 | 05                      | 10                            | 50            | 25                             |               |
| 4.                       | Process                | 05                      | 10                            | 50            | 30                             |               |
| 5.                       | Outputs                | 04                      | 10                            | 40            | 20                             |               |
| 6.                       | Outcomes               | 04                      | 10                            | 40            | 25                             |               |
| <b>Total</b>             |                        | <b>30</b>               |                               | <b>300</b>    | <b>180</b>                     |               |

Ratings in %: Poor-upto 44; Fair- 45 to 59; Good- 60 to 74 and Very Good- 75 and above



## Management Strengths, Weaknesses and Actionable Points of Shingba Rhododendron WLS

### Management Strengths

1. It is an important area from biodiversity point of view with sound landscape connectivity. It has connectivity adjoining to KNP and KBR.
2. Area has in general adequate support of local people particularly this being on the way of Yumthong Valley, an important tourism destination.
3. As compared to other PAs, the process of management planning seems to be better with proactive participation of stakeholders, due identification of conservation values and adequate zonation addressing landscape integration issues.
4. Due to remoteness and inaccessibility the biotic pressures are comparatively less.
5. This area has been managed in the past by some wildlife trained officers and that is reflected in the existing draft management plan and other ongoing activities.

### Management Weaknesses

1. There is shortage of field staff. Most of the field staff is not trained in wildlife management
2. The system of visitor management is inadequate and as such there are no mechanism of interpretation for the tourist who pass through this beautiful landscape.
3. Due to remoteness, the continuous presence of staff is minimum. However, the presence of daily wages watchers compensates the absence of staff.
4. The system of scientific monitoring is non-existent.

### Actionable points

1. Even though there is a good initiation as far as management planning process is concerned, the identification of conservation values as well as their assessment needs further improvement. The strategies for habitat management, protection and community involvement need to be carefully incorporated in the management plan.
2. The issue of shortage of staff need to be addressed on priority basis. A system of training of staff should be initiated and it should be repeated periodically.
3. Baseline information needs to be generated and compiled. Accordingly, a system of monitoring of different parameter using appropriate protocols need to be initiated.
4. Currently there is no arrangement of visitor management and interpretation in the PA, even though it is located on important tourism route. This issue need to be addressed by putting in place a sound visitor management and interpretation facility. The existing infrastructure can be used and further improved for this purpose. Some opportunities of eco-guides could be provided to local people thereby benefitting the PA as well as the local people and enhancing the visitor experience.
5. Even though significant revenue is being generated through tourism on this route but this resource is retained centrally. As such no financial benefits accrue to the local community. Appropriate mechanism need to be developed for sharing of these benefits with the local communities and also for the better management of the PA.



Chapter

5

**MAJOR ISSUES,  
CHALLENGES AND  
WAY FORWARD**

Sikkim is globally known for its biological diversity and it is part of the global biodiversity hotspot. State has been able to set aside 51.68% of its forest area under PA network including Biosphere Reserve. Presently there are 08 PAs, which comprise of 01 National Park and 07 Wildlife Sanctuaries, which cover 31% of total geographical area of the state. Khangchendzonga National Park (KNP) is the largest PA of the State covering about 25.14% of the total geographical area. Local traditional knowledge and culture has added to the variety of diversity in the region. Conservation as such has significant support of local people due to traditional, cultural and religious reasons. Because of rich heritage of flora, fauna, landscape beauty as well as culture, Sikkim is also one of the prominent tourism destinations in the country. Government has also a policy of promoting tourism in the state so as to attract visitors from the country and abroad for helping the local economy and projecting the image of the State as an International destination. Large influx of tourism, however, is both an opportunity as well as a threat for long term conservation of biodiversity.

Government has taken keen interest in establishment of its PA network and has also taken important policy decisions for protection of these areas. Due to the keen interest shown by the State, KNP which has unique ecological and cultural values are now under consideration for listing as one of the World Heritage Sites. Promotions of ecotourism as well as ban on grazing in the PAs are reflections of government's strong commitment for conservation and welfare of local communities. Sikkim has also been declared as an organic state. Even though PAs have been established, much needs to be done for improvement of the current management of these areas. Except of KNP and Barsey Rhododendron Sanctuary, all other areas are comparatively small. However, most of the PAs have intact linkages with other adjoining forest areas ensuring landscape connectivity. Small size of PA itself has its problems unless these areas are managed in the integrated fashion on the concept of landscape conservation.

Current MEE exercise has revealed that because of location most of the PAs are well integrated into wider landscapes. There is also the advantage of good community support for these areas there by helping in protection. Areas are more or less effective in safeguarding the values for which these were established. Exercise has however brought out many issues which need to be addressed urgently for effective management of PA network of the state. The management plans for most of the PAs are not comprehensive and these need to be immediately updated and improved under an overarching state level conservation plan. In all the areas there is shortage of field staff and many of existing staff are burdened with dual responsibilities of adjoining territorial area also. Staff is not trained in wildlife management, which reflects in the day to day management of the areas. Financial resources are inadequate in most of the PAs and there is a need to establish new institutional mechanism for adequate funding to these areas by using local, national as well as international sources.

The baseline for different components like ecological, socio-economic and cultural aspects is either weak or non-existent. Accordingly, the habitat management practices are invariably adhoc. There are practically no systems of periodic monitoring, which are very critical for adaptive management of these areas lying in ecologically sensitive landscape.

Even though most of these areas happened to be on important tourist routes, the visitor management facilities in most of the PAs are either adhoc or non-existent. Therefore, visitors as well as these areas are not able to encash the full advantage tourism. Systems of handling of public complaints and feedback are practically absent. Extension programmes of PAs are inadequate. Government is promoting the participation of local communities

through ecodevelopment and ecotourism programmes. However, these are sporadic and as per the availability of funds. There is need to strengthen these programmes keeping in mind the long term issues of sustainability (ecological, social and institutional), equity and social justice at PA level and at the level of state.

Tourism brings significant financial benefits to the State and this is because of rich and beautiful landscapes where these PAs fall. However, no share of this income is ploughed back to the management of these areas. Also most of the advantages are taken by outsider stakeholders and local communities who are bearing the cost of conservation are deprived of these benefits. There is no institutional mechanism to effective and rationalized distribution of resources.

Many of PAs fall in remote landscapes which are under the control of army. For protection and dealing with the other issues say feral dogs, Army can play a very crucial role. Tourism department is another important stakeholder in these areas. There are other line departments, NGOs and of course local communities which are important for these areas. However, there is practically no mechanism of coordination among these stakeholders.

### **Way Forward**

In the light of findings of this exercise, following immediate actions are suggested for strengthening of ongoing initiatives of wildlife conservation and PA management.

1. The management plans of the PAs need to be updated and improved immediately through participatory process of stakeholder consultation and baseline generation. The weaknesses and issues revealed through MEE exercise for each PA should be addressed during the preparation of Management plan. The management planning process need to be institutionalized at the level of the headquarters so as to ensure periodic revision of these plans and providing enough space for adaptive management. Simultaneously department should also prepare a strategic wildlife conservation action plan at the state level with long term vision and action. The management plans of individual PAs should be guided by this state level strategic plan.
2. For the management of PAs, trained manpower is a pre-requisite. It is proposed that a training programme should be prepared for capacity building of all the staff in different aspects of Wildlife Management. A training centre could be established in one of the PAs with minimum required facility and designated training staff which should carry out the task of initial competence based training of the frontline staff. This centre can then carry out refresher training programme periodically for all the staff of the department.
3. With the exception of a few sites within PAs, the baselines are weak and the systems of monitoring practically non-existent. Therefore, it is proposed that a Wildlife Research & Monitoring Cell need to be established under the overall control of Chief Wildlife Warden. This cell should be entrusted with the task of periodic monitoring and research so as to improve the baseline and the quality of the management. Already there is a position of Senior Wildlife Research Officer in the department and the experience of this position should be used effectively in the proposed Wildlife Monitoring and Research Cell. The State should continue to encourage and support research institutions to carryout wildlife research and monitoring in the PAs of the State.

4. Baseline generation and its periodic monitoring is very critical for adaptive management. It is therefore, suggested that population estimation exercises for flagship faunal species and their habitats in all the PAs and adjoining landscapes should be carried out at every four years' interval. Similarly, MEE exercise should also become a regular internal feature of the department and it should be undertaken after every four years so as to make necessary modifications in the management strategies of PAs.
5. Coordination is a major issue. Many areas are under the control of Army and they have an important role for protection and conservation of these remote areas. It is proposed that a coordination committee of different stakeholders including Army, Tourism Department, other line agencies, public representatives, some prominent research organizations/NGOs and representatives of local communities need to be established along with Chief Wildlife Warden of the state which can give policy level guidance to the department for effective wildlife conservation and also help in better coordination.
6. All the protected areas need to have functional interpretation centres and visitor management plans. Local communities from among EDCs should be involved in visitor management activities including ecotourism. Funds from JICA project could be used for improving the visitor management facilities and for establishment of interpretation centres.
7. For effective management of PAs, adequate and timely flow of funds is critical. There are enough resources being generated through tourism but nothing is ploughed back for the management of these areas. Even the local communities who are paying the cost of conservation are deprived of major benefits from tourism programme. In the interest of long term conservation and support of local people for these areas, it is proposed that a new system need to be devised by which part of the revenue from tourism could be ploughed back for use in the management of these PAs and also for strengthening the ongoing ecodevelopment programmes for the local communities. We further propose that for anchoring this new arrangement, a state level Conservation Foundation/ Trust with different chapters for all PAs may be established. The mandate of this Foundation/ Trust should be resource generation and facilitation of scientific management of PAs as well as support to communities through ongoing ecodevelopment programmes.
8. The part of the revenue from tourism could become the immediate income of the foundation and it should also to generate resources from other sources at state, national and international level. These funds should be used for the effective management of different PAs and other activities of conservation in the state. Significant part of these funds should be used for ecodevelopment programmes of the PAs and also for long term monitoring, research and training. Proposed Wildlife Research & Monitoring Cell can work in association with this Foundation/ Trust. Foundation/ Trust can also have their own technical staff for long term monitoring as well as community programme.

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