

Management Effectiveness Evaluation of Indian Zoos (MEE-ZOO)

Guidelines, Criteria and Indicators for Evaluation of Zoos through
Management Effectiveness Evaluation Process



© Wildlife Institute of India and Central Zoo Authority, Ministry of Environment, Forest and Climate Change, Govt. of India

Disclaimer

The information from this publication may be used for academic purposes with due credit to the Wildlife Institute of India and Central Zoo Authority, Ministry of Environment, Forest and Climate Change, Government of India.

Contributors

Wildlife Institute of India

- ♣ Shri Praveen Chandra Tyagi
- ♣ Dr. Nasim Ahmad Ansari

Central Zoo Authority

- ♣ Dr. S. P. Yadav
- ♣ Dr. Sonali Ghosh

Cover & Evaluation Photo Source: Central Zoo Authority

Design: Sruthy Boopathy

About Wildlife Institute of India (WII)


WII is an Autonomous Institution of the Ministry of Environment, Forest and Climate Change, Government of India, established in 1982. WII is an internationally acclaimed Institution, which offers training program, academic courses and advisory in wildlife research and management.

About Central Zoo Authority (CZA)

CZA is a Statutory Body under Ministry of Environment, Forest and Climate Change, Government of India, established in 1992 to oversee the functioning of Zoos in the country and to provide them with technical and other assistance for their improvement.

Suggested Citation

Tyagi PC, Yadav SP, Ansari NA, Ghosh S (2020). Guidelines, Criteria and Indicators for Evaluation of Indian Zoological Parks through Management Effectiveness Evaluation Process (MEE-ZOO). Wildlife Institute of India and Central Zoo Authority, Ministry of Environment, Forest and Climate Change, Government of India.



Management Effectiveness Evaluation of Indian Zoos (MEE-ZOO)

**Guidelines, Criteria and Indicators for Evaluation of Zoos through
Management Effectiveness Evaluation Process**

**Wildlife Institute of India
And
Central Zoo Authority**

December, 2020

ACKNOWLEDGEMENTS

It has been a privilege for the drafting team to have worked on this innovative and path breaking project for enhanced service delivery and management for zoos across India. The output product which is the Guidelines, Criteria and Indicators for Evaluation of Zoos of the country through Management Effectiveness Evaluation Process (MEE-ZOO) document has witnessed several cycles of expert stakeholder consultation and deliberation and the process by itself has been a great learning exercise.

At the onset, Dr Dhananjai Mohan, Director WII and Dr. Y.V. Jhala, Dean, WII are thanked for their encouragement and support. The drafting committee comprising of WII Scientists and invited experts namely. Dr Atul Gupta, Dr A K Bhardwaj, Dr Bitapi Sinha, Dr P K Malik, Shri BS Bonal, Dr Manoj Nair and Dr V B Mathur provided useful and timely inputs.

The MEE-ZOO framework was tested in zoos as pilots and valuable inputs and contribution of Shri Ramesh Pandey, Director National Zoological Park, Delhi, Shri P K Patro, Director Dehradun Zoo and Dr M Sudhagar of MC Zoological Park, Chhatbir is acknowledged.

The Technical team of CZA contributed in coordinating and facilitating the completion of the project and they are gratefully thanked for their valuable backstopping support.



मंत्री
पर्यावरण, वन एवं जलवायु परिवर्तन,
सूचना एवं प्रसारण और
भारी उद्योग एवं लोक उद्यम
भारत सरकार



MINISTER
ENVIRONMENT, FOREST & CLIMATE CHANGE,
INFORMATION & BROADCASTING AND
HEAVY INDUSTRIES & PUBLIC ENTERPRISES
GOVERNMENT OF INDIA

प्रकाश जावडेकर
Prakash Javadekar



FOREWORD

Indian civilization in ancient times spanning thousands of years has generated knowledge and interest in developing close relationship and connect with wild animals, with saints and rishis love and compassion for wild animals. Zoological parks are evolving institutions for conservation of biological diversity. The functions of Zoos have undergone change from recreation and entertainment centers, to conservation facility with innovative animal exhibits, concern for animal welfare, rescue and rehabilitation of wild animals, captive breeding and as meaningful research, learning and education centers.

As on today there are more than 160 recognized zoos and rescue centers in the country, and Central Zoo Authority periodically evaluates the zoos every year, third or fourth year depending upon the category of the Zoo to ensure animal welfare and providing a satisfying and learning experience for the visiting public.

The Guidelines, Criteria and Indicators for Evaluation of Zoos of the country through "Management Effectiveness Evaluation Process (MEE)" is a novel method adapted from the IUCN Framework for assessing the management effectiveness.

MEE-ZOO is an evidence based, comprehensive, holistic and independent exercise encouraging maintenance of highest standards in Zoos across the country and adhering to core values of accountability, transparency, innovation, use of technology, collaboration and integrity to achieve our mandate of conservation of endangered species.

I wish to compliment the entire team of the Central Zoo Authority, Wildlife Institute of India to have formulated the novel MEE-ZOO framework in such a short period.

(Prakash Javadekar)

Date: 04.12.2020

॥ प्लास्टिक नहीं, कपड़ा सही ॥



Babul Supriyo

Union Minister of State

Ministry of Environment, Forest & Climate Change
Government of India



सत्यमेव जयते



बाबुल सुप्रियो

केन्द्रीय राज्य मंत्री

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
भारत सरकार



FOREWORD

Modern zoos in India have evolved over a period of time from menageries to centers of conservation and education. The Government of India in order to provide the desired direction and thrust to the zoos, amended the Wildlife (Protection) Act, 1972 and created the Central Zoo Authority in 1992 and notified the revised recognition of zoo rules in 2009. These rules lay down the standards and norms for housing, upkeep and healthcare of animals.

Zoo management during the course of years with technical assistance of CZA has undergone a paradigm shift leading to innovative enclosure design with enrichments to reflect the immersion effect. The nutrition, health care, visitor management and record keeping has vastly improved in the Zoos across the country.

The Central Zoo Authority conducts regular evaluation and monitoring of zoos for granting recognition and facilitate improvement of zoos in consonance with the norms and guidelines.

The introduction of the new process of evaluation based on Management Effective Evaluation for grading the Zoos across the country will infuse improvement and adoption of best management practices in Zoos.

I wish to congratulate the Central Zoo Authority and Wildlife Institute of India in their efforts for drafting innovative monitoring and evaluation process which will lead to improving the standards of our Zoos.

(Babul Supriyo)

Table of Contents

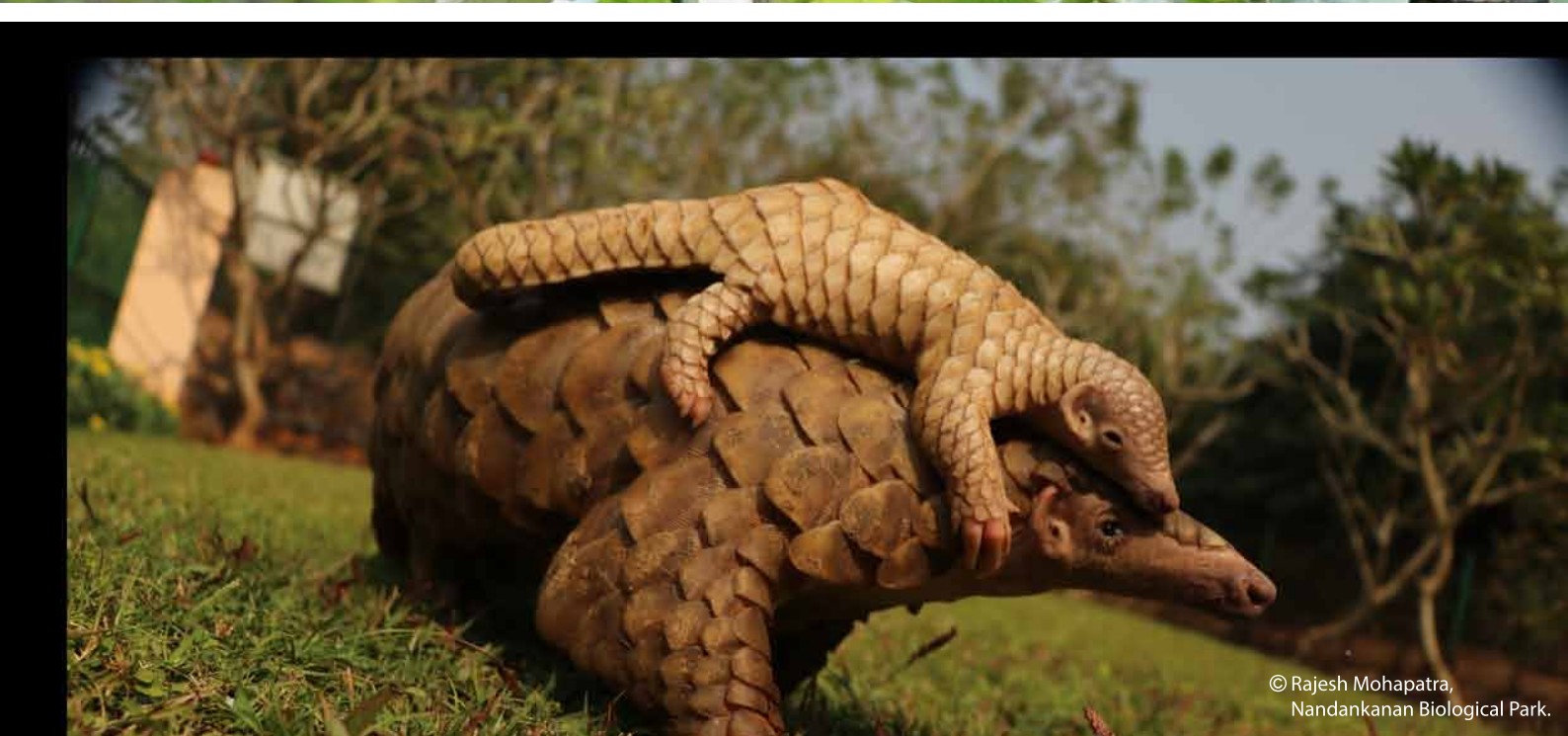
CHAPTER ONE	1
INTRODUCTION	1
1.1 BACKGROUND	1
1.2 BRIEF HISTORY AND MANAGEMENT OF ZOOS	1
1.3 ONGOING SYSTEM OF EVALUATION OF ZOOS	3
1.4 PARADIGM SHIFT IN THE MANAGEMENT OF ZOOS AFTER THE CREATION OF CZA	3
1.5 COMMITMENT OF INDIAN ZOOS TO THE GLOBAL ANIMAL WELFARE STRATEGY	4
1.6 PURPOSE, SCOPE, OBJECTIVES AND CORE VALUES	4
CHAPTER TWO	7
MANAGEMENT EFFECTIVENESS EVALUATION OF ZOOS.....	7
2.1 FRAMEWORK FOR ASSESSING THE MANAGEMENT EFFECTIVENESS OF PROTECTED AREAS	7
2.2 MEE OF PROTECTED AREAS ACROSS THE WORLD AND INDIA	8
2.3 FORMULATION OF MEE FRAMEWORK FOR ZOOS	9
2.4 KEY FEATURES OF THE PROPOSED FRAMEWORK	10
CHAPTER THREE	13
3.1 BROAD THEMES FOR MEE OF ZOOS	13
3.2 ELEMENTS OF MEE FRAMEWORK	13
3.3 MEE FRAMEWORK FOR ZOOS.....	13
3.4 SCORING SYSTEM.....	16
CHAPTER FOUR.....	17
1. CONTEXT	18
2. PLANNING	20
3. INPUT	23
4. PROCESS	27
5. OUTPUT	32
6. OUTCOMES.....	36



© Nehru Zoological Park,
Hyderabad



© Padmaja Naidu Himalayan
Zoological Park, Darjeeling



© Rajesh Mohapatra,
Nandankanan Biological Park.

Chapter One

INTRODUCTION

1.1 Background

The Indian Board for Wildlife (now the National Board for Wildlife) of the country, during the course of deliberations realized that *ex-situ* conservation of wild fauna is necessary and made important recommendations to the Government of India. An Expert Committee on Management of Zoos was constituted in November, 1972 and its recommendations were accepted in June, 1973. The National Wildlife Action Plan of 1983 and subsequent revision of the plan in 2002 and 2017 have reiterated the role of *ex-situ* conservation in national conservation efforts. The National Zoo Policy was formulated and adopted by the Government of India in the year 1998, with the objective to complement and strengthen the national efforts in conservation of rich bio-diversity of the country, with the *ex-situ* conservation of wildlife.

The Central Zoo Authority (CZA henceforth) was created by the Government of India through an amendment of the Wildlife (Protection) Act, 1972 and the insertion of Chapter IVA (Sec 38A to 38J), on 2nd February, 1992. The core guiding principles of CZA are as below:

- **MISSION:** To provide better upkeep and veterinary care to the wild animal housed in zoos in India to ensure their conservation through best practices of management and bringing education & awareness among the people.
- **VISION:** To complement and strengthen the national efforts in conservation of the biodiversity of the country, particularly the fauna through the *ex-situ* conservation linked with *in-situ* practices.
- **OBJECTIVE:** To enforce minimum standards and norms for upkeep and healthcare of animals in Indian zoos and to control mushrooming of unplanned and ill-conceived zoos.

1.2 Brief history and management of Zoos

As per Wildlife (Protection) Act, 1972, Section 2(39), 'Zoos means an establishment, whether stationary or mobile, where captive animals are kept for exhibition for the public (and include rescue centers and circuses, but does not include an establishment of a licensed dealer in captive animals).

The first recorded Zoo was the palace menagerie of Queen Hatshepsut of Egypt, which dates back to the 15th Century BC¹. Pre-modern Zoos historically existed in multiple cultures around the world, including in ancient Egypt, ancient China, medieval Europe, and pre-

¹ Rothfels, N (2002) *Savages and Beasts: The Birth of the Modern Zoo. (Animals, History, Culture.)* Baltimore: Johns Hopkins University Press. 2002. Pp. xii, 268

Columbian America and India. These early Zoos were mainly to demonstrate the prestige and power and for entertainment. The Indian Zoos have evolved from menagerie type collections into conservation centers. The word “menagerie” is used to describe old-fashioned Zoos that were designed mainly to display a large number of animal species in small cages.

Wild animals were kept in captivity since time immemorial in India. Vedas, Puranas mention animals being tamed. Many rulers-maintained menageries. In Colonial Period British set up a Zoo called Marble Palace Zoo in Kolkata in 1854². After the Independence, the first All-India Zoo Superintendents Conference was held at Madras in 1955 and as per its recommendations a Zoo wing was set-up as a technical sub-committee in Indian Board for Wildlife, which was later on called as ‘Expert Group on Zoos’. In the very first meeting of Indian Board for Wildlife, the modern Zoo concept was developed and recommended for setting up of a Zoo in the National Capital Delhi.

Before the establishment of Central Zoo Authority (CZA), there was a mushrooming of Zoos, private menageries, circuses and animal collections. After the establishment of CZA in 1992, the Zoos were requested to seek recognition of CZA and comply with the norms. The CZA issued a notification to all Zoos to manage their Zoos as per master plan/ management plan approved by CZA.

As on 31/03/2020, there are 152 recognized Zoos in the country, 17 Large Zoos, 24 Medium Zoos, 35 Small Zoos, 61 Mini Zoos, 14 rescue centres and 1 circus managed by various authorities.

The growing awareness for nature and wildlife conservation has made Zoos as popular institution. Estimates indicate that 10% of the World’s population visit Zoos every year with enormous educational and economic values³. In India, rough estimates indicate that zoos are one of the highest visited public spaces with over 80 million visitation numbers annually. Zoos and aquaria in the 21st century aim to educate the visitors about the living world and for captive breeding of endangered species and their rehabilitation in the Wild.

The animals in Zoos and aquaria serve as ambassadors for animals in the wild and inspire visitors to care for and understand natural ecosystems and the threats that these systems face.

Zoos not only act as places of entertainment and observing animal behaviour, but are also as institutions, museums, research laboratories and information banks of endangered animals. Over the last several decades, Zoos have made significant progress in its collaborative management of ex situ populations of a variety of faunal species. Today, when wildlife habitats are under severe pressure and a large number of species of wild fauna have become endangered, the Zoos have not only to sustain their own populations but also augment the depleting populations of endangered species in the wild. This new role has also been

² Dasgupta, Prosenjit 2000. *10 Walks in Calcutta*. Harper Collins. ISBN 81-7223-383-3

³ Miller, B., Conway, W., Reading, R.P., Wemmer, C., Wildt, D., Kleiman, D., Monfort, S., Rabinowitz, A., Armstrong, B. and Hutchins, M., (2004). *Evaluating the conservation mission of zoos, aquariums, botanical gardens, and natural history museums*. *Conservation Biology*, 18(1), pp.86-93.

acknowledged by global conservation community through Article 9 of the Convention on Biological Diversity.

Captive breeding is an integral part of the overall conservation action plan for a species that helps to prevent extinction of species, subspecies, or population. It is an intensive management practice for threatened individuals, populations, and species by anthropogenic and natural factors. With the sufficient knowledge on the biology and husbandry of the species, captive breeding helps individuals to propagate under expert care and sound management by providing an insurance against extinction. Re-introduction of captive animals back to the wild is taken up with proper care, monitoring and observation. Captive breeding programme may or may not be a part of many Zoos in India, however Zoos cooperate in successful implementation of identified breeding programme by the way of loaning, pooling or exchanging of animals and help in creation of socially, genetically and demographically viable groups.

1.3 Ongoing system of evaluation of Zoos

The Zoos require recognition of the CZA for its operation and functioning as per 38H(1) of the Wildlife (Protection) Act, 1972. The CZA conducts evaluation of Zoos as per the evaluation criteria and guidelines (evaluation format) in consonance with the rules framed under Recognition of Zoo rules, 2009.

As per rule 9, Zoos are classified in the categories such as Large, Medium, Small and Mini Zoos. The classification has been made for the purpose of management of the Zoos and have to satisfy the standard and norms pertaining to area, visitors, species and animals including endangered species. The Zoos are evaluated every year, third or fifth year depending upon category of the Zoo i.e. large, medium, small or mini for their compliance of norms and standards prescribed under the Recognition of Zoo Rules 1992 (amendment 2009). The Central Zoo Authority periodically evaluates the Zoo to ensure their quality of upkeep and maintenance to provide better living conditions for the wild animals at the same time providing a satisfying and learning experience for the visiting public. Those Zoos which lack facilities and management inputs as per the rules and fail to improve are derecognized and closed.

1.4 Paradigm shift in the Management of Zoos after the creation of CZA

Zoos in India started as menageries during earlier period of its history and mainly served as centres of recreation and entertainment and to market the Zoo for enhancing the foot fall, the main thrust has been primarily to display as many species of charismatic large animals both indigenous and exotic. The Wildlife (Protection) Act, 1972 and norms and rules framed under this act made it mandatory for the Zoo to provide animals housing, maintenance and upkeep that is congenial to the physical and behavioural health of the animals. The Zoos have transformed themselves from traditional animal displays to interactive, conservation centres that bridge and link captive collections (*Ex-situ*) to free-range wildlife (*In-situ*). In the strategic plan (master Plan) of the Zoos the main endeavour is to provide thematic and naturalistic display of animals housed in the Zoos. Zoos are now introducing innovative natural enclosure design with enrichments to reflect the immersion effect. The nutrition,

health care, visitor management and record keeping has vastly improved in the Zoos across the country. In some Zoos, the cause of concern is abnormal mortality rates in Zoos in spite of best healthcare and improved standard of animal husbandry. The mortality is dependent on the age class of animals and their longevity, hence having a large number of senile animals will raise mortality. At the same time, the annual recruitment rates vary in Zoos and depend on its breeding and population control plan.

1.5 Commitment of Indian zoos to the Global Animal Welfare Strategy

Increasingly, zoos around the world are now emphasizing on positive animal welfare states as its core activity. Based on the World Zoo and Aquarium Animal Welfare Strategy it is recommended that zoos (and aquariums) may apply a five-pronged animal welfare model⁴. The Strategy also recommends continued education and training of staff in animal welfare, and a commitment to animal welfare research, to applying animal welfare knowledge to exhibit design and to being leading centres for animal welfare and Indian zoos must align itself to the overarching goals.

1.6 Purpose, scope, objectives and core values

Purpose

The purpose of this project is to draft “Guidelines, Criteria and Indicators for Evaluation of Zoos of the country through Management Effectiveness Evaluation Process (MEE-ZOO)” in a manner which is discrete, holistic and independent covering the themes of management as enshrined in the policy, rules and regulation and going beyond as well. The assessment criteria and indicators should not be restricted to the traditional concepts, but include issues of animal welfare, husbandry and sustainability of resources and finance. These aspects were not adequately covered in the ongoing evaluation. The Zoo conservation science is being differently interpreted by Biologist, recognizing that captive and wild populations should be viewed in a manner that the sustainability of the former requires exchange of animals and DNA from the wild, whereas the viability of the latter may require contributions from ex situ populations as well as learnings from research. The paramount importance is the welfare of Captive animals and the Zoos should address the deficiencies and gaps in the management of Zoos.

Scope

The work includes adapting the MEE framework for the development of criteria, indicators and guidelines for evaluation of large, medium, small and mini Zoos through MEE process. The process of MEE of Zoo would be based on some aspects of the existing International Union for Conservation of Nature (IUCN) and World Commission on Protected Areas (WCPA) framework on MEE of Protected Areas⁵.

⁴ Mellor, D. J., Hunt, S., & Gusset, M. (2015). *Caring for wildlife: the world zoo and aquarium animal welfare strategy*. WAZA Executive Office.

⁵ Hockings, M., James, R., Stolton, S., Dudley, N., Mathur, V., Makombo, J., Courrau, J., Parrish, J., & Patry, M. 2008. *Enhancing Our Heritage Toolkit: Assessing Management Effectiveness of Natural World Heritage Sites*. World Heritage Paper 23. Paris: UNESCO World Heritage Centre.

Objectives

The objectives of this evaluation is not only to collect and assess information about the management of the Zoos in the country with respect to the Wildlife (Protection) Act, 1972, (Chapter IV), National Zoo Policy, 1998 and Recognition of Zoo Rules, 2009 and other norms laid down pertaining to management of Zoological park but also to look at the standards framed by the Association of Zoos in other countries worldwide and to incorporate them within the Indian context. Though the Zoos have to be broadly evaluated on the work done by them for conservation, education and research and their efforts in managing rescue centres but the assessment will cover the ecological and welfare ethics of animals in its collections. The exercise is discrete, holistic, evidence based, independent and fair minimizing any bias in the process.

Core Values

The zoos have to be assessed in a discrete, holistic and independent manner in terms of establishing and maintaining highest standards, adhering to core values of accountability, transparency, innovation, use of technology, collaboration and integrity to achieve the National mandate of conservation of endangered species which are at the brink of extinction and to breed them in our ex-situ facility for eventual release in the wild. The Zoos achievement in transformation from traditional animal displays to interactive, conservation centres that bridge and link captive collections (Ex-situ) to free-range wildlife (In-situ) also needs to be assessed. The Zoo should provide opportunities to youth for engagement/participation in some of the Zoo activities for awareness and motivation.

The Zoos assessment should also reflect on:

- (1) Proactively engaging in science, initiating conservation action, education, and research to inspire visitors to value nature
- (2) Use of technology and tools to improve visitor experience and enhance animal welfare
- (3) Zoo management leadership to motivate staff, delegate work, monitor closely for achieving the targets, and involve all sections of society and conservation interest groups as stakeholders for inclusive management.
- (4) Addressing welfare issues of the staff who have committed themselves to the task of conservation and animal welfare.
- (5) The education and outreach program should be supported using digital media and web-based interactive system.
- (6) The visitor feedback is the most important input for improving our conservation program and being responsive to the needs of our society. This will address any shortcoming that were overlooked and will provide a redressal mechanism.
- (7) Research in our ex-situ environment requires focus and cooperation of individuals and institutions willing to participate and collaborate. The research findings are to be published and uploaded on to the website for dissemination and sharing with others.

(8) The financial management of our Zoos is to be assessed based on their capacity to generate resources and become self-sufficient. The marketing and branding of Zoos as conservation centres will improve the finances much needed for future development of Zoos.

(9) The gender equity in Zoos have to be improved by sensitizing the employees and workforce that both genders have equal role in the welfare of animals. There is a need to recognise advancement of gender equality in Zoo work environment with representation, progression and equal opportunity for all.

Chapter Two

MANAGEMENT EFFECTIVENESS EVALUATION OF ZOOS

2.1 Framework for Assessing the Management Effectiveness of Protected Areas

Assessment of management effectiveness has emerged as a key tool for Protected Area managers and is increasingly being required by governments and international bodies. Evaluation of management effectiveness is generally carried out by assessing a series of criteria (represented by carefully selected indicators) against agreed objectives or standards. The management effective evaluation (MEE) process in India has been adopted from a global framework of IUCN WCPA for evaluation of the Protected areas and Tiger Reserves⁶.

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. Evaluation consists of reviewing the results of actions taken and assessing whether these actions are producing the desired outcomes. Evaluation is a routine part of the management process and is something that most managers already do. The evaluation of management effectiveness builds on this existing routine⁷.

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.

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.

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 which aims both to give overall guidance in the development of assessment systems and to encourage basic standards for assessment and reporting.

⁶ Mathur, Vinod B., Nasim A. Ansari, Onial, M (2019). "Protected areas management in India: Challenges and way ahead." SPECIAL ISSUE ON ENVIRONMENT: 101. Available at <https://www.iccfg.net/files/specialissuesofjournal/Volume%2018%20-%20January%202019%20-%20Special%20Issue%20on%20Environment.pdf#page=103>

⁷ Pomeroy, R.S, Watson B.L.M., Parksc J.E. and Cidc G.A. 2005. How is your MPA doing? A methodology for evaluating the management effectiveness of marine protected areas. *Ocean & Coastal Management* 48: 485–502

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 (Figure 2.1). 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:

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

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.

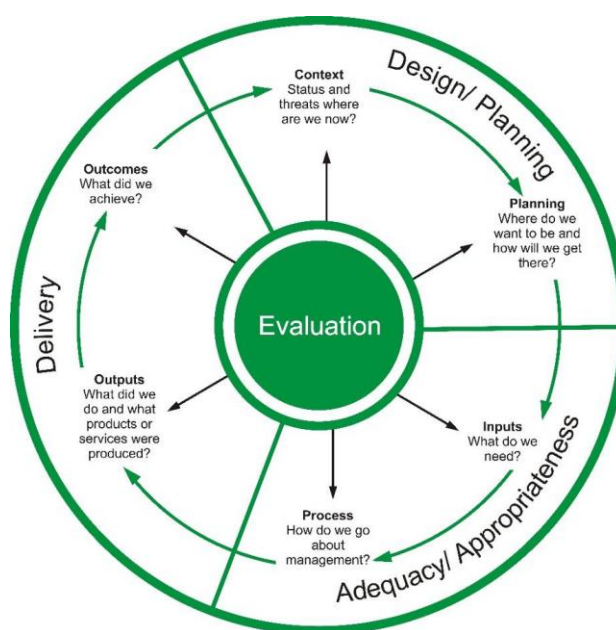


Figure 2.1: The WCPA Framework for Assessing Management Effectiveness⁸

2.2 MEE of Protected Areas across the world and India

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

⁸ Hockings, M., Stolton, S., Leverington, F., Dudley, N., & Courrau, J. 2006. *Evaluating Effectiveness: A Framework for Assessing Management Effectiveness of Protected Areas*. 2nd edition. Gland, Switzerland and Cambridge, UK: IUCN. xiv + 105 pp.

PA systems, to detailed monitoring systems. The approach described here is a fairly detailed monitoring and evaluation system, suitable for sites of particular importance⁹.

Evaluation of PA management effectiveness Framework has been adopted in several countries worldwide and almost 40 methodologies have been developed and applied to the assessment of the management effectiveness of PAs¹⁰.

India has also made a beginning in evaluating the management effectiveness of its national parks, wildlife sanctuaries, tiger reserves (TRs) and world heritage sites¹¹ (Table 2.1). The detailed assessments were made in 3 Natural World Heritage sites in South Asia, namely Keoladeo National Park, Rajasthan, Kaziranga National Park, Assam and Chitwan National Park, Nepal during 2002-2007. The MEE of national parks and wildlife sanctuaries in India was initiated in 2006 and by 2020, one cycle of MEE of National Parks and Wildlife Sanctuaries have been completed. Under India's Project Tiger, four cycles of evaluations have been completed, first cycle- 28 Tiger Reserves (TRs) in 2006, second cycle- 39 TRs in 2010, third cycle- 43 TRs in 2014 and in fourth cycle, 50 Tiger Reserves in 2018.

2.3 Formulation of MEE Framework for Zoos

The MEE framework for Protected Areas is for assessing the management of a natural resource, which faces several threats and challenges. It gives a simple and rapid method of independent assessment. To the contrary, the Zoos management is limited in its scope of managing an ex-situ conservation facility, the Zoos where all inputs are for naturalization of site for creating facility for animals in captive environment. The conservation values of ex-situ system can complement ecosystem-based population of free ranging animals in their natural habitat (*in-situ*).

⁹ Hockings, M., James, R., Stolton, S., Dudley, N., Mathur, V., Makombo, J., Courrau, J., Parrish, J., & Patry, M. 2008. *Enhancing Our Heritage Toolkit: Assessing Management Effectiveness of Natural World Heritage Sites*. World Heritage Paper 23. Paris: UNESCO World Heritage Centre.

¹⁰ Leverington, F., Hockings, M., & Costa, K.L. 2008. *Management Effectiveness Evaluation in Protected Areas: Report for the Project 'Global Study into Management Effectiveness Evaluation of Protected Areas'*. Gatton, Australia: The University of Queensland, IUCN/WWF.

¹¹ Mathur, V.B. 2008. *Management Effectiveness Evaluation (MEE) of Protected Areas Network in India: Recent Experiences. Implementation of the CBD Programme of Work on Protected Areas: Progress and Perspectives. Abstracts of poster presentations at the second meeting of the Ad Hoc Open-Ended Working Group on Protected Areas, 11–15 February 2008 in Rome, Italy. Technical Series No. 35, 106 pages. Secretariat of the Convention on Biological Diversity.*

Table 2.1: Overview of Management Effectiveness Evaluation Exercise in India

S. No.	Type of Approach	Application in India
1	In-depth, Evidence based assessment WORLD HERITAGE SITES	03 World Heritage Sites (WHS) (2003-2008) Keoladeo WHS, Rajasthan, India Kaziranga WHS, Assam, India Chitwan WHS, Nepal
2	Rapid Expert-based scorecard NATIONAL PARKS AND WILDLIFE SANCTUARIES	MEE of 125 PAs from 2006-2014: report published in 2015 MEE of 80 PAs in 2015-2017: report published in 2017 MEE of 125 PAs in 2017-18: report published in 2019 MEE of 146 PAs in 2018-19: completed
3	Comprehensive system-wide, Peer-based assessment TIGER RESERVES NETWORK	First Cycle: MEE of 28 Tiger Reserves in 2006: completed Second Cycle: MEE of 39 Tiger Reserves in 2010: completed Third Cycle: MEE of 43 Tiger Reserves in 2014: completed Fourth Cycle: MEE of 50 Tiger Reserves in 2018: completed

This exercise is perhaps the first in the World to adopt and adapt the MEE (PA) methodology for developing framework for evaluation of Zoological parks.

The key benefits of doing MEE of Zoos are:

- discrete, holistic and independent exercise
- adaptive management to improve efficiency and understanding
- to understand the achievement of the Goals and Objective of ex-situ conservation
- ensuring resource allocation and prioritization
- involve stakeholders, communities and NGOs
- promote education and awareness and advocacy for cause of conservation
- generate base line data for comparison
- Scoring system used for grading

2.4 Key features of the proposed framework

While a single comprehensive assessment using this framework will assist Zoo managers, the real value comes about when periodic assessments are being undertaken repeatedly using the same assessment criteria (after every 4 years), which may show clear trends. It is therefore important that, as well as documenting the results of MEE Zoo, the methodology should also be clearly documented, for its repeatability.

- It is repeatable over time to observe trends in management
- It can focus management efforts when resources are constrained
- Both the methodology and the results can be readily understood by decision makers and stakeholders.

The salient features of the proposed assessment framework are as follows:

- Comprehensive, useful, discrete, holistic and independent, relevant criteria and indicators
- Logical, systematic, stable and balanced framework
- Structured with guidance notes, replicable and accurate
- Evidence based independent assessment gives clear guidance to measure and score indicators
- Indicators are precise and consistent and can link up
- Measurable in quantitative and qualitative terms

- Rapid assessment with minimum budgetary support
- User friendly, practical and achievable
- Clear and specific focus with strategic guidance and action for improvement
- Assessment will lead to grading of Zoos in various categories

The MEE framework of Zoos will be evaluated in six elements of MEE. Each element has different focus of evaluation. The key focus of each element is given in Table 2.2.

Table 2.2: Key focus of evaluation in six elements of MEE framework of Zoos

Elements of evaluation	Criteria Proposed
Context	<ul style="list-style-type: none"> ➤ Mission, Vision, objectives and Strategy of the Zoo ➤ Compliance with the essential requirements ➤ Zoo landscape and its environment ➤ Ethical standards and norms
Planning	<ul style="list-style-type: none"> ➤ Planning process: Master plan, Management plan ➤ Specific strategies and plans: Enrichment Plan, Education Plan, Visitor Management Plan, landscape management and Disaster Management strategy ➤ Captive/ Conservation Breeding Plan, norms and strategy
Input	<ul style="list-style-type: none"> ➤ Human and financial resource ➤ Training and Capacity Building ➤ Visitor and education infrastructure ➤ Healthcare, Nutrition and sanitation ➤ Protection infrastructure
Process	<ul style="list-style-type: none"> ➤ Sustainability of animal population and resources ➤ Stakeholders participation ➤ Health care ➤ Zoo enforcement ➤ Animal welfare ➤ Species specific enrichment ➤ Use relevant technologies for conservation, education and research ➤ Rescue and rehabilitation
Output	<ul style="list-style-type: none"> ➤ Research activities and collaboration ➤ Safety of animals, animal keepers and visitors ➤ Sanitation and hygiene regime ➤ Achieving animal welfare ➤ Maintaining database on animals ➤ Zoo Veterinarian and staff performance ➤ Responding to emergencies
Outcomes	<ul style="list-style-type: none"> ➤ Health of animals ➤ Rescue and rehabilitation of animals ➤ Contribution of Zoo Animal keepers, veterinarian and supporting staff

- Conservation breeding programme
- Human resource development
- Visitor learning experience
- Research relevance
- Climate Change
- Innovative technology and best management practices

Chapter Three

ASSESSMENT FRAMEWORK AND CRITERIA FOR EVALUATION OF ZOOLOGICAL PARKS

3.1 Broad Themes for MEE of Zoos

The assessment criteria for Zoos are based on the provisions (Chapter IV) of the Wildlife (Protection) Act, 1972 and the rules framed under the enabling provision of the Act, Recognition of Zoo Rules, 2009. The MEE framework on Zoos is based on broad themes for assessment on 10 Parameters of Zoo Management adopted from the RZR, 2009 and are as follows:

1. Strategic planning and development
2. Animal housing, Naturalistic Environment and Exhibits designs
3. Animal Collection and sustainability of population
4. Human Resource Management
5. Health Care
6. Sanitation, Hygiene and waste Management
7. Conservation/ Captive Breeding Programme
8. Research
9. Education and Extension
10. Visitor facility

3.2 Elements of MEE Framework

The MEE framework for Zoological Parks has six distinct stages or elements:

- A. Context will establish the mandate, role of Zoos for conservation of species (Context)
- B. Planning will include all the efforts in conceiving, designing the ex-situ conservation facility and formulating management strategy (Planning)
- C. Availability of resources and infrastructure (Inputs)
- D. Management actions and protocols (Process) and
- E. Eventually producing goods and services (Outputs)
- F. That results in impacts (Outcomes).

3.3 MEE Framework for Zoos

For assessment of six elements of the MEE framework, 40 criteria (headline indicators) have been developed (3 to 8 questions have been developed in each element). Explanatory notes, wherever needed, were provided to guide the assessment process. The scores, along with observations (remarks), provide a better understanding of the situation in the site. Against each 'Criteria' the evaluation team should indicate 'Reference document(s)' and also provide 'Remarks', as appropriate. The scores by themselves will not help in providing the complete picture unless supported by considered observations (remarks) that qualify such scores. The

list of 40 headline indicators arranged in six elements of MEE framework are given in Table 3.1.

The MEE teams shall visit all the assigned Zoos for conducting MEE as per the prescribed assessment criteria and complete the MEE Score Card once in four years. In addition to the site reports the Teams shall also send a 2-page SWOT based report on each Zoo covering, (a) Management Strengths; (b) Management Weaknesses and (c) Actionable Points and Strategy. It is possible that in some Zoos, one or more of the criteria and indicators will not qualify for evaluation, then that questions should not be marked or taken into account in total score.

Based on consultation and pilot evaluation of all categories of Zoos, criteria and indicators that do not apply in the management of Zoos will be identified and will not be considered for scoring.

Table 3.1: List of 40 headline indicators (questions) developed for MEE of Zoos

Elements	Headline Indicators
1. Context	1.1 Are the Mission, Vision, Objectives and Strategy of the Zoo formulated as per the National Zoo Policy, 1998?
	1.2 Has the Zoo complied with the essential requirements (ER) (Statutory and Guidelines) along with the conditions imposed while granting Recognition under RZR, 2009.
	1.3 Is the Zoo landscape and its environment naturalistic?
2. Planning	2.1 Does the Zoo have a Master Plan for management of the Zoo and is periodically updated?
	2.2 Has the Zoo drawn up relevant plan for accomplishing the task of Conservation education, animal enclosure enrichment, Captive breeding of animals and landscape management?
	2.3 Does the Zoo have an Education programme as per standards prescribed by RZR, 2009?
	2.4 Has the Zoo formulated a Disaster Management Strategy (DMS), security plan and mechanism for security audit (SA)?
	2.5 Does the Conservation breeding program meets the standard prescribed by RZR, 2009?
3. Input	3.1 Does the Zoo have adequate resources (financial), timely released and linked to priority activities?
	3.2 Does the Zoo mobilizes additional resources (financial) and generate funds for financial sustainability?
	3.3 Is the administrative, staffing pattern, access to resources, training and capacity building adequate in accordance with RZR, 2009?
	3.4 Does the Zoo have enough manpower to cater adequate Zoo Animal medicine and Health necessities?
	3.5 Does the Zoo have visitor facilities (education and interpretation), marketing and promotional material?
	3.6 Does the Zoo have enough logistical and material support to cater adequate Zoo Animal medicine and Health necessities?
	3.7 Does the Zoo Commissary (Feed store) gets timely supply of adequate quantity of good quality of feed as per requirement/ convenience of various species in a hygienic manner?
	3.8 Does the Zoo have an enforcement system to prevent nuisance and vandalism by visitors?
4. Process	4.1 Is the animal collection sustainably managed?
	4.2 Does the Zoo manage its resource sustainably (sanitation and hygiene) without detriment to the environment?
	4.3 Does the Zoo encourage stakeholders to participate in Management activities?
	4.4 Is the Zoo providing proper health care including preventive medicine as per standards prescribed in RZR 2009?
	4.5 Does the Zoo promote animal welfare by encouraging expression of natural behaviour patterns and minimizes fear and distress in the animals as part of Zoo animal husbandry?

	4.6 Is the Zoo Commissary (Feed Store) stock for animal feed and supplies sustainably raised to ensure quality of feed as per requirement?
	4.7 Does the Zoo enclosures provide species-specific enrichment?
	4.8 Does the Zoo use innovative techniques/ technologies for conservation, education, research, rescue and rehabilitation efforts?
	4.9 Does the Zoo have a rescue and rehabilitation facility and adheres to rules (RZR 2009) for accepting rescued animals?
5. Output	5.1 Does the Zoo support research activities and collaborates with institutions and research organizations to address issues on Zoo Management?
	5.2 Is the Sanitation and hygiene regime followed for safety of animal, keepers and visitors?
	5.3 Is the Zoo maintaining database on animals, population dynamics and genetics of endangered species (Sch. I and II) using Zoo inventory?
	5.4 Does the Zoo follow the ethical standards and norms enlisted in the RZR, 2009 and Guidelines?
	5.5 Does the Zoo Animal keepers and supporting staff contribute to achieving animal welfare?
	5.6 Does the Zoo veterinarian and supporting staff undertake works as per protocol and procedures of RZR, 2009 for health care of animals?
	5.7 Does the Zoo show preparedness to respond to emergencies/ Disasters?
6. Outcomes	6.1 Does the Zoo maintain healthy (physically, behaviourally and genetically) animals?
	6.2 Does the Zoo effectively contribute to Conservation breeding programs? *
	6.3 Does the Zoo management caters to effective human resource development?
	6.4 Does the Zoo management caters to effective veterinary resource development, in order to ensure delivery of desired work as prescribed in section 5.7.
	6.5 Does the Zoo education and outreach programme enhance visitor-learning experience?
	6.6 Are research outcomes relevant and support Zoo management and conservation?
	6.7 Does the Zoo consciously manage activities adapting to Climate Change and prevent carbon loss?
	6.8 Does the Zoo management incorporate innovative techniques, best management practices for transforming and enhancing management outcomes?

3.4 Scoring System

Each question shall be marked in four categories *viz.*, Poor, Fair, Good and Very Good as per following rating scale:

Rating	Individual score	Maximum Marks	Rating Scale
Requires substantial improvement	2.5	up to 167	up to 39%
Fair	5	168 to 251	from 40 to 59%
Good	7.5	252 to 314	from 60 to 74%
Very Good	10	315 and above	from 75 and above

The evaluator shall have to fill a table for filling of marks of all 40 indicators. As each question have maximum of 10 marks, 400 will be the maximum score and evaluator shall assign overall score and percentage as per scorecard given in Table 3.2.

It is possible that in some Zoos, one or more of the criteria and indicators will not qualify for evaluation, then that questions should not be marked or taken into account in total score.

Table 3.2: Score Card to be filled for each Zoo

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		Marks obtained/ Total Marks x 100 = %
2.	Planning	05	10	50		
3.	Inputs	08	10	80		
4.	Process	09	10	90		
5.	Outputs	07	10	70		
6.	Outcomes	08	10	80		
Total		40		400		

Chapter Four

ASSESSMENT CRITERIA AND INDICATORS

- 1. Context**
- 2. Planning**
- 3. Input**
- 4. Process**
- 5. Output**
- 6. Outcomes**



1. CONTEXT

CONTEXT

1.1 Are the Mission, Vision, Objectives and Strategy of the Zoo formulated as per the National Zoo Policy,1998?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Mission, Vision, objectives and strategy not systematically formulated and documented, as per National Zoo Policy	Requires substantial improvement (Score 2.5)			
Mission, Vision, objectives and strategy generally identified but not systematically formulated and documented, as per NZP policy	Fair (Score 5)			
Mission, Vision, objectives and strategy mostly identified but not systematically formulated and documented, as per NZP policy	Good (Score 7.5)			
Mission, Vision, objectives and strategy clearly identified, defined and systematically formulated and documented, as per NZP policy	Very good (Score 10)			
Explanatory note: The National Zoo Policy, 1998 has enunciated policy guidelines for management of Zoological parks. The Master plan describes the Mission, Vision, objectives and strategy and steers the management of the Zoo. These needs to be assessed for achieving the policy directives.				
Indicative reference documents: 1. National Zoo Policy, 1998, 2. Scientific management of Zoos in India (Rule 10 of RZR 2009), 3. Master Plan				

CONTEXT

1.2 Has the Zoo complied with the essential requirements (ER) (Statutory and Guidelines) along with the conditions imposed while granting Recognition under RZR, 2009.

Imposed while granting Recognition under RZR, 2009.				
Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
None of the four ERs are complied with, along with the conditions imposed while granting Recognition under RZR, 2009.	Requires substantial improvement (Score 2.5)			
Two out of the four ERs, 50% of the conditions imposed while granting Recognition under RZR, 2009 are complied with.	Fair (Score 5)			
Three out of the four ERs, 75% of the conditions imposed while granting Recognition under RZR, 2009 are complied with.	Good (Score 7.5)			
All four ERs, 100% of the conditions imposed while granting Recognition under RZR, 2009 are complied with.	Very good (Score 10)			
Explanatory note: The essential requirements are (1) FCA clearance if Zoo is established in RF/WLS/NP (2) Establishment of Zoo Society; (3) Approved Master plan and (4) Constitution of a Health Advisory Committee. Besides these the compliance of conditions imposed while granting recognition, under RZR, 2009, the expiry of recognition, notice of closure are to be assessed along with submission of reports (endangered species acquisition and mortality report, Quarterly report, annual report).				
Indicative reference documents: 1.RZR 2009, 2. Guidelines and advisory of CZA, 3. Scientific management of Zoos in India, Rule 10, Schedule 6(6) of RZR 2009				

CONTEXT

1.3 Is the Zoo landscape and its environment naturalistic?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo lacks naturalistic landscape elements as mandated in guidelines that at least 30% area of Zoo shall be under green belt and vegetation and area for animal housing shall not exceed 30% of the area.	Requires substantial improvement (Score 2.5)			
Zoo has naturalistic landscape elements, at least 30% area of Zoo under green belt and vegetation and area for animal housing not exceeding 30% of the area but the basic natural features; natural vegetation, water bodies and blank areas are sparsely and poorly developed (non- naturalistic) and buildings architecture lack natural elements.	Fair (Score 5)			
Zoo has naturalistic landscape elements at least 30% area of Zoo under green belt and vegetation and area for animal housing not exceeding 30% of the area, the basic natural features; natural vegetation, water bodies and blank areas are appropriately developed but buildings architecture lack natural elements.	Good (Score 7.5)			
Zoo has landscape elements at least 30% area of Zoo under green belt and vegetation and area for animal housing not exceeding 30% of the area, the basic natural features; natural vegetation, water bodies and blank areas are appropriately developed and buildings architecture has natural elements merging with the landscape.	Very good (Score 10)			
Explanatory note: The assessment should take into account the Zoo landscape and its structures confirming to landscape natural features, the vegetation and shrubs, building architecture merging with the landscape in accordance with the Guidelines. The utilization of all the areas of the Zoo including blank areas are to be assessed to determine the naturalness of landscape. This assessment should be based on GIS Maps with natural green areas and built-up areas delineated by the Zoo Manager and percentage computed to ascertain the adherence to rules. Allocation of land for each activity should be indicated.				
Indicative reference documents: 1.RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 1(2) of RZR 2009				

2. PLANNING

PLANNING				
2.1 Does the Zoo have a Master Plan for management of the Zoo and is periodically updated?				
Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Layout Plan, Animal Collection Plan and Master plan not prepared.	Requires substantial improvement (Score 2.5)			
Layout Plan, Animal Collection Plan and Master plan is under preparation.	Fair (Score 5)			
Layout Plan, Animal Collection Plan prepared and duly approved by CZA, and Master plan is under preparation	Good (Score 7.5)			
Layout Plan, Animal Collection Plan and Comprehensive Master plan prepared duly approved by CZA and periodically updated	Very good (Score 10)			
Explanatory note: The assessment should take into account the two-stage process of approval of the master plan, in the first stage layout plan, animal collection plan is approved and then the Master Plan is prepared as per guidelines and submitted to CZA. The revision of master plan mid-term and at the end of the plan period is also to be assessed.				
Indicative reference documents: 1.RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 3(3) of RZR 2009				

PLANNING				
2.2 Has the Zoo drawn up relevant plan for accomplishing the task of Conservation education, animal enclosure enrichment, Captive breeding of animals and landscape management?				
Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
None of the four sub-plans as per Master Plan are prepared as per guidelines for scientific management of Zoos	Requires substantial improvement (Score 2.5)			
Two out of the four sub-plan prepared as per guidelines for scientific management of Zoos	Fair (Score 5)			
Three out of the four sub-plans prepared as per guidelines for scientific management of Zoos	Good (Score 7.5)			
All the four sub-plans prepared as per guidelines for scientific management of Zoos	Very good (Score 10)			
Explanatory note: The assessment should take into account the planning process as prescribed in Guidelines for facilitating effective and scientific management of Zoos in India and also policies, guidelines, framed in this regard pertaining to (1) Conservation education, (2) Animal enclosure enrichment, (3) Captive breeding of animals and (4) Landscape management				
Indicative reference documents: 1.RZR 2009, 2. Scientific management of Zoos in India, Rule 10.				

PLANNING

2.3 Does the Zoo have an Education programme as per standards prescribed by RZR, 2009?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks thematic
Zoo does not have education programme with facilities, education officer, appropriate signages, publication and outreach programme	Requires substantial improvement (Score 2.5)			
Zoo has an Education programme with facilities, but no education officer, limited appropriate signages, no publication and outreach programme	Fair (Score 5)			
Zoo has an Education programme with facilities, education officer, appropriate signages, some publication and outreach programme	Good (Score 7.5)			
Zoo has an Education programme with facilities, education officer, appropriate signages, substantial publication and regular outreach programme	Very good (Score 10)			

Explanatory note: This assessment takes into account the education programme, support facilities, keeper's talks, guided tours, illustrated species talks, interactive displays, interpretation centre, species adoption programme, Zoo maps, signage (species, administrative and directional etc.), visitor guidance, literature provided at the entrance and Zoo school program in house and at the school (extension) and resource material for education.

Indicative reference documents: 1.RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 4(10) of RZR 2009

PLANNING

2.4 Has the Zoo formulated a Disaster Management Strategy (DMS), security plan and mechanism for security audit(SA)?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
The Zoo lacks a DMS, security plan and no mechanism for SA.	Requires substantial improvement (Score 2.5)			
The Zoo has a relevant DMS, security plan and no mechanism for SA.	Fair (Score 5)			
The Zoo has a relevant DMS, security plan and weak mechanism for SA.	Good (Score 7.5)			
The Zoo has a relevant DMS, security plan and strong mechanism for SA.	Very good (Score 10)			

Explanatory note: This assessment takes into account the formulation of DMS, security plan, strategy for preventing breach of safety protocols, including escape of animals, boundary wall breaches, ingress of feral and stray animals, disease outbreak, weather extremes (storms and flooding etc.), arson and rioting, the number and locations of Zoo squads, procedure for safety drills, the manpower requirements and readiness to contain specific threats with the necessary support, equipment and facilities.

Indicative reference documents: 1.RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 3(3) of RZR 2009, 3. General rules: The Disaster Management Act, 2005

PLANNING

2.5 Does the Conservation breeding program meets the standard prescribed by RZR,2009?

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo Conservation Breeding is not based on scientific lines as per approved conservation breeding plan with skilled manpower, appropriate off exhibit location, layout plan, enclosure design, enrichment, identification of founder stock, demographic and population management, behavioural management, nutrition, health care, record keeping, funds and reintroduction as per protocol	Requires substantial improvement (Score 2.5)			
Zoo Conservation breeding is based on scientific lines as per approved conservation breeding plan with skilled manpower, appropriate off exhibit location, layout plan, enclosure design, enrichment, but the identification of founder stock, demographic and population management, behavioural management, nutrition, health care, record keeping, research, skilled manpower, funds and reintroduction strategy is not as per protocol.	Fair (Score 5)			
Zoo Conservation breeding is based on scientific lines as per approved conservation breeding plan with skilled manpower, appropriate off exhibit location, layout plan, enclosure design, enrichment, the identification of founder stock, demographic and population management, behavioural management, nutrition, health care, but appropriate record keeping, research, funds and reintroduction as per protocol is lacking	Good (Score 7.5)			
Zoo Conservation breeding is based on scientific lines as per approved conservation breeding plan with skilled manpower, appropriate off exhibit location, layout plan, enclosure design, enrichment, the identification of founder stock, demographic and population management, behavioural management, nutrition, health care, record keeping, research, skilled manpower, funds and reintroduction as per protocol is in accordance with the prescribed standards.	Very good (Score 10)			
Explanatory note: This assessment takes into account the conservation breeding planning for endangered species as per the protocol specified by RZR, 2009 which includes inter-alia the planning for facility for breeding, appropriate enclosure and enrichment, nutrition, health care and rewilding of the stock. Demographic and population dynamics monitoring along with research is also part of assessment.				
Indicative reference documents: 1.RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 9(6-8) of RZR 2009 and 3. Guidelines for conservation breeding.				

3. INPUT

INPUT

3.1 Does the Zoo have adequate resources (financial), timely released and linked to priority activities?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo resource allocation is adhoc, funds are grossly inadequate and seldom released on time and not linked to priority activities	Requires substantial improvement (Score 2.5)			
Zoo resource allocation (funds) is inadequate and there is some delay in release and not linked to priority activities	Fair (Score 5)			
Zoo resource allocation (funds) is adequate and generally released in time and linked to most priority activities	Good (Score 7.5)			
Zoo resource allocation (funds) is adequate and released in time and linked to all priority activities	Very good (Score 10)			
Explanatory note: The assessment should take into account the funds allocation and its utilization in the last 3 years for priority linked activities provided in the master plan and annual plan of operation.				
Indicative reference documents: 1. Master Plan Chapter on Budget, 2. Allocations of the Central and State Govt. of last 3 years				

INPUT

3.2 Does the Zoo mobilizes additional resources (financial) and generate funds for financial sustainability?

12. Does the Zoo mobilize additional resources (financial) and generate funds for financial sustainability?				
Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo does not mobilize additional resource from internal and external sources for sustainable management	Requires substantial improvement (Score 2.5)			
Zoo mobilizes limited additional resource from internal and external sources for sustainable management	Fair (Score 5)			
Zoo mobilizes moderate additional resources from internal and external sources for sustainable management	Good (Score 7.5)			
Zoo mobilizes maximum additional resource from internal and external sources for sustainable management	Very good (Score 10)			
Explanatory note: The assessment should take into account the financial sustainability of the Zoo, based on the category of Zoo, its funds requirement as per the budgetary provision in the master plan and annual plan of operation, ability to mobilize and generate funds from private donors, corporate entities and re-plough from revenue generated through Zoo Society.				
Indicative reference documents: 1. Revenue generated by Zoo in last 3 years, 2. Funds generated from internal and external sources in last 3 years, 3. Legislative policy guidelines and strategy,2014: Guidelines for developing Framework mechanism for mobilizing financial support for supplementing management of Zoo.				

INPUT

3.3 Is the administrative, staffing pattern, access to resources, training and capacity building adequate in accordance with RZR, 2009?

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo does not have sufficient staff and personnel with adequate qualification, administrative and financial powers and specific assignment of their functions and duties, access to resources, no opportunity for updation of knowledge and capacity building as per RZR, 2009 guidelines.	Requires substantial improvement (Score 2.5)			
Zoo has sufficient staff and personnel with adequate qualification, administrative and financial powers and specific assignment of their functions and duties, access to resources, for 75% of positions, some opportunity for updation of knowledge and capacity building as per RZR, 2009 guidelines	Fair (Score 5)			
Zoo has sufficient staff and personnel with adequate qualification, administrative and financial powers and specific assignment of their functions and duties, access to resources, for 90% of positions, adequate opportunity for updation of knowledge and capacity building as per RZR, 2009 guidelines	Good (Score 7.5)			
Zoo has sufficient staff and personnel with adequate qualification, administrative and financial powers and specific assignment of their functions and duties, access to resources for all the positions, full opportunity for updation of knowledge and capacity building as per RZR, 2009 guidelines	Very good (Score 10)			
Explanatory note: The assessment should take into account the category of Zoo, its staff requirement and deployed, their qualification, administrative and financial powers and technical trainings scheduled. The resource material availability in terms of policy and guidelines, husbandry manuals, relevant literature on species. access to computers, internet, digital devices for execution of daily duties, communication and updation of knowledge.				
Indicative reference documents: 1.RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 2(1-3) of RZR 2009				

INPUT

3.4 Does the Zoo have enough manpower to cater adequate Zoo Animal medicine and Health necessities?

3.4 Does the Zoo have enough manpower to cater adequate Zoo Animal medicine and Health necessities.

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo does not have a full-time veterinarian, veterinary technician, pharmacist (compounder), support staff and adequate animal keepers.	Requires substantial improvement (Score 2.5)			
Zoo has full time veterinarian, but inadequate technical support staff including veterinary technician, pharmacist (compounder), support staff and adequate animal keepers.	Fair (Score 5)			
Zoo has full time veterinarian and veterinary technician, however lacks pharmacist(compounder), and adequate support staff and animal keepers.	Good (Score 7.5)			
Zoo has full time veterinarian, veterinary technician, pharmacist (compounder) with full complement of support staff and individual animal keeper for each/ group of species.	Very good (Score 10)			
Explanatory note: A comprehensive animal health program requires the integration of preventive medical programs, clinical medicine, nutrition, husbandry practices, pathological surveillance, and the effective recording and data management of all these activities in a detailed medical records system. Thus, this assessment takes, into account the availability of manpower to cater to such needs.				
Indicative reference documents: 1. Scientific management of Zoos in India, Rule 10, Schedule 6(1-6) of RZR 2009, 2. Legislative policy guidelines and strategy,2014: Health monitoring protocol. 3. Drugs and Cosmetics Act ,1940; Narcotic Drugs and Psychotropic Substances Act, 1985; Indian Veterinary Council Act, 1984				

INPUT

3.5 Does the Zoo have visitor facilities (education and interpretation), marketing and promotional material?

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo lacks visitor facilities, transport services, catering, marketing and promotional material.	Requires substantial improvement (Score 2.5)			
Zoo has limited visitor facilities, transport services, catering, marketing and promotional material.	Fair (Score 5)			
Zoo has adequate visitor facilities, transport services, catering, marketing and promotional material.	Good (Score 7.5)			
Zoo has well-developed visitor facilities, transport services, catering, marketing and promotional material.	Very good (Score 10)			

Explanatory note: This assessment takes into account the development of following visitor facilities: parking space, special need assistance, cloak room, Zoo souvenir shop, play area, restaurant, restrooms, child care room, education and extension infrastructure, transport, visitors' guidance: Zoo map, road signs. marketing: website, distribution of publications, online social media interaction, press releases, advertisement, Zoo logo, resource material for education and first aid equipment.

Indicative reference documents: 1. Scientific management of Zoos in India, Rule 10, Schedule 12 of RZR 2009

INPUT

3.6 Does the Zoo have enough logistical and material support to cater adequate Zoo Animal medicine and Health necessities?

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo does not have well-equipped hospital, animal operation theatre, diagnostic and restraint equipment, separate quarantine area, post-mortem and carcass disposal facility with sufficient stock of medicine, and diagnostic laboratory services nor has any collaborations with State Veterinary Colleges or district veterinary hospitals, including a Health Advisory Committee having independent experts.	Requires substantial improvement (Score 2.5)			
Zoo has a moderately equipped hospital, animal operation theatre, few diagnostic and restraint equipment, however lacks separate quarantine area, post-mortem and carcass disposal facility, sufficient stock of medicine, and diagnostic laboratory services nor has any collaborations with State Veterinary Colleges or district veterinary hospitals, including a Health Advisory Committee having independent experts.	Fair (Score 5)			
Zoo has a largely equipped hospital, animal operation theatre, adequate diagnostic and restraint equipment, separate quarantine area, post-mortem and carcass disposal facility with sufficient stock of medicine, though lacks diagnostic laboratory services. However, zoo has insufficient collaborations with State Veterinary Colleges or district veterinary hospitals, including a Health Advisory Committee having independent experts.	Good (Score 7.5)			
Zoo has a well-equipped hospital, animal operation theatre, diagnostic and restraint equipment, separate quarantine area, post-mortem and carcass disposal facility with sufficient stock of medicine, and in-house diagnostic laboratory services and additionally has sufficient collaborations with State Veterinary Colleges or district veterinary hospitals, including a Health Advisory Committee having independent experts.	Very good (Score 10)			

Explanatory note: Zoos being host to wide range of wild animal species, each with unique biological and physiological requirements necessities a comprehensive logistic and material support to maintain adequate health of the animals in human care. These include well designed hospitals with modern diagnostic equipment, adequate storage facility, in house animal holding and animal restraint squeeze cages, adequate stock or yearlong availability of medicine, access to laboratory services, and Carcass inspection and disposal protocols. Also, tie-ups / collaborations with State Veterinary Colleges to overcome such deficiencies and formation of an independent Health Advisory Committee, if any can be considered here.

Indicative reference documents: 1. Scientific management of Zoos in India, Rule 10, Schedule 6(1-6) of RZR 2009, 2. Legislative policy guidelines and strategy, 2014: Health monitoring protocol.

INPUT

3.7 Does the Zoo Commissary (Feed store) gets timely supply of adequate quantity of good quality of feed as per requirement/ convenience of various species in a hygienic manner?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo commissary is not well maintained, the supply of feed is erratic, animal nutrition specification (diet) are inadequate, preparation, handling and presentation is not hygienic	Requires substantial improvement (Score 2.5)			
Zoo commissary is not well maintained, the supply of feed is regular, prescribed animal nutrition specification (diet) is followed, preparation, handling and presentation is not hygienic	Fair (Score 5)			
Zoo commissary is well maintained, the supply of feed is regular, prescribed animal nutrition specification (diet) is followed, preparation is proper but handling and presentation is not hygienic	Good (Score 7.5)			
Zoo commissary is well maintained, the supply of feed is regular, animal nutrition specification (diet) prescribed is natural and followed, preparation is proper, handling and presentation is clean and hygienic	Very good (Score 10)			

Explanatory note: This assessment takes into account whether indenting by ordering provisions and coordination with centralized indenting and receiving stocks for animal feed and supplies, weighing, proper storage, handling and presentation of food and assured quality and safety of animal diets and rotation to prevent unnecessary food wastage, lab analysis of feed; diet preparation and management is as per Zootrition or other animal nutrition management system; the diet, formulation and refinement is in consultation with veterinary staff, curators, and Zookeepers; maintain high standards of cleanliness and hygiene, maintain civil structures where foods are handled. and innovation to develop nutritional natural substitutes, improvement process for sourcing feed and supplies, streamline procedures, processes, and documentation related to commissary function.

Indicative reference documents: 1. Scientific management of Zoos in India, Rule 10, Schedule 5 (1-4) of RZR 2009

INPUT

3.8 Does the Zoo have an enforcement system to prevent nuisance and vandalism by visitors?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
The Zoo lacks an enforcement system with manpower, infrastructure support to prevent instances of nuisance, vandalism and breach of rules by visitors?	Requires substantial improvement (Score 2.5)			
The Zoo has a weak enforcement system with inadequate manpower, infrastructure support to prevent instances of nuisance, vandalism and breach of rules by visitors?	Fair (Score 5)			
The Zoo has an enforcement system with adequate manpower, infrastructure support to prevent instances of nuisance, vandalism and breach of rules by visitors?	Good (Score 7.5)			
The Zoo has a strong enforcement system with adequate manpower, infrastructure support to prevent instances of nuisance, vandalism and breach of rules by visitors?	Very good (Score 10)			

Explanatory note: This assessment takes, into account the instances of visitor nuisance and vandalism, feeding of animals, polluting the water moats, littering and creating noise and teasing of animals, boundary wall breaches, encroachments, vandalism and damage to property.

Indicative reference documents: 1. Wildlife (Protection) Act, 1972, Section 38J, 2. Scientific management of Zoos in India, Rule 10, Schedule 9(10) of RZR 2009

4. PROCESS

PROCESS

4.1 Is the animal collection sustainably managed?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo does not house animals in natural social and demographic structure, negates optimum breeding and raising self-sustained population in deviation of its collection plan.	Requires substantial improvement (Score 2.5)			
Zoo houses few animals (50%) in natural social and demographic structure, allowing optimum breeding and raising self-sustained population with several deviation of its collection plan.	Fair (Score 5)			
Zoo houses most animals (75%) in social and demographic structure, allowing optimum breeding and raising self-sustained population with few deviations of its collection plan.	Good (Score 7.5)			
Zoo houses all animals in social and demographic structure, allowing optimum breeding and raising self-sustained population without any deviation of its collection plan.	Very good (Score 10)			
Explanatory note: The assessment should take into account the animal collection, their social grouping, sex ratio, unpaired animals, age structure, lineage and also the current and previous year's inventory of animals, showing acquisition, disposal, birth and mortality, especially of Sch-1 or endangered species.				
Indicative reference documents: Animal collection plan, current and earlier inventory of animals, breeding pairs ascertained from studbook, natality and mortality.				

PROCESS

4.2 Does the Zoo manage its resource sustainably (sanitation and hygiene) without detriment to the environment?

12. Does the Zoo manage its Resource Sustainability (Sanitation and Hygiene) without detriment to the environment?				
Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo lacks garbage disposal, treatment and recycling of wastewater, energy conservation and bio-hazardous/ veterinary waste disposal strategy.	Requires substantial improvement (Score 2.5)			
Zoo has an elementary garbage disposal system, a strategy for treatment and recycling of wastewater, energy conservation and bio-hazardous/ veterinary waste disposal but its execution is lacking.	Fair (Score 5)			
Zoo has elementary garbage disposal system, a strategy for treatment and recycling of wastewater, energy conservation and bio-hazardous/ veterinary waste disposal and sufficiently implemented.	Good (Score 7.5)			
Zoo has a comprehensive garbage disposal system, a strategy for recycling of wastewater, energy conservation and bio-hazardous/ veterinary waste disposal and has innovative science-based resource sustainability management, well implemented.	Very good (Score 10)			
Explanatory note: The assessment should take into account, segregation of waste, waste water drainage, treatment in oxidation ponds and treatment plants, water recharging (percolation pond etc.), use of solar and other renewable sources of energy, adherence to zero tolerance for littering, entry of plastic and waste into its premises. Innovative mechanism for energy conservation, reducing pollutants, organic waste management (vermicomposting) and implementing green Zoo concepts.				
Indicative reference documents: 1. RZR, 2009, 2. Observation in Zoo landscape				

PROCESS

4.3 Does the Zoo encourage stakeholders to participate in Management activities?

Assessment criteria	Rating/ Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Little, if any, opportunity for stakeholder to participate in Zoo management activities.	Requires substantial improvement (Score 2.5)			
Zoo provides opportunity for stakeholders to participate in some management activities.	Fair (Score 5)			
Zoo provides opportunity for stakeholders to participate in most management activities.	Good (Score 7.5)			
Zoo provides opportunity for stakeholders to participate routinely and systematically in all management activities	Very good (Score 10)			
Explanatory note: The stakeholders are a large section of people including Zoo personnel, school and college students, veterinary college interns, teachers and professors, corporate employees, caterers, transport operators, media representative and naturalists and general Zoo enthusiasts who volunteer to participate in Zoo activities. Including survey and feedback.				
Indicative reference documents: 1. MOU and correspondence with individual and institution to participate in management activities and Interaction with peoples and their feedback.2. Legislative policy guidelines and strategy, 2014 3. Guidelines for utilization of Zoo Volunteer.				

PROCESS

4.4 Is the Zoo providing proper health care including preventive medicine as per standards prescribed in RZR 2009?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo does not follow preventive medicine protocols including quarantine, pathogen surveillance and control, immunisation, infectious disease screening, periodic review of diets and husbandry technique, vermin control and medical record keeping.	Requires substantial improvement (Score 2.5)			
Zoo has full time veterinary officer to follow preventive medicine protocol but quarantine, parasitic surveillance procedure and control, immunisation, infectious disease screening, periodic review of diets and husbandry technique, vermin control and medical record keeping system are not adhered as per rules.	Fair (Score 5)			
Zoo has full time veterinary officer to follow preventive medicine protocol and carry out satisfactorily quarantine, parasitic surveillance procedure and control, immunisation, but infectious disease screening, periodic review of diets and husbandry technique, vermin control and medical record keeping system are not adhered as per rules.	Good (Score 7.5)			
Zoo has full time veterinary officer to follow preventive medicine protocol and carry out satisfactorily quarantine, parasitic surveillance procedure and control, immunisation, infectious disease screening, periodic review of diets and husbandry technique, vermin control and medical record keeping system adhering to rules.	Very good (Score 10)			
Explanatory note: This assessment takes into account the adherence to preventive medicine protocols including quarantine, parasitic surveillance procedure and control, immunisation, infectious disease screening, periodic review of diets and husbandry technique, vermin control and medical record keeping. Besides this, the maintenance of medical records of animals currently in the collection, mortality and review of medical and pathology records are to be assessed.				
Indicative reference documents: 1. RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 6(1-6) and Schedule 5 (6-10) of RZR 2009				

PROCESS

4.5 Does the Zoo promote animal welfare by encouraging expression of natural behaviour patterns and minimizes fear and distress in the animals as part of Zoo animal husbandry?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo lacks adherence to basic animal welfare standards including enclosure design and conservation ethics practices in animal husbandry	Requires substantial improvement (Score 2.5)			
Zoo adheres to some animal welfare standards including enclosure design and conservation ethics practices in animal husbandry	Fair (Score 5)			
Zoo adheres to essential animal welfare standards including enclosure design and conservation ethics practices in animal husbandry	Good (Score 7.5)			
Zoo adheres to comprehensive animal welfare standards including enclosure design and conservation ethics practices in animal husbandry	Very good (Score 10)			

Explanatory note: This assessment takes into account whether the animal husbandry practices are based on knowledge of species behaviour and critical requirements, welfare parameters, enclosure quality, daily observations on behaviour to elicit information on animal welfare, nutrition and stress related factors of animal, like vegetation screening, visitor's proximity, enrichment strategies etc.

Indicative reference documents: 1. RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 4(1-10) and Schedule 5 (1-10) of RZR 2009

PROCESS

4.6 Is the Zoo Commissary (Feed Store) stock for animal feed and supplies sustainably raised to ensure quality of feed as per requirement?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo Commissary stock for animal feed and supplies is not sustainably raised in Zoo based farm/orchard for fodder, fruits and rat/mice breeding centre and insectarium for raising insect as specialized feed	Requires substantial improvement (Score 2.5)			
Zoo based stock for animal feed and supplies is sustainably raised to meet limited requirement through farm/orchard for fodder, fruits but there is lack of rat/mice breeding and insectarium for raising insect as specialized feed	Fair (Score 5)			
Zoo based stock for animal feed and supplies is sustainably raised to meet substantial requirement through farm/orchard for fodder, fruits but there is lack of rat/mice breeding centre and insectarium for raising insect as specialized feed	Good (Score 7.5)			
Zoo based stock for animal feed and supplies is sustainably raised to meet substantial requirement through farm/orchard for fodder, fruits and the rat/mice breeding centre and insectarium provides the specialized feed	Very good (Score 10)			

Explanatory note: This assessment takes into account, the Zoo based novel and innovative approaches to locally source some of its food for animals (fodder, tree fodder, greens, rats and insects) and dealing with the challenges of limited space to grow special feed.

Indicative reference documents: Best practices to be assessed based on discussion and observation

PROCESS

4.7 Does the Zoo enclosures provide species-specific enrichment?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo does not provide species-specific enrichment; enclosures lack any environmental enrichment and animals are dull and show stereotype behaviour.	Requires substantial improvement (Score 2.5)			
Zoo provide some species-specific enrichment; few enclosures have environmental enrichment and animals are generally dull and show stereotype behaviour.	Fair (Score 5)			
Zoo provide species-specific enrichment; most enclosures have environmental enrichment and animals are active and show less stereotype behaviour.	Good (Score 7.5)			
Zoo provide species-specific enrichment; all enclosures have environmental enrichment and animals are active and show insignificant stereotype behaviour.	Very good (Score 10)			

Explanatory note: This assessment will take into account environmental enrichment (behavioural, structural enrichment etc.) in enclosure including animal house, immersions effect, species-specific and opportunities for stimulation. Environmental enrichment includes the regular provision of dynamic environments, cognitive challenges and social opportunities. An enriched environment should promote a range of normal behaviours that animals find rewarding as well as allowing animals to positively respond to potential stressors for example, opportunities to hide or climb away from visitors or more co-specifics that are dominant.

Indicative reference documents: 1. RZR 2009 rule 4(5-6), 2. Scientific management of Zoos in India, Rule 10, Schedule 4(5-6) of RZR 2009, 3. Legislative policy guidelines and strategy, 2014: Guidelines on use of innovative exhibit design and barrier design for holding and display of animals.

PROCESS

4.8 Does the Zoo use innovative techniques/ technologies for conservation, education, research, rescue and rehabilitation efforts?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo does not use any special technology for any sphere of management	Requires substantial improvement (Score 2.5)			
Zoo uses technological innovation in few spheres of management	Fair (Score 5)			
Zoo uses technological innovation in most spheres of management	Good (Score 7.5)			
Zoo uses technological innovation in all spheres of management	Very good (Score 10)			

Explanatory note: The assessment should take into account the visitor friendly smart applications for sharing information's on maps & signage, animals, keepers talk, feeding, visitor guidance and ticketing. Other technological innovations in conservation education related to information kiosk, touch screen with event information, Zoo information and feedback, web-based livestreaming of animals, virtual reality, augmented reality, electronic bar-code-based entry gates, automatic dimming of lights, Technology based devices for animal welfare in the form of sprinklers, water blasters, enclosure enrichment, security of animals may also be considered. Apart from this research tools available in Zoos are microchips and cctvs for monitoring animals, for security etc. Any technology for visually impaired, physically challenged and for special need assistance.

Indicative reference documents: 1. RZR 2009, 2. Field observations

PROCESS

4.9 Does the Zoo have a rescue and rehabilitation facility and adheres to rules (RZR 2009) for accepting rescued animals?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo does not have any rescue facility and accepts rescued animals and housed them in inappropriate enclosures.	Requires substantial improvement (Score 2.5)			
Zoo does not have any rescue facility and has accepted rescued animals and housed them in vacant enclosures which are appropriately designed enclosure.	Fair (Score 5)			
Zoo has a rescue facility, has accepted rescued animals, and housed them in appropriately designed enclosure for lifetime care without following procedures as per rules.	Good (Score 7.5)			
Zoo has a rescue facility, has accepted rescued animals, and housed them in appropriately designed enclosure for lifetime care as per rules.	Very good (Score 10)			
Explanatory note: The assessment should take into account the rescue facility set up as per the master plan and rescued animals accepted for housing, treatment and rehabilitation adhering to the rules and regulation of RZR, 2009 by quarantining and housing in appropriately designed enclosure and proper reporting. The quarantine of the animals needs to be done before accepting and giving any animal.				
Indicative reference documents: 1. RZR 2009, 2. National Zoo Policy, 1998 3. Guidelines for Preparation of Master Plan for long term development of Zoos				

5. OUTPUT

OUTPUT

5.1 Does the Zoo support research activities and collaborates with institutions and research organizations to address issues on Zoo Management?

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo does not have Research plan nor has set priorities for conduct of research by in-house team and collaborates with research bodies and organizations, shares data from its data base to facilitate research, disseminates and publishes research work	Requires substantial improvement (Score 2.5)			
Zoo has a Research plan and has set priorities for conduct of research by in house team but does not collaborates with research bodies and organizations, shares data from its data base to facilitate research, disseminates and publishes research work.	Fair (Score 5)			
Zoo has a Research plan and has set priorities for conduct of research by in house team, collaborates with research bodies and organisations in adhoc manner, shares some data from its database to facilitate research but does not disseminate and publish research work	Good (Score 7.5)			
Zoo has a comprehensive research plan and has set priorities for conduct of research by in house team, collaborates with research bodies and organisations, shares data from its database to facilitate research, disseminates and publishes research work.	Very good (Score 10)			
Explanatory note: This assessment takes into account the development of research plan for addressing issues relating to animal husbandry, disease treatment and medication, contraception, reproduction, population management, health and ageing; and in assessing the effectiveness of educational tools and methods, monitoring wildlife disease and emergent infectious diseases ,socio-economic aspects of running a Zoo such as sustainability, recycling, visitor attendance, spending patterns, communications, marketing and public relations exercises etc. Collaboration with institutions and sharing, disseminating and publishing research work.				
Indicative reference documents: 1. National Zoo Policy, 1998 2. Rule 10 of RZR 2009, 3. Scientific management of Zoos in India, Rule 10, Schedule 10 of RZR 2009				

OUTPUT

5.2 Is the Sanitation and hygiene regime followed for safety and wellbeing of keepers, visitors and animals?

5.12 is the Sanitation and Hygiene Regime followed for safety and wellbeing of keepers, visitors and animals.

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo does not maintain appropriate essential standards of hygiene in respect of the staff, visitor and animals’ keepers assigned work in the animal enclosures, treatment rooms and other ancillary facility (Quarantine, post-mortem room, & incinerator)	Requires substantial improvement (Score 2.5)			
Zoo maintains appropriate essential standards of hygiene in respect of the staff, visitor and animals’ keepers but that of the animal enclosures, treatment room and other ancillary facility (Post-mortem room& incinerator) are lacking	Fair (Score 5)			
Zoo maintains appropriate essential standards of hygiene in respect of the staff, visitor and animals’ keepers and that of the animal enclosures but treatment room and other ancillary facility (Post-mortem room & incinerator) are lacking	Good (Score 7.5)			
Zoo maintains appropriate essential standards of hygiene, in respect of the staff, visitor and animals’ keepers and that of the animal enclosures, treatment room and other ancillary facility (Post-mortem room & incinerator)	Very good (Score 10)			
Explanatory note: This assessment takes, into account the animal keepers and handlers hygiene, usage of suitable disinfectant (natural or synthetic) for maintaining sanitation and hygiene in animal houses, veterinary facilities, post-mortem rooms, incinerator and appropriate disposal of carcass, speedy disposal of feed wastes, supply of portable water, foot bath and tire bath, bush clearance (vector control), disposal of biodegradables, disinfection of water containers and walls and feeding platforms in a periodical manner, adaptation of suitable fly control measures (fly catcher lights) especially in feed receiving spots or store rooms. Speedy clearance of sheds/ cages after the occurrence of diarrheic stools/ after the conducting of operation. Strengthening of				

rodent or pest proof barriers (Vermin control) or cages or fences esp. in aviaries or bird-exhibit places to avoid diseases. Usage of aseptic infrastructures like sterilized needles, syringes, sample-collecting containers etc. Laboratory should be kept clean without giving chances for any types of infections, contamination of portable water. Health check-up of Zoo staff for Zoonosis should be monitored.

Indicative reference documents: 1. Guidelines for Preparation of Master Plan for long term development of Zoos, 2. Scientific management of Zoos in India, Rule 10, Schedule 3(1-9) and Schedule 6(6) of RZR 2009

OUTPUT

5.3 Is the Zoo maintaining database on animals, population dynamics and genetics of endangered species (Sch. I and II) as per RZR,2009?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo does not keep a database (physical/ digital) for animals in its collection in standard formats as per CZA norms for maintaining animal records and studbooks for carrying out genetic and demographic analysis	Requires substantial improvement (Score 2.5)			
Zoo keeps a database (physical/ digital) for animals in its collection in standard formats as per CZA norms for maintaining animal records, studbooks but does not carry out genetic and demographic analysis	Fair (Score 5)			
Zoo keeps a database (physical/ digital) for animals in its collection in standard formats as per CZA norms for maintaining animal records, studbooks but carries out genetic and demographic analysis for few animals.	Good (Score 7.5)			
Zoo keeps a database (physical/ digital) for animals in its collection in standard formats as per CZA norms for maintaining animal records, studbooks and carries out genetic and demographic analyses for most animals.	Very good (Score 10)			

Explanatory note: This assessment takes into account the use of standard formats as per CZA norms which produces routine pooled inventories and other reports for maintaining basic specimen records, veterinary records, and using studbooks for genetic and demographic analysis.

Indicative reference documents: 1. National Zoo Policy, 1998, 2. Scientific management of Zoos in India, Rule 5 and Rule 10, Schedule 10 of RZR 2009

OUTPUT

5.4 Does the Zoo follow the ethical standards and norms enlisted in the RZR, 2009 and Guidelines?

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo does not adhere and follow the ethical standards and norms enlisted in the RZR,2009 and Guidelines.	Requires substantial improvement (Score 2.5)			
Zoo adheres and follows 50% of the ethical standards and norms enlisted in the RZR,2009 and Guidelines.	Fair (Score 5)			
Zoo adheres and follows 75% of the ethical standards and norms enlisted in the RZR, 2009 and Guidelines.	Good (Score 7.5)			
Zoo adheres and follows 100% of the ethical standards and norms enlisted in the RZR,2009 and Guidelines.	Very good (Score 10)			

Explanatory note: The assessment should take into account whether Zoo practices are consistent with all relevant current legislation and guidelines including, animal collection plans/ choice of species (in relation to method of acquisition, facilities for management, etc.) acquisition of wild-caught/ rescued animals, handling/ husbandry procedures (where the ethical merits of the procedures may be in question, the use of some forms of physical restraint or isolation for the collection of faecal samples), relocations of animals (to other Zoos or elsewhere), use of animals for reintroductions, inbreeding/genetic management, linking in-situ and ex-situ conservation, compatible mixed-species exhibits, pinioning of birds and other markings, public contact with animals e.g. in touch pools, snake encounters, children's Zoos, keeper contact with animals, unethical breeding of animals, display of sick animals and quarantine etc.

Indicative reference documents: 1. RZR, 2009, 2. Legislative policy guidelines and strategy, 2014

OUTPUT

5.5 Does the Zoo Animal keepers and supporting staff contribute to achieving animal welfare?

Assessment criteria	Rating/ Score	(Tick √)	Reference document(s)/ photos	Remarks
Zookeepers and supporting staff lack understanding on biology, behaviour, nutrition, maintenance, safety and hygiene regulation of animals, observe and apply enrichment and record information.	Requires substantial improvement (Score 2.5)			
Zookeepers and supporting staff have some understanding of biology, behaviour, nutrition, maintenance, safety and hygiene regulation of animals, but unable to observe and apply enrichment and record information.	Fair (Score 5)			
Zookeepers and supporting staff have adequate understanding of biology, behaviour, nutrition, maintenance, safety and hygiene regulation of animals, but unable to observe and apply enrichment and record information.	Good (Score 7.5)			
Zookeepers and supporting staff have adequate understanding of biology, behaviour, nutrition, maintenance, safety and hygiene regulation of animals, observe and apply enrichment and record information.	Very good (Score 10)			
Explanatory note: This assessment takes into account the direct observation and interaction with animal keepers, their trainings and their ability to carry out routine work of cleaning, maintenance, safety and hygiene procedures and observe animals for illness, apply enrichment and record animal keeper's diary.				
Indicative reference documents: Interaction with animal Keeper, Review of animal keeper's diary and Daily reports maintained by Zoo.				

OUTPUT

5.6 Does the Zoo veterinarian and supporting staff undertake works as per protocol and procedures of RZR, 2009 for health care of animals?

Assessment criteria	Rating/ Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo Veterinarian does not provide veterinary health care by conducting routine observation, medical attention to diseased or traumatized animals, scheduled immunization and preventive care programs, executing nutrition and reproduction programs for animals, Sanitation and Quarantine for animals.	Requires substantial improvement (Score 2.5)			
Zoo Veterinarian provide veterinary health care by conducting routine observation, medical attention to diseased or traumatized animals, scheduled immunization and preventive care programs, but lacks in executing nutrition and reproduction programs for animals, Sanitation and Quarantine for animals.	Fair (Score 5)			
Zoo Veterinarian provide adequate veterinary health care by conducting routine observation, medical attention to diseased or traumatized animals, scheduled immunization and preventive care programs, executing nutrition and reproduction programs for animals, but lacks in maintaining sanitation condition and Quarantine for animals.	Good (Score 7.5)			
Zoo Veterinarian provide adequate veterinary health care by conducting routine observation, medical attention to diseased or traumatized animals, scheduled immunization and preventive care programs, executing nutrition and reproduction programs for animals, maintains sanitation condition and Quarantine for animals.	Very good (Score 10)			
Explanatory note: This assessment takes into account the ability of Zoo veterinarian to carry out health monitoring of animals by routine observations (quantification)and identifying sick animals, design of nutritionally balanced diets, safe and proper collection, preparation and dispatch of diagnostic and other samples for laboratory examination, post mortems, supervision of quarantine facilities. Preventive measures to be assessed are vaccination of animals, deworming of animals, hygienic animal enclosures (inpatient ward), personal hygiene of staff, putting newly arrived animals to the Zoo in quarantine. The mortality of animals due to shortcoming in health care and the effect of age and senility of animals, inbreeding and other factors relating to fecundity should be taken into consideration.				
Indicative reference documents: 1. Rule 2 of RZR 2009, 2. Legislative policy guidelines and strategy, 2014: Health monitoring protocol.				

OUTPUT

5.7 Does the Zoo show preparedness to respond to emergencies/ Disasters?

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo does not show any preparedness to respond to emergencies/ Disasters	Requires substantial improvement (Score 2.5)			
Zoo show some preparedness to respond to emergencies/ Disasters	Fair (Score 5)			
Zoo is prepared to respond to most emergencies and Disaster situations	Good (Score 7.5)			
Zoo is fully prepared to respond to all emergencies and Disaster situations	Very good (Score 10)			

Explanatory note: This assessment takes into account the Zoo management efforts (number and frequency) and readiness to meet any emergency situation which include focus on safety programs based on sound planning, prevention, response and recovery, and related initiatives, including sufficient equipment, training, practice drills, rapid response teams, mobility and communication, coordination with external agency, command and control etc. Also, to be assessed are erection of suitable barriers, animal escapes prevention measures in enclosures and warning signs etc. disease outbreaks, riots, arson and weather extremes

Indicative reference documents: 1.RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 3(3) of RZR 2009, 3. General rules: The Disaster Management Act, 2005

6. OUTCOMES

OUTCOMES				
6.1 Does the Zoo maintain healthy (physically, behaviourally and genetically) animals?				
Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Most of the Zoo animals are not in good body condition, have skewed social and demographic structure, are inbred and lack natural behavioural traits.	Requires substantial improvement (Score 2.5)			
Some of the Zoo animals are in good body condition, but have skewed social and demographic structure, are inbred and show limited natural behavioural traits.	Fair (Score 5)			
Most of the Zoo animals are in good body condition, some species have skewed social and demographic structure, are inbred but show some natural behavioural traits.	Good (Score 7.5)			
Most of the Zoo animals are in good body condition, have species typical social and demographic structure and express natural behavioural traits.	Very good (Score 10)			
Explanatory note: This assessment takes into account the social grouping (single and unpaired groups) sex ratio, and stereotypes (Pacing and circling Tongue-playing and Bar-biting, Neck twisting, Head bobbing, weaving and swaying, Rocking), obesity, over-grooming and self-mutilation, regurgitating, Coprophilia and Coprophagia apart from locomotion, paddock area utilization.				
Indicative reference documents: 1. RZR. 2009 and 2. Studbook, Pedigree and lineage records,3. Observations				

OUTCOMES				
6.2 Does the Zoo effectively contribute to Conservation breeding programs? *				
Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo has not contributed to raising stock of animals from a suitable founder stock for conservation breeding program for eventual release in the wild.	Requires substantial improvement (Score 2.5)			
Zoo has contributed to raise stock of few animals for conservation breeding program from a limited founder stock for raising population for eventual release in the wild.	Fair (Score 5)			
Zoo has contributed to raise stock of many animals for conservation breeding program from adequate founder stock raising population for eventual release in the wild.	Good (Score 7.5)			
Zoo have contributed to raise stock of adequate animals for conservation breeding program from full founder stock raising population and released the first batch in the wild.	Very good (Score 10)			
Explanatory note: This assessment takes, into account the conservation breeding program, procuring of founder stock, their genetic evaluation and raising stock under natural conditions, rewilding and release in the wild as per protocol. <i>*This question will only applicable for Zoos coordinating CBP as mandated by CZA</i>				
Indicative reference documents: 1. Rule 10, Schedule 9 (1-12) of RZR 2009 and 2. Conservation breeding Plan 3. Legislative policy guidelines and strategy.2014: Guidelines of Conservation Breeding Programme				

OUTCOMES

6.3 Does the Zoo management caters to effective human resource development?

Q.10 Does the Zoo management cater to effective Human Resource development?				
Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo management does not provide any opportunity for building leadership, career progression and raising motivation levels of Staff	Requires substantial improvement (Score 2.5)			
Zoo management provides some opportunity for building leadership, career progression and raising motivation levels of Staff	Fair (Score 5)			
Zoo management provides adequate opportunity for building leadership, career progression and raising motivation levels of Staff	Good (Score 7.5)			
Zoo management provides all opportunity for building leadership, career progression and raising motivation levels of Staff and addressing welfare issues	Very good (Score 10)			
Explanatory note: The assessment should take into account the management initiatives towards providing an environment for leadership, development of skills, number and frequency of trainings and exposure visits and raising confidence and motivational levels of Staff and addressing welfare issues pertaining to career progression as per rules.				
Indicative reference documents: 1. Master Plan of Zoo 2. Zoo staff recruitment rules 3. Discussion with Field Staff				

OUTCOMES

6.4 Does the Zoo management caters to effective veterinary resource development, in order to ensure delivery of desired work as prescribed in section 5.7.

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo management does not provide any opportunity for training and career progression of zoo veterinarians as wildlife health professionals by allowing participation in national/ international courses/ workshop/ seminars.	Requires substantial improvement (Score 2.5)			
Zoo management provides some opportunity for training and career progression of zoo veterinarians as wildlife health professionals, by allowing participation in national/international courses/ workshop/ seminars however on an irregular basis and no monetary support	Fair (Score 5)			
Zoo management provides adequate opportunity for training and career progression of zoo veterinarians as wildlife health professionals by allowing participation in national/ international courses/ workshop/ seminars on a compulsory basis with some monetary support.	Good (Score 7.5)			
Zoo management provides all opportunity for training and career progression of zoo veterinarians as wildlife health professionals by allowing participation in national/ international courses/ workshop/ seminars compulsorily on annual basis with full monetary support.	Very good (Score 10)			
Explanatory note: The techniques and management practices required to handle a zoo/ captive facility in a scientific and professional way requires advanced knowledge on zoological medicine and best practices. Expertise in these areas can only come from exposure to practical experiences, either gained over the years or by attending advanced training courses.				
Indicative reference documents: 1. Master Plan of Zoo 2. Zoo staff recruitment rules 3. Discussion with Field Staff				

OUTCOMES

6.5 Does the Zoo education and outreach programme enhance visitor-learning experience?

6.5 Does the Zoo education and outreach programme enhance visitor learning experience.

Assessment criteria	Rating/ Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo does not provide learning opportunities to interpret living animal collections, inspires and generates awareness through education programs conducted, keeper's talks, visit to interactive displays and interpretation centre, distribution of publication and extension activities.	Requires substantial improvement (Score 2.5)			
Zoo provides some learning opportunities to interpret living animal collections, inspires and generates awareness through education programs conducted, keeper's talks, visit to interactive displays and interpretation centre, distribution of publication and extension activities.	Fair (Score 5)			
Zoo provides adequate learning opportunities to interpret living animal collections, inspires and generates awareness through education programs conducted, keeper's talks, visit to interactive displays and interpretation centre, distribution of publication and extension activities.	Good (Score 7.5)			
Zoo provides full learning opportunities to interpret living animal collections, inspires and generates awareness through education programs conducted, keeper's talks, visit to interactive displays and interpretation centre, distribution of publication and extension activities.	Very good (Score 10)			
Explanatory note: This assessment takes into account the visitor learning experience through number of educational programmes, keeper's talks, guided tours, illustrated species talks, visit to interactive displays and interpretation center, literature provided at the entrance and Zoo school program in house and at the school (extension) and distribution of resource material for education, use of website and visitor feedback mechanism				
Indicative reference documents: 1.RZR 2009, 2. Scientific management of Zoos in India, Rule 10, Schedule 4(10) of RZR 2009 3. Visitor Feedback Register, 4. Visit to Interpretation Centre and interaction with visitor				

OUTCOMES

6.6 Are research outcomes relevant and support Zoo management and conservation?

do the Research outcomes Relevant and support Zoo management and conservation.

Assessment criteria	Rating/Score	(Tick ✓)	Reference document(s)/ photos	Remarks
Zoo has not participated, supported any research study and has not used any research findings in Zoo management and conservation	Requires substantial improvement (Score 2.5)			
Zoo has participated, supported few research studies but not used the findings in Zoo management and conservation, captive/ conservation breeding, linking ex-situ and in-situ conservation	Fair (Score 5)			
Zoo has a research plan and have participated and supported in many research studies but not used the findings in Zoo management and conservation, captive/ conservation breeding, linking ex-situ and in-situ conservation	Good (Score 7.5)			
Zoo has a comprehensive research plan and have participated and supported in many research studies and used the findings in Zoo management and conservation, captive/ conservation breeding, also linking ex-situ and in-situ conservation	Very good (Score 10)			
Explanatory note: This assessment takes into account the research studies conducted (no. of published papers and dissertations) on topics prioritised by the Zoo in its plan and assimilated the research findings in management and conservation, captive/ conservation breeding, sharing information and knowledge for complementing in-situ management and linking ex-situ and in-situ conservation				
Indicative reference documents: 1. Master Plan 2. Research publications 3. MOU with Research Institutions				

OUTCOMES

6.7 Does the Zoo consciously manage activities adapting to Climate Change and prevent carbon loss?

Q7. Does the Zoo considerably manage activities adapting to climate change and prevent carbon loss?

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo does not make any effort to manage activities adapting to climate change.	Requires substantial improvement (Score 2.5)			
Zoo have made effort to manage few activities adapting to climate change.	Fair (Score 5)			
Zoo have made effort to manage many activities adapting to climate change.	Good (Score 7.5)			
Zoo have made effort to manage most activities adapting to climate change.	Very good (Score 10)			
Explanatory note: The assessment should take into account efforts in planting trees, sustainable use of energy, water supply (including ground water) and waste management, eco-friendly travel and transport, procurement by-sourcing local products and other innovative mechanisms to reduce carbon footprint and their documentation.				
Indicative reference documents: 1. Observations in the field and 2. Discussion with Zoo Director				

OUTCOMES

6.8 Does the Zoo management incorporate innovative techniques, best management practices for transforming and enhancing management outcomes?

Enhancing management outcomes:

Assessment criteria	Rating/Score	(Tick √)	Reference document(s)/ photos	Remarks
Zoo does not make any effort to incorporate innovative techniques and best management practices for transforming the management outcome	Requires substantial improvement (Score 2.5)			
Zoo have made effort in few activities to incorporate innovative techniques and best management practices for transforming the management outcome	Fair (Score 5)			
Zoo have made effort in most activities to incorporate innovative techniques and best management practices for transforming the management outcomes	Good (Score 7.5)			
Zoo have made effort in almost all activities to incorporate innovative techniques and best management practices for transforming the management outcome	Very good (Score 10)			
Explanatory note: The assessment should take into account the innovations and state of the art technology (Explanatory note 4.8) and best ex-situ conservation practices evolved and their skilful adaptation in the Zoo.				
Indicative reference documents: 1. Observations in the field and 2. Discussion with Zoo Director				



© Padmaja Naidu Himalayan
Zoological Park, Darjeeling



© Padmaja Naidu Himalayan
Zoological Park, Darjeeling



© Padmaja Naidu Himalayan
Zoological Park, Darjeeling



© Rupankar Bhattacharjee,
Assam State Zoo cum Botanical Gardens.



© Rupankar Bhattacharjee,
Assam State Zoo cum Botanical Gardens.



भारतीय वन्यजीव संस्थान
Wildlife Institute of India