

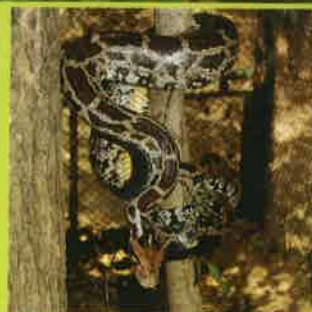
INDRODA NATURE PARK ZOO MASTER PLAN 2016-17 to 2025-26



GEER FOUNDATION

Gujarat Ecological Education and Research Foundation

October - 2016





**FOREST DEPARTMENT
GUJARAT STATE**

Dr. J. A. Khan, /FS

Principal Chief Conservator of Forests, Wildlife &
Chief Wildlife Warden
Gujarat State, Gandhinagar

CERTIFICATE

This is to certify that the Master Plan of Indroda Nature Park Zoo for the period from 2016-17 to 2025-26, administered by Gujarat Ecological Education and Research (GEER) Foundation which has been prepared by GEER Foundation has been seen by me which is in compliance with Wildlife (Protection) Act-1972, Recognition of Zoo Rules, 2009 & Guidelines of Central Zoo Authority in this regard.

Place: Gandhinagar

Date: 19/10/2016

(Dr. J. A. Khan)

Principal Chief Conservator of Forests
& Chief Wildlife Warden,
Gujarat State,
Gandhinagar



Master Plan (2016-2026) of Indroda Nature Park Zoo, Gandhinagar, Gujarat is approved in the 79th Meeting of the Technical Committee of the Central Zoo Authority held on 24th August, 2016 vide additional agenda item No. 6 subject to the condition that the responsibility of mobilizing the financial resources for implementation of the Master plan will be sole responsibility of the Geer Foundation and Forest Department, Government of Gujarat.

Member Secretary, Central Zoo Authority
Ministry of Environment and Forests



सत्यमेव जयते



GEER FOUNDATION

Gujarat Ecological Education and Research Foundation



R. D. Kamboj, IFS

Director &

Additional Principal Chief Conservator of Forests

CERTIFICATE


This is to certify that the Master Plan of Indroda Nature Park Zoo for the period from 2016-17 to 2025-26, administered by GEER Foundation, has been prepared under my supervision.

The Master Plan, from Page No.1 to 158 has been checked and verified by me and is in compliance with Wildlife (Protection) Act-1972, Recognition of Zoo Rules, 2009 & Guidelines of Central Zoo Authority.

Place : Gandhinagar

Date : 19/10/2016




(R. D. Kamboj)

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Indroda Nature Park Zoo
Master Plan
2016-17 to 2025-26

By

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GEER FOUNDATION

Gujarat Ecological Education and Research Foundation

October-2016

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CONTENT

PART – I : BASIS OF MASTER PLAN

CHAPTER – 1	:	INTRODUCTION	1-3
		1.1 Introduction to The GEER Foundation	1
		1.2 Indroda Nature Park (INP)	1
		1.2.1 INP Forest	2
		1.2.2 Earth Section	2
		1.2.3 Dinosaur and Fossil Section	2
		1.2.4 Botanical Garden	2
		1.2.5 Indroda Nature Park (INP) Zoo	3
CHAPTER – 2	:	INDRODA NATURE PARK (INP) ZOO	5-25
		2.1 History	5
		2.2 Vision of Indroda Nature Park Zoo (2009-14 Master Plan)	5
		2.3 Objectives of the Master Plan for the period 2009-2014	6
		2.4 Legal Status and the Land	7
		2.5 Physical Features, Topography, Drainage and sources of Pollution, if any	8
		2.5.1 Location	8
		2.5.2 Physical Features	8
		2.5.3 Topography, Geology, Rock and Soil	9
		2.5.4 Sources of a Pollution, if any	9
		2.6 Climate and Seasons	9
		2.7 Flora and Fauna	15
		2.8 Approach	16
		2.9 Demography of the Surroundings	16
		2.10 Visitors	17
CHAPTER – 3	:	APPRAISAL OF THE PRESENT ARRANGEMENTS AND CONSTRAINTS	27-39
		3.1 Existing Layout	27
		3.2 Current Layout Plan (Master Plan 2009-2014)	27
		3.3 Current Zoo Facilities	27
		3.3.1 Animal Section	28
		3.3.2 Veterinary Hospital Section	30
		3.3.3 Store and feed supply Section	31
		3.3.4 Sanitation Section	31
		3.3.5 Maintenance Section	31

3.3.6 Security Section	32
3.3.7 Water Supply Section	32
3.3.8 Disposal of Solid Waste and Liquid Waste	32
3.3.9 Visitors Amenities, Lawns and Gardens	32
3.4 General Zoo Administration Section	34
3.5 Existing Animal Stock and Animal Collection Plan	35
3.5.1 The Animal Stock as on 01-03-2014	35
3.5.2 Collection Plan as per Master Plan 2009-2014	35
3.6 Zoo Research	36
3.7 Conservation Breeding	37
3.8 Education and Awareness	38
3.9 Constraints	38

PART – II : FUTURE MASTER PLAN (2016-2017 TO 2025-2026)

CHAPTER – 4	: VISION, FUTURE OBJECTIVES, STRATEGY & FUTURE ACTION PLAN	41-58
4.1 Vision		41
4.2 Objectives		41
4.3 Strategy for achieving the objectives		42
4.4 Master Plan Period and Mid-Term Revision		43
4.5 Future Action Plan		43
4.5.1 Animal Collection Plan		44
4.5.2 The Layout Plan		50
4.5.3 Proposal to Address the Inadequacies and Shortcomings including Infrastructure Facilities		55
4.5.4 Security and Safety		57
CHAPTER – 5	: INP ZOO ANIMAL HEALTH CARE	59-68
5.1 Institutional / Organizational Arrangements		59
5.2 Infrastructure and Equipments		59
5.2.1 Treatment facilities including Trauma treatment under various situation and response to epidemics		59
5.2.2 Post Mortem examination and garbage disposal facilities		60
5.3 Stock Keeping and Breeding		60
5.4 Wild Animal Rescue and Man-Animal Conflict Operations		60
5.5 Nutrition and Diet		61
5.6 Hygiene, Sanitation, Disinfection and Water Sanitation		64
5.7 Vaccination and Deworming		66

	5.8 Prophylactic Measures	67
	5.9 Health Monitoring	67
	5.10 Networking	68
CHAPTER – 6	: DISASTER AND CONTINGENCY PLAN	69-72
	6.1 Probability of Natural Calamities (Flood, Cyclone etc.) and Manmade Disaster (Fire, Law & Order Situation)	69
	6.1.1 Natural Calamities	69
	6.1.2 Manmade Disaster	70
	6.2 Control of Monkey, Dog and Feral Animal Menace, if any	71
	6.2.1 Monkeys	71
	6.2.2 Feral Dogs	71
	6.2.3 Feral Livestock	71
	6.3 Arrangement of Food in Cases of Strike / Non-Supply by Contractor	71
	6.4 First-Aid Facility	72
	6.5 Dealing with Rescued Animals	72
CHAPTER – 7	: CAPACITY BUILDING AND REGIONAL COOPERATION	73-78
	7.1 Capacity Building	73
	7.1.1 Zoo management training	73
	7.1.2 Zoo visitors' management training	74
	7.1.3 Advanced veterinary training	74
	7.1.4 Capacity Building for Frontline / Zoo Operations Staff	74
	7.1.5 First-Aid Training	77
	7.2 Regional Cooperation	78
CHAPTER – 8	: COMPUTERIZED DATA MANAGEMENT, REPORTING AND IT APPLICATIONS	79-97
	8.1 Data Management	79
CHAPTER – 9	: INP ZOO ADMINISTRATION, MANAGEMENT AND PERSONNEL PLAN	99-107
	9.1 INP Zoo Administration	99
	9.2 INP Zoo Management	103
	9.2.1 Resource Mobilization Including Revenue	103
	9.3 Personnel Plan	105
CHAPTER – 10	: BROAD BUDGET ANALYSIS FOR IMPLEMENTING THE PLAN	109-116
	10.1 INP Zoo Budget	109

LIST OF MAPS

MAP-I	LOCATION MAP OF INDRODA NATURE PARK ZOO, GANDHINAGAR
MAP-II	INDRODA NATURE PARK (INP), LOCATION MAP WITH REVISED LAYOUT PLAN & SATELITE IMAGE
MAP-III	INDRODA NATURE PARK, EAST & WEST SECTION WITH EXISTING STRUCTURE
MAP-IV	INDRODA NATURE PARK ZOO, REVISED LAYOUT PLAN
MAP-V	EASTERN PART GEER FOUNDATION, GANDHINAGAR
MAP-VI	INDRODA NATURE PARK, PART OF WEST SECTION WITH EXISTING STRUCTURES
MAP-VII	INDRODA NATURE PARK (INP), EAST & WEST SECTION- REVISED LAYOUT PLAN (ON SEPTEMBER-2016)
MAP-VIII	INDRODA NATURE PARK, PART OF WEST SECTION LAYOUT PLAN (REVISED ON SEPTEMBER-2016)
MAP-IX-A	INDRODA NATURE PARK(INP), EAST SECTION WITH LAYOUT PLAN (REVISED ON SEPTEMBER-2016)
MAP-IX-B	INDRODA NATURE PARK (INP), PART OF EAST SECTION – LAYOUT PLAN (REVISED ON SEPTEMBER-2016)

LIST OF TABLES

Table-2.1	Climate data for Ahmedabad- 17 kms from INP Gandhinagar
Table-2.1	Flora of INP West & INP East including Botanical Garden
Table-2.2	Demography of Ahmedabad, Gandhinagar, Mehsana and Sabarkantha Districts (Census-2011)
Table- 2.3	Demography of Gandhinagar City (Census-2011)
Table-2.4	No. of Visitors to Indroda Nature Park– West
Table-2.5	The INP West income from visitors' Entry Fee
Table-2.6	No. of Visitors to INP East
Table-2.7	The INP East income from visitors' Entry Fee
Table-3.1	Animal enclosure details of INP Zoo (West)
Table-3.2(A)	Proposed Animal Collection Plan for INP Zoo West for the year 2009-2014
Table-3.2(B)	Proposed Animal Collection Plan for INP Zoo West for the year 2009-2014
Table-3.3	Details of young born in the INP Zoo (West) for wild ungulates
Table-3.4	Nature Education Camps (NECs) at INP West & INP East Camp Sites
Table-4.1	Existing Collection and proposed collection of the INP Zoo West
Table-4.2	Existing Collection and proposed collection of the INP Zoo East
Table-4.3	Abstract of the wild fauna in INP Zoo
Table-4.4	List of Enclosures as per revised Layout Plan
Table-4.5	Details of area allocation for enclosures and non-enclosure areas
Table-5.1	Diet Chart of animals of the INP Zoo
Table-5.2	Hygiene Protocol of INP Zoo
Table -7.1	Information on Training given to the staff member of INP Zoo
Table-7.2	Various Trainings to be held for INP Zoo staff in future for capacity building
Table-9.1	Financial Resources in terms of Grant-In-Aid and Revenue for the GEER Foundation
Table-9.2	Details of Human Resource Requirement at Indroda Nature Park Zoo
Table-10.1	Budget estimate and financial implications for INP Zoo Development
Table-10.2	Budget estimate and financial implications for INP Zoo Maintenance
Table-10.3	Master Plan for the Indroda Nature Park Zoo Abstract of Financial Projections

LIST OF ANNEXURE

Annexure 2.1	Letter of Natural History Museum
Annexure 2.2	Memorandum of Association and Rules & Regulation GEER Foundation
Annexure 2.3	Rules and Orders (other than those published in part I, I-A and I-L) made by the Government of Gujarat under the central Acts. Forest & Environment Department, Gandhinagar
Annexure-2.4	Free Living Species Occurring in the INP Zoo West Campus- Flora
Annexure-2.5	Free Living Species Occurring INP Zoo and surrounding area of Indroda Nature Park– Fauna
Annexure-3.1	INP West Animal Livestock as on (1/10/2016) as approved by the CZA vide No.F.No.19-33/92-CZA(72)(Vol.IV)(M) dated 04/10/2010
Annexure-3.2	INP West Birds Livestock as on (1/10/2016) As approved by the CZA vide No.F.No.19-33/92-CZA(72)(Vol.IV)(M) dated 04/10/2010
Annexure-3.3	INP West Reptiles Livestock as on (1/10/2016) As approved by the CZA vide No.F.No.19-33/92-CZA(72)(Vol.IV)(M) dated 04/10/2010
Annexure-3.4	Indroda Nature Park – Zoo Collection Plan Existing Collection and proposed collection of the Indroda Nature Park Zoo, Gandhinagar

PART – I

BASIS

OF

MASTER PLAN

CHAPTER – 1

Introduction to the GEER Foundation

1.1 THE GUJARAT ECOLOGICAL EDUCATION AND RESEARCH (GEER) FOUNDATION

In 1977, as a step towards boosting Gujarat's efforts for better environment protection & conservation, Government of Gujarat (GoG) formed Natural History Museum in Gandhinagar. The same is now popularly known as Indroda Nature Park (INP).

Gujarat Ecological Education and Research (GEER) Foundation was formed in June 1982 by the Forests & Environment Department of Government of Gujarat to undertake activities like ecological education, ecological research, natural history interpretation, management of Sanctuaries and National Parks, and establishment of protected areas. The Foundation was registered on 24th November-1982, as a Society under the Indian Societies Registration Act-1860, and as a Public Trust under Bombay Public Trust Act-1950. The headquarters of GEER Foundation is, at present, located at Administrative Block of the INP. A Board of Governors, chaired by the Honourable Chief Minister of Gujarat, governs the Foundation. Since its inception, GEER Foundation has proved to be a linking organization that brings the scientific fraternity, educational institutions, government, non-government agencies and the common man on a single platform to understand and address the issues pertaining to our ecology. The Mission of the GEER Foundation is now articulated as under:

“To collectively contribute towards conservation, restoration and enrichment of ecosystems, natural heritage and environment through ecological education, studies and research”

1.2 INDRODA NATURE PARK (INP)

In pursuance of its objectives, Indroda Nature Park (INP), Gandhinagar initiated INP development works with the ecological insight, planning and management skills. From Mid 1970s, the Gujarat Forest Department had initiated plantation works in degraded Sabarmati River Banks as ravine reclamation works. Today, such afforestation has attained the shape of a dense forest. INP is now inhabited by a good number of birds, trees, shrubs, herbs, reptiles and mammals. The undulating terrain, with a background of a low-lying river provides for great scenic beauty.

Development of INP is aimed at imparting nature education to spread awareness about environmental conservation, providing opportunities of experiencing wilderness and protecting the rare and endangered species of animals and birds.

Presently, the park occupies a total area of 428 ha, including 157 ha along Western Bank of River Sabarmati and 271 ha along the Eastern Bank. On the Eastern Bank, the area has been divided into Aranya Udhyaan (208.50 ha) and Research Nursery (62.50 ha, managed by the Gujarat Forest Department). The Western Park falls between Indroda and Dholakuva villages and the Eastern Park between Shahpur and Basan villages.

The important sections of the INP are as under:

1.2.1 INP Forest

The entire land of the park on the western bank of river Sabarmati supports over 1.33 lakhs indigenous trees, interspersed with several ornamental exotic trees. Over 136 species of trees have been recorded in the wilderness park.

1.2.2 Earth Section

In this section, exhibits of genesis of solar system and earth, geological evolution of earth and it's continents, biogeography of the world, India and Gujarat are presented.

1.2.3 Dinosaur and Fossil Section

Gujarat boasts of having one among the most abundant of dinosaur hatcheries in the world at Rahioli in Kheda district. This unique natural history of occurrence of dinosaur eggs, bones, skin impressions etc. suggest a widespread presence of dinosaurs in ancient geological time. A Dinosaur & Fossil Section has been established at INP.

1.2.4 Botanical Garden

The Botanical Garden at INP has been developed to increase public awareness about plant science and medicinal plants. It aims at collecting, compiling, translating and publishing popular science works. At present, the Botanical Garden has a collection of about 800 plant species. It also provides a wonderful out-of-classroom experience for learning about plants to school students. It comprises of following 4 sections.

Arboretum is a collection of tree species, in the form of plantation with proper display of botanical details of the plant. There are 327 tree species identified in Gujarat state. The arboretum plot in the botanical garden is spread over an area of 2.5 ha. So far 250 tree species have been planted in this plot.

Cactus house contains more than 80 species of these succulent plants. The information about species, habitat, etc. is displayed for the knowledge of the visitors. The beautiful flowery plants are one of the major attractions.

Bamboo collection has all six species of bamboo found in Gujarat. It is being developed to raise all the species occurring in Western India and a few other species.

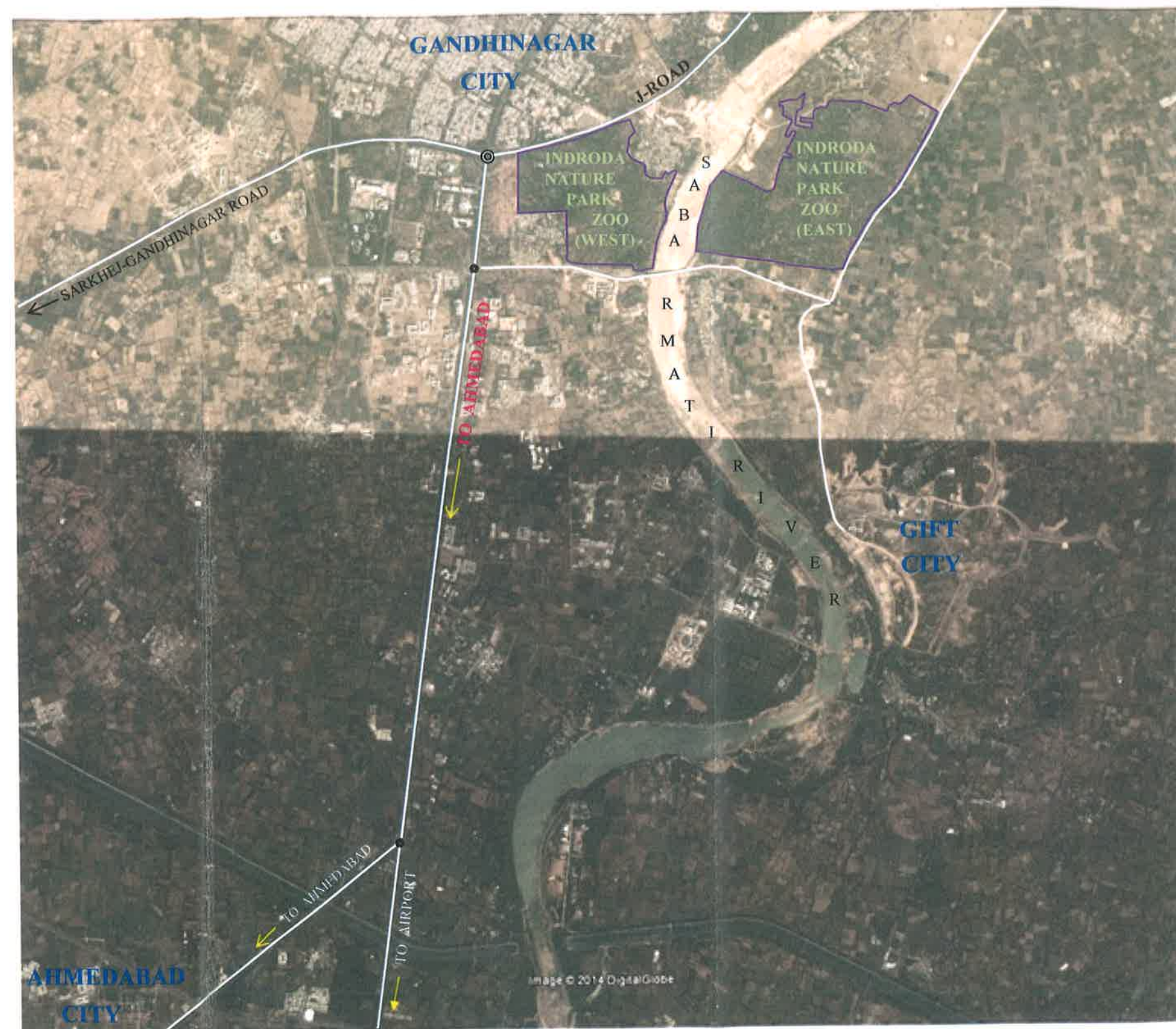
Medicinal plant and grass section has about 250 species of plant species having medicinal and / or livelihood values.

1.2.5 Indroda Nature Park (INP) Zoo

The INP Zoo was initiated as a “**Deer Park**” in the Year 1978 and it has gradually become a Medium Category Zoo with sub-sections of mammal, avifauna and reptile. The INP Zoo is also extended to the part of the East Bank (Aranya Udhyaan) INP. Works related to large enclosures for herbivores safari is initiated and enclosure is almost ready. After certain modifications and additions, it will be ready for the release of herbivores.

MAP – I LOCATION MAP OF INDRODA NATURE PARK ZOO, GANDHINAGAR

GUJARAT STATE



Prepared by:-

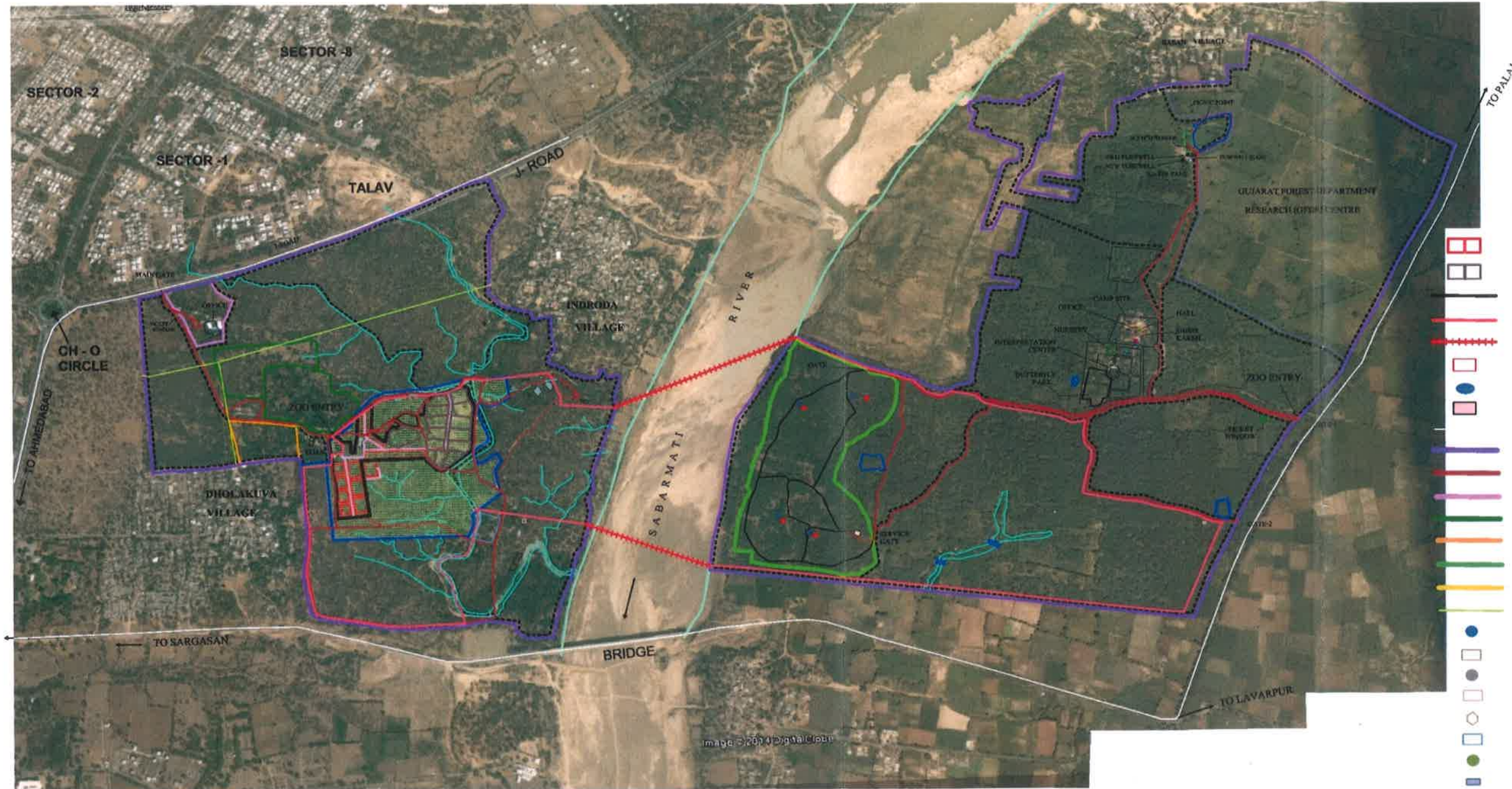
J.A. Patel, Surveyor,

N.A. Patel, SRF

(Source :- OPEN ACCESS SATELLITE IMAGE OF 13-NOV-2013)

MAP-II INDRODA NATURE PARK (INP)

LOCATION MAP WITH REVISED LAYOUT PLAN & SATELLITE IMAGE



Scale
200 0 Meters

Scale 1 : 12000



LEGEND

- NEW PROPOSED ANIMAL ENCLOSURE
- MODIFICATION OF EXISTING ENCLOSURE
- VISITORS' PATH
- PROPOSED ZOO BOUNDARY
- NOTIONAL BOUNDARY
- PROPOSED SHADE IN EAST PART
- PROPOSED WATER TANK
- ANIMAL HOUSE
- ROAD
- PARK BOUNDARY
- OTHER MANAGEMENT PATHS
- GEER OFFICE BOUNDARY
- BOTANICAL GARDEN
- DINOSAURS PARK
- LOAN
- BIRD AVIARY
- ELECTRIC LINE
- DRINKING WATER POINT
- AUDIO-VIDEO SHOW
- TOILET BLOCK
- WATCHMAN QUARTER
- MIRROR HOUSE
- CAMP SITE
- TEMPLE
- LIBRARY
- PUMP HOUSE
- HERBIVOROUS PARK
- GFDR CENTRE BOUNDARY
- POND
- NALA
- RIVER
- EMPHY THEATRE
- KITCHEN
- STORE ROOM
- TUBEWEL ROOM
- CHECK-DAM

Prepared by:-

J.A. Patel, Surveyor,

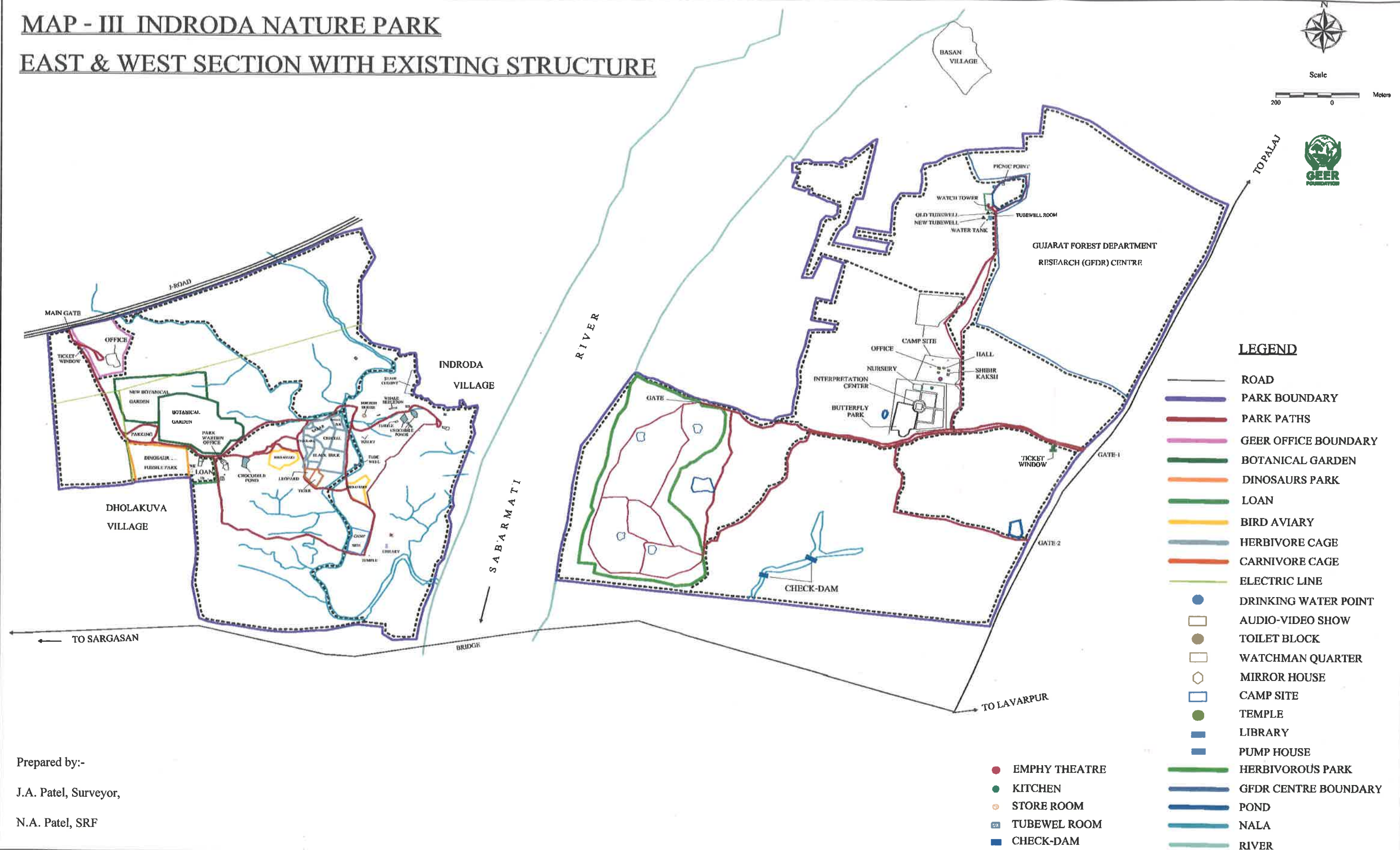
N.A. Patel, SRF

INP ZOO - West Bank = 58.00 Ha.
INP ZOO - East Bank = 98.00 Ha.
TOTAL = 156.00 Ha.

[SOURCE :- GOOGLE OPEN ACCESS SATELLITE IMAGE FEB-2013]

MAP - III INDRODA NATURE PARK

EAST & WEST SECTION WITH EXISTING STRUCTURE



Prepared by:-

J.A. Patel, Surveyor,

N.A. Patel, SRF

CHAPTER – 2

INDRODA NATURE PARK (INP) ZOO

2.1 HISTORY

A Deer Park was established by the Gujarat Forest Department during the Year 1978. Later a snake park, crocodile pits and tortoise pits were developed in 1980. After the establishment of the GEER Foundation and its Indroda Nature Park, it was decided that the INP will have a Small or Medium Zoo. Accordingly, various existing animal enclosures were grouped as the INP Zoo Section of in the Western Part of the Park. The INP Zoo was, subsequently, recognized as a Medium Zoo, by the Central Zoo Authority on 20/02/97 vide its letter No.19-3/92-CZA (72). During the Year 2006-07, it was decided to extent INP Zoo area to the East Bank by creating Herbivores Safari Park.

The previous Master Plan (2009-14) was developed first as a Concept Plan for INP Zoo and was finalized in the facilitation workshop held at Gandhinagar on 21st February, 2009 where representative of the Central Zoo Authority, Principal Chief Conservator of Forests and Chief Wildlife Warden, Government of Gujarat, Director, GEER Foundation and other senior officers were present. In this Concept Plan under the theme of display, activities like Safari type large enclosures for Herbivore as well as moat type enclosures for Tiger, Sloth Bear and Lion were recommended. Therefore, it was proposed that such enclosures for the conservation of above mentioned species to be constructed on the Eastern Part of Indroda Nature Park as an extension of the existing Indroda Nature Park Zoo. This was agreed to in principle by the team which visited the Indroda Nature Park Zoo on western side as well as eastern side. The team included the Member Secretary, Central Zoo Authority, Principal Chief Conservator of Forests, Wildlife, Gujarat State, Director, GEER Foundation etc.

2.2 VISION OF INDRODA NATURE PARK ZOO (2009-14 MASTER PLAN)

The last Master Plan (2009-14) had not specified Vision of the INP Zoo. However, it was understood that the Mission and Vision of the INP Zoo was to ***“participate in National Endeavour for conservation of threatened wild animals through captive conservation, captive breeding, research and education of general public”***.

For the discussion of revision of INP Zoo Master Plan, a meeting was convened at “GEER” Foundation, Gandhinagar on 5th March, 2014. The meeting was chaired by the Principal

Chief Conservator of Forests (Wildlife) and the Chief Wildlife Warden, Gujarat State. The meeting was participated by the Director, GEER Foundation, Dy. Director (R & D), Dy. Director (EE), Asstt. Director, Asstt. Conservator of Forests, Veterinary Officer, Zoo Biologist and Park Warden. As part of the proceedings of the meeting, the INP Zoo Vision was articulated, drafted and presented by the Director, GEER Foundation. The Vision of Indroda nature Park Zoo is as under:

"Indroda Nature Park Zoo to be a part of overall Indroda Nature Park (West Bank & Aranya Udhyaan on East Bank) as a MEDIUM CATEGORY ZOO for the purposes of (i) Research, (ii) Captive conservation breeding and (iii) Education of general public for the subject of wild animals and their role in natural ecosystems"

2.3 OBJECTIVES OF THE MASTER PLAN FOR THE PERIOD 2009-2014

The main objectives of the INP Zoo, in accordance to the National Zoo Policy-1998, are to complement and strengthen the National efforts in conservation of wild fauna.

Detailed objectives as per the Master Plan 2009-14 of the INP Zoo were as under:

- (i) Conservation of the endangered animal species, whether directly or indirectly.
- (ii) To impart education regarding the wildlife, the endangered fauna in particular and spread awareness regarding the same.
- (iii) To create love for nature and wildlife among members of public children, youth etc.
- (iv) Present objectives of the Indroda Nature Park Zoo which has been described in detail in the Part-I, Chapter-1(b) will remain effective in future also.
- (v) Establishment of Drive through Safari Parks for Herbivore.

The above listed Objectives of Indroda Nature Park Zoo were to be pursued as per their following interpretation:

- (i) Conservation:** (a) Captive breeding programme of regional fauna was to be undertaken in order to fulfil the requirements of other zoos and contributing to the ex-situ gene-pool conservation of regional fauna in captivity, (b) Inculcating

amongst the Zoo visitors an empathy for wild animals, understanding and awareness about the need for conservation of natural resources and for maintaining the ecological balance, (c) Providing opportunities for scientific studies useful for conservation in general and creation of database for sharing between the agencies involved in in-situ conservation and (d) Besides, the zoo shall also function as Rescue Center for orphaned wild animals, subject to the availability of appropriate housing and upkeep infrastructure.

- (ii) **Education and awareness:** Housing of rare and endangered wild animals for exhibition for the purpose of education and awareness. To undertake special education and awareness programmes for the visitors and students, besides facilitating education and awareness through simple Zoo visitation.
- (iii) **Research:** To undertake research relating to behaviour, breeding, health, ecological and other related aspects for the better management of species and to improve upon captive propagation of endangered species.
- (iv) **Training:** To impart training to Zoo staff.
- (v) **Recreation:** Recreation will be incidental to overall experience of visiting Zoo. No other kind of recreation is envisaged by this plan within the Zoo premises except spending time with animals in nature like environment.

2.4 LEGAL STATUS AND THE LAND

- (a) Land has been allotted to Director, Natural History Museum by Government of Gujarat vide Order No. LND/1080/391/18/2 dated 05/08/1981 (**Annexure-2.1**).
- (b) The GEER Foundation, of which Indroda Nature Park Zoo is integral part, has been registered as a society under the Indian Societies Registration Act of 1860 and as a Public Trust under the Bombay Public Trust Act of 1950 (**Annexure-2.2**).
- (c) Indroda Nature Park, in which Indroda Nature Park Zoo is situated, has been declared as **Protected Forests** under Section-29 of the Indian Forest Act vide Government of Gujarat's Notification No.GVN-2003(8) JJM-1003-245-K dated 7th May 2003 (**Annexure-2.3**).
- (d) INP Zoo is recognized Medium category Zoo by the Central Zoo Authority, MoEF, GoI.

2.5 PHYSICAL FEATURES, TOPOGRAPHY, DRAINAGE AND SOURCES OF POLLUTION, IF ANY

2.5.1 Location

The INP is located in Gandhinagar- the capital city of Gujarat. It is located in the South-East direction of main Sectors and at the entrance of Gandhinagar City while approaching from Ahmedabad city. The geographical coordinates of the INP are as under:

i) 23° 11' 47" N and 72° 38' 33" E

ii) 23° 11' 40" N and 72° 40' 51" E

iii) 23° 12' 00" N and 72° 39' 13" E

iv) 23° 11' 11" N and 72° 40' 32" E

The INP is situated on both banks viz. East and West banks of River Sabarmati. It is located at a distance of about 17 kms. from the Sardar Vallabhbhai Patel International Airport (SVPIA), Ahmedabad and about 30 kms from the Kalupur Railway Station, Ahmedabad. The satellite image and location maps are enclosed herewith as **Map-I, Map-II and Map-III**.

2.5.2 Physical Features

The Western Part of West INP as well as Eastern Part of the East INP are alluvial plains of River Sabarmati and they are away from the banks. Whereas, Eastern Part of the West INP and Western Part of the East INP are mainly ravines on the banks of River Sabarmati. A main natural drainage of Gandhinagar City enters West INP from the west direction and flows towards East and South-East to subsequently meet River Sabarmati. The general drainage pattern of East INP is South-West towards River Sabarmati. The entire INP is covered by dense forest mainly as a result of afforestation and to some extent due to natural regeneration. A small artificial wetland is situated in the North-North East corner of East INP. In the West of INP and in Sector-1 of Gandhinagar City, an artificial pond is constructed. This pond regulates monsoon drainage to the INP located downstream of this pond. The Government of Gujarat has initiated preliminary construction activity for weir construction across River Sabarmati, upstream of INP. Both upstream structures, viz.

pond in Sector-1 and veer (Sant Sarovar) across River Sabarmati are likely to regulate downstream floods to some extent.

2.5.3 Topography, Geology, Rocks and Soil

The general elevation of Gandhinagar City is about 80 to 82 meters above Mean Sea Level (MSL). It is mainly a pediplains and pediments along the banks of River Sabarmati. About half of the INP Zoo is plain and remaining half is ravine area on the banks of River Sabarmati. The geology of INP is of Recent Time and it is mainly alluvial deep soil with texture of silty loam and oxidized brownish yellow sand and silt. There are no rocks upto the depth of about more than 1000 meters. Within the Park and in its adjoining areas, ground water table is at the depth of about 80 to 100 meters (270 to 320 feet).

2.5.4 Sources of Pollution, if any

Gandhinagar Township in which Indroda Nature Park Zoo is located is a pollution free township. Hence, the pollution is limited. However, one drainage channel originating from Indroda Village in the North and flowing through the Eastern Part of INP West before meeting River Sabarmati brings some domestic affluent. The Town Planning has a plan for providing better drainage system to Indroda Village and this problem is likely to be resolved effectively. Plastic is prohibited and visitors are advised and motivated for safe disposal of waste material. However, littering of waste material by visitors is a problem to which the management is alive and efforts are being made to reduce pollution. There are no other kinds, particularly industrial affluent or gaseous pollution in the INP and adjoining area.

2.6 CLIMATE AND SEASONS

Indroda Nature Park, Gandhinagar, located at 23° 11' N latitude and 72° 39' E longitude on the West Coast State of Gujarat in India has ***“tropical, warm to hot and semi arid monsoon”*** climate. The Little Rann of Kachchh (LRK) is also located between 23° 00' to 23° 40' N latitude at a distance of about 100 kms in West of Gandhinagar. The wind directions are as under:

Month	Main Wind Direction		Average Wind Speed
	Morning	Evening	
January	North-East	North-West	5 to 10 kms per hour
May	West and South-West	West and South-West	
August	South-West	South-West	
Annual Average	North-East, West and South-West Mainly South-West	North-West, West and South-West Mainly South-West	

During summer, Gandhinagar receives winds mainly from West direction after passing through parched hot LRK. These winds and local solar insolation result into high ambient temperature. Average annual rainfall for the period between 1982 and 2013 (32 Years) was 678 mm. The total precipitation for the years 2012 and 2013 recorded for Gandhinagar were 685 mm (102% of average 670 mm for period from 1982 to 2011) and 869 mm (127% of average 682 mm for period from 1983 to 2012). Detailed average observed climate parameters data at Ahmedabad (17 km from INP Gandhinagar-elevation 51 mts above MSL) are as per Table-2.1.

Table-2.1 Climate data for Ahmedabad- 17 kms from INP Gandhinagar

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total or Avg. or Max. or Min. of Year
Record high °C (°F)	36.1 (97)	40.6 (105.1)	43.9 (111)	46.2 (115.2)	47.8 (118)	47.2 (117)	42.2 (108)	40.4 (104.7)	41.7 (107.1)	42.8 (109)	38.9 (102)	35.6 (96.1)	47.8 (118)
Average high °C (°F)	28.3 (82.9)	30.4 (86.7)	35.6 (96.1)	39.8 (103.6)	41.5 (106.7)	38.4 (101.1)	33.4 (92.1)	31.8 (89.2)	34.0 (93.2)	35.8 (96.4)	32.8 (91)	29.3 (84.7)	34.3 (93.7)
Daily mean °C (°F)	20.1 (68.2)	22.2 (72)	27.3 (81.1)	31.7 (89.1)	33.9 (93)	32.8 (91)	29.5 (85.1)	28.2 (82.8)	29.1 (84.4)	28.5 (83.3)	24.7 (76.5)	21.3 (70.3)	27.4 (81.3)
Average low °C (°F)	11.8 (53.2)	13.9 (57)	18.9 (66)	23.7 (74.7)	26.2 (79.2)	27.2 (81)	25.6 (78.1)	24.6 (76.3)	24.2 (75.6)	21.1 (70)	16.6 (61.9)	13.2 (55.8)	20.6 (69.1)
Record low °C (°F)	3.3 (37.9)	2.2 (36)	9.4 (48.9)	12.8 (55)	19.1 (66.4)	19.4 (66.9)	20.4 (68.7)	21.2 (70.2)	17.2 (63)	12.6 (54.7)	8.3 (46.9)	3.6 (38.5)	2.2 (36)
Rainfall mm (inches)	2.2 (0.087)	1.2 (0.047)	1.1 (0.043)	1.9 (0.075)	9.1 (0.358)	97.4 (3.835)	309.8 (12.197)	213.8 (8.417)	126.6 (4.984)	13.5 (0.531)	6.1 (0.24)	1.7 (0.067)	784.4 (30.882)
Avg. rainy days (≥ 1.0 mm)	0.3	0.3	0.1	0.3	0.9	4.8	13.6	15.0	5.8	1.1	1.1	0.3	43.6
% humidity	49	43	37	41	47	62	77	81	71	53	48	50	55
Mean monthly sunshine hours	287.3	274.3	277.5	297.2	329.6	238.3	130.1	111.4	220.6	290.7	274.1	288.6	3,019.7

Source #1: NOAA (1971–1990, [World Meteorological Organization](#) (precipitation 1901–2000)).

Source #2: India Meteorological Department (records)

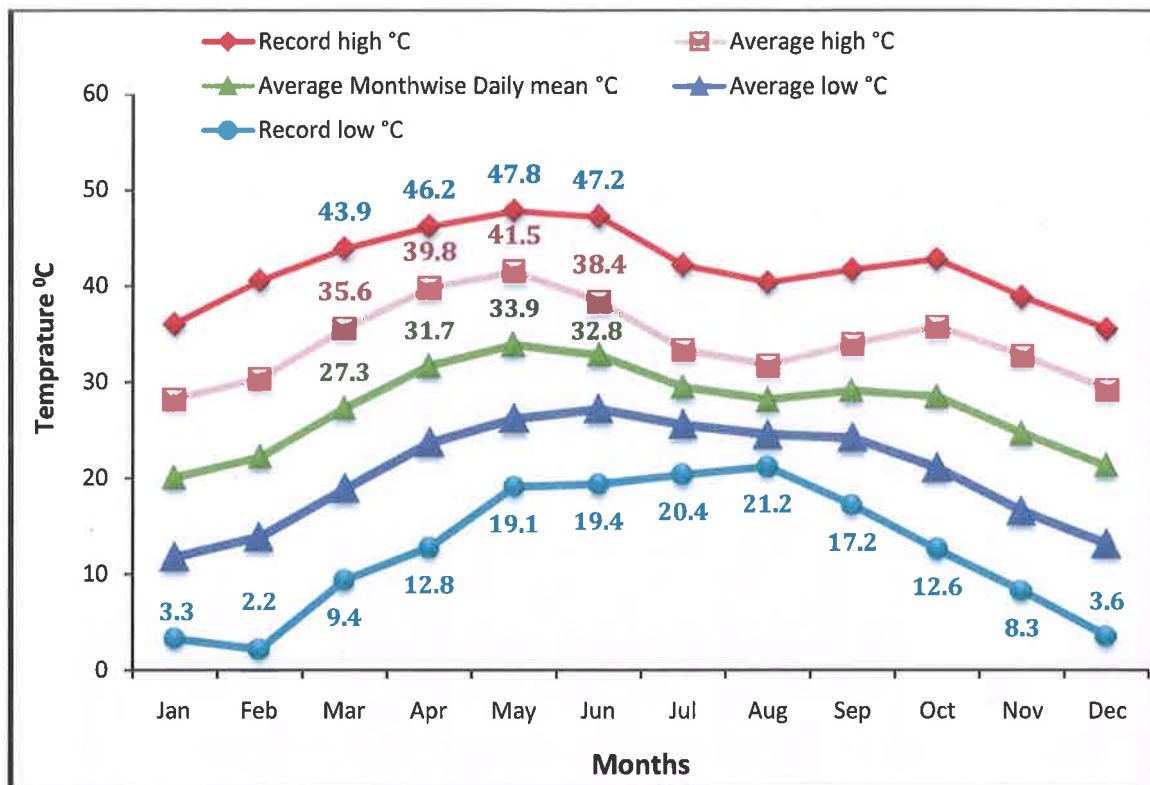
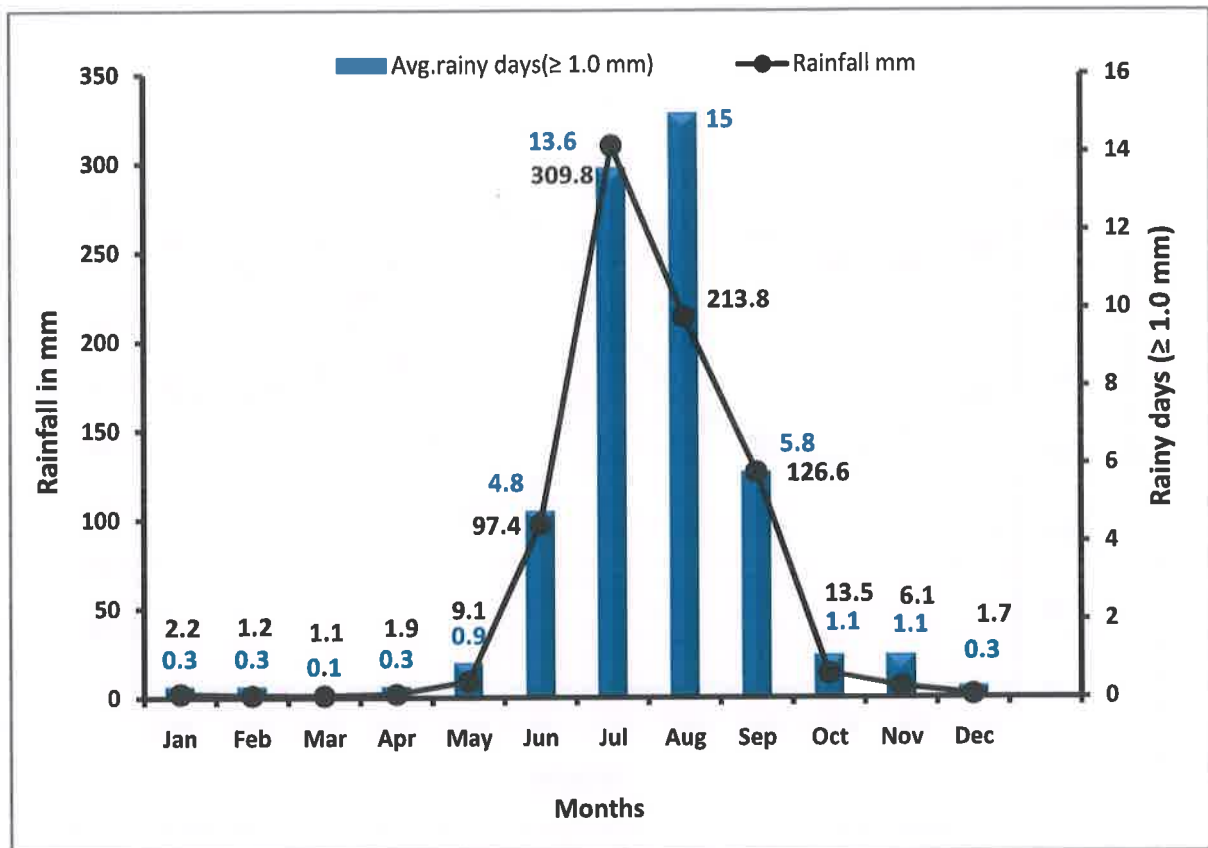


Figure-2.1 Average monthly ambient temperature at Ahmedabad (17 km from INP Gandhinagar) elevation 51 mts above MSL- [period 1971-1990]

Source: NOAA - National Oceanic and Atmospheric Administration,
World Meteorological Organization.
India Meteorological Department (records).



Note:

- Total average annual rainfall for the period from 1900 to 2000 is 784.4 mm
- Total average annual rainy days for the period from 1900 to 2000 is 43.6

Figure-2.2 Average monthly precipitation / rainfall and rainy days at Ahmedabad (17 km from INP Gandhinagar) elevation 51 mts above MSL- [period 1901-2000]

Source: NOAA - National Oceanic and Atmospheric Administration,
World Meteorological Organization.
India Meteorological Department (records).

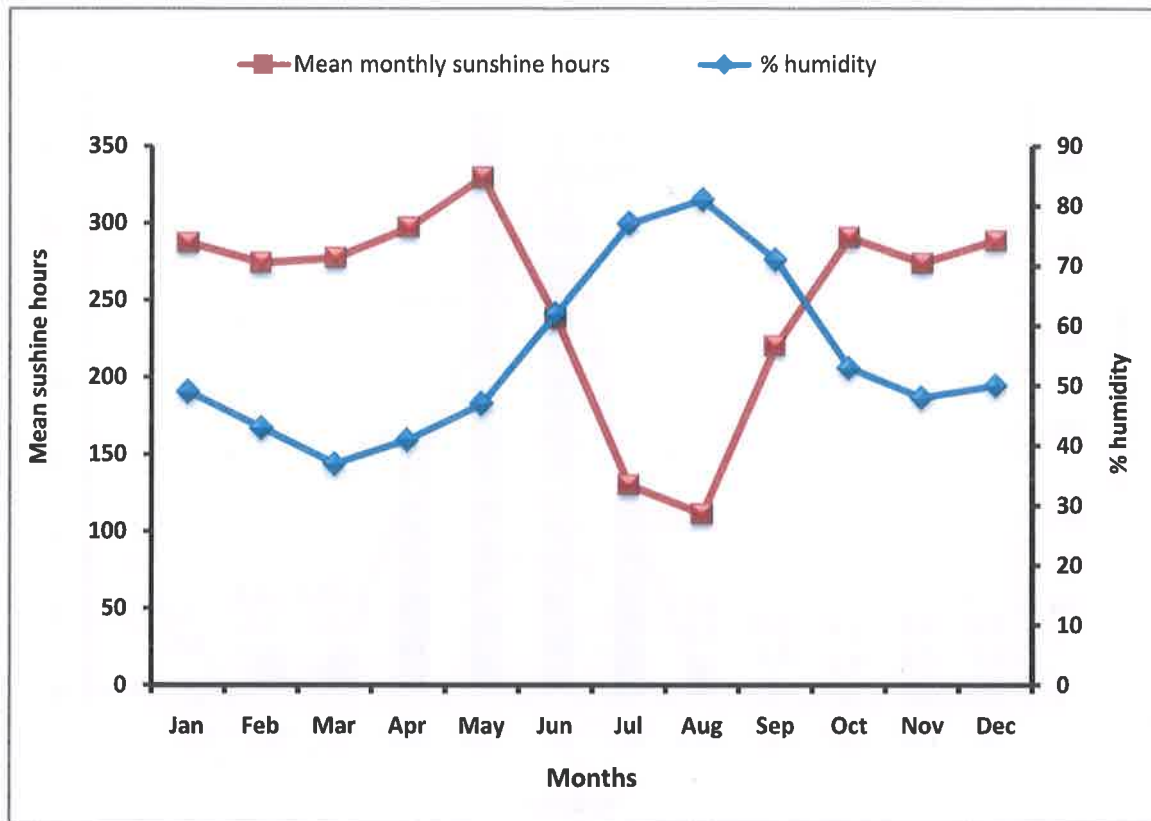


Figure-2.3 Humidity and Mean sunshine hours of Ahmedabad (17 km from INP Gandhinagar) elevation 51 mts above MSL

Source: NOAA - National Oceanic and Atmospheric Administration,
World Meteorological Organization.
India Meteorological Department (records).

The above data indicate that there are three distinct seasons viz. Winter (November to February); Summer (March to June) and Monsoon (July to October). Highest recorded temperature at Ahmedabad was 47.8°C in the month of May. However, maximum temperature at Gandhinagar is generally less than that of Ahmedabad by about 1°C or 2°C due to open and tree covered spaces as well as less vehicular traffic.

With the onset of the monsoon by about mid-June, the highest daily temperatures drop considerably whereas, there is no appreciable change in the lowest daily temperature. Withdrawal of southwest monsoon by about the end of September causes rise in the day temperature till October, but the nights become cooler. From November, day and night temperatures begin to drop rapidly. January is the coolest month with the mean daily maximum at

28°C and the mean daily minimum at about 12°C. The district is some time affected severely by cold waves in the wake of the western disturbances, which pass through north India causing the minimum temperature to drop nearly to 6°C to 7°C.

2.7 FLORA AND FAUNA

The INP is well-wooded forest ecosystem with dense vegetation of trees, shrubs, herbs, climbers and grasses. The flora of INP includes 331 trees, 136 shrubs, 266 herbs and grasses, 69 climbers and 158 other species which include bamboos, cactus and green house. As the large part of the INP is less disturbed, vegetation dependant fauna including insects, reptiles, amphibians, birds and some of the mammals have occupied this forest system. The free ranging fauna of INP includes about 201 birds, 10 mammals and about 20 reptiles within the periphery of INP. The lists of some of the important flora and fauna are annexed as **Annexure-2.4** and **Annexure-2.5**. An abstract habit wise list of plants of INP including plants of Botanical Garden is as per Table-2.1 below.

Table-2.1

Flora of INP West & INP East including Botanical Garden

Sr. No.	Flora of INP	No. of Species
1	Trees	331
2	Shrubs	136
3	Herbs - Grasses	266
4	Climbers	69
5	Bamboo	11
6	Cactus	86
7	Green House- Herbs and Climbers	46
	Total	945

2.8 APPROACH

-
- | | | |
|----------------------------------|----------|---|
| 1 Indroda Nature Park Zoo | : | Open for tourists on all weekdays except on Mondays |
| 2 Location | : | Located on Ahmedabad - Gandhinagar National Highway No.8C. This road is known as Maharana Pratap Road or "J" Road in the city limit of Gandhinagar. It is a part of Gandhinagar Capital Region/Gandhinagar Corporation. |
| 3 Distance | : | Ahmedabad : 30 kms |
| 4 Airport | : | Ahmedabad : 17 kms |
| 5 Railway station | : | Gandhinagar (W.R.)- about 10 km;
Ahmedabad (W.R.)- 30 kms |
| 6 Bus station | : | Gandhinagar (Gujarat State Road Transport Corporation)- about 4 km |

Please refer Map-I, Map-II and Map-III (Chapter-1).

2.9 DEMOGRAPHY OF THE SURROUNDINGS

The Capital City of Gujarat State Gandhinagar is a small city with a population of 2,92,797 (Census-2011). Total population of Gujarat State has increased by 19.17% from 5,06,71,017 to 6,03,83,628 between Census 2001 and 2011. However, the population growth in the District of Gandhinagar for the same period was only 4.29% i.e. from 13,34,455 to 13,91,753. The pace of development in this region has increased and the rate in the growth of population is likely to increase during the current decade.

Gandhinagar City is surrounded by the District areas of Gandhinagar, Ahmedabad, Sabarkantha and Mehsana. Demographic details of these Districts as well as of the Gandhinagar City are as under at Table-2.2 and Table-2.3, respectively:

Table-2.2 Demography of Ahmedabad, Gandhinagar, Mehsana and Sabarkantha Districts (Census-2011)

Name of the District	Total Number of House Hold	Population	Total	In the age group 0-6 years	Literates	Illiterate
Ahmedabad	1510134	Persons	7,214,225	842,518	5,435,760	1,778,465
		Males	3,788,051	453,790	3,025,463	762,588
		Females	3,426,174	388,728	2,410,297	1,015,877
Gandhinagar	118269	Persons	1,391,753	167,377	1,030,494	361,259
		Males	723,864	90,604	582,686	141,178
		Females	667,889	76,773	447,808	220,081
Mehsana	424479	Persons	2,035,064	237,932	1,502,645	532,419
		Males	1,056,520	129,169	847,499	209,021
		Females	978,544	108,763	655,146	323,398
Sabarkantha	481414	Persons	2,428,589	345,490	1,578,734	849,855
		Males	1,244,231	181,529	918,625	325,606
		Females	1,184,358	163,961	660,109	524,249

Table- 2.3 Demography of Gandhinagar City (Census-2011)

Population	Persons	Males	Females
Households: 45143			
Total Persons	292,797	153,443	139,354
In the age group 0-6 years	30,645	16,784	13,861
Literates	234,258	129,146	105,112
Illiterate	58,539	24,297	34,242

2.10 VISITORS

The Indroda Nature Park is a place of attraction for many nature loving visitors as the Nature Park provides serene and sylvan natural ambience as well as various sections, exhibitions and display at one place satisfying their curiosity to know and their need to be with nature. Large number of educational institutions including primary, high school and

college and university level institutions visit the Park as organized study tours. Details of visitation for last five years for Indroda Nature Park (West) and Indroda Nature Park (East) are as under at Table-2.4:

Table-2.4 No. of Visitors to Indroda Nature Park- West

Year	2009-10	2010-11	2011-12	2012-13	2013-14 (Upto 23-03- 2014)	Total	%
April	10435	16185	17016	19412	26967	90015	4.56
May	19411	19895	27091	36037	27777	130211	6.59
June	14516	20974	24581	26788	28874	115733	5.86
July	12262	19616	22467	28553	24025	106923	5.41
August	28929	18049	27072	39988	43464	157502	7.98
September	16569	25104	22883	28204	23834	116594	5.90
October	56685	29669	36965	19196	27383	169898	8.60
November	28426	38706	35707	50956	59638	213433	10.81
December	47262	41614	48869	42440	59966	240151	12.16
January	45449	58550	49407	53888	53292	260586	13.20
February	38281	42334	42318	43107	42656	208696	10.57
March	26160	30186	36138	43329	29208	165021	8.36
Total	344385	360882	390514	431898	447084	1974763	100.00

Note: For the remaining Eight Days of March-2014 about 8000 to 9000 visitors are likely to visit INP West.

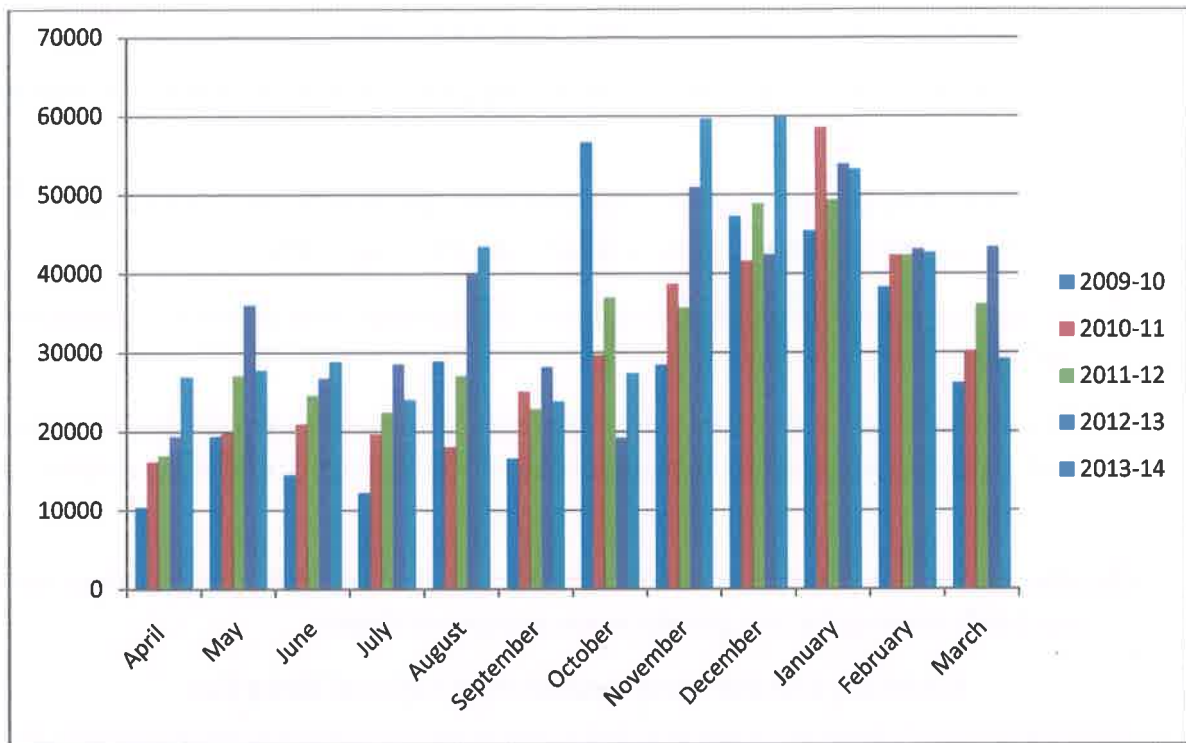


Figure-2.4 No. of Visitors to Indroda Nature Park- West

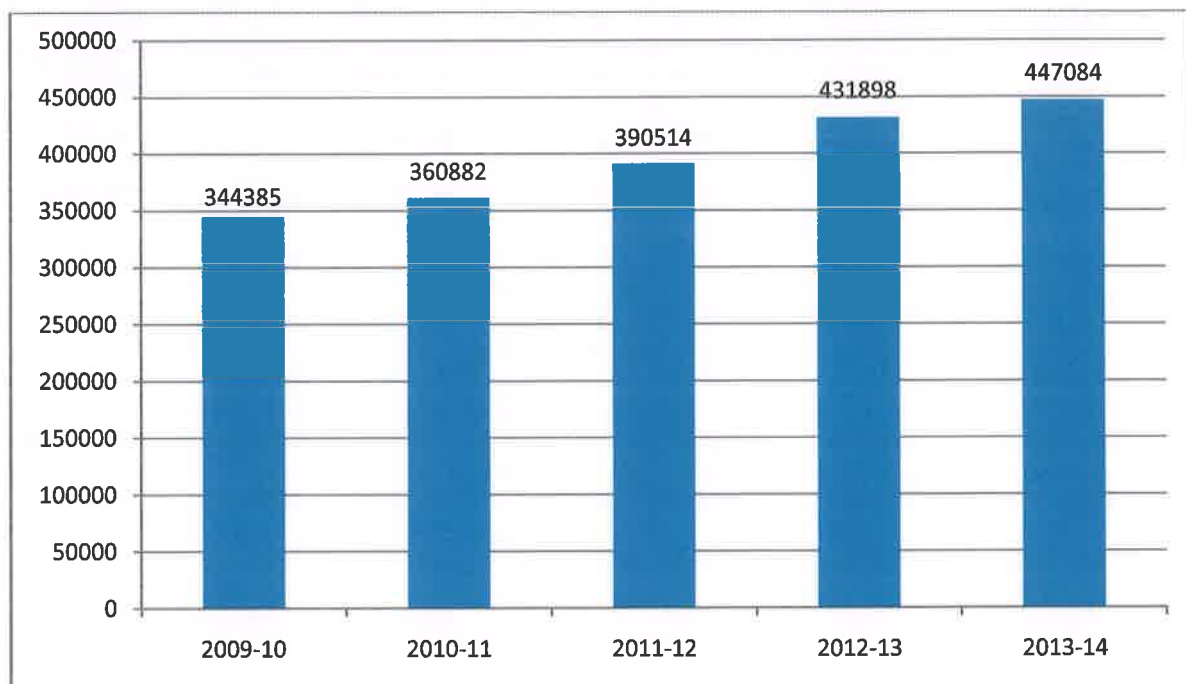


Figure-2.5 Year wise No. of Visitors to Indroda Nature Park- West

The salient observations on the basis of above data are as under:

1. The growth in the number of visitors during 2013-14 over the number of visitors during 2012-13 is 5.58%.
2. The growth in the number of visitors between the Year 2010-11 and 2012 -13 is 8.10% and average annual growth of last Four Years is 7.30%.
3. During the months November, December and January, 36% of annual visitors visit INP West.
4. The flow of visitors continuous upto February. However, during the month of April and monsoon months of July-August number of visitors are less on accounts of examination and monsoon rains, respectively.
5. The increase in population and increasing rate of urbanization in adjoining areas are likely to cause further growth in the number of visitors.

Table-2.5 The INP West income from visitors' Entry Fee

Months	2009-10	2010-11	2011-12	2012-13	2013-14	Total
April	152445	291490	242960	417730	533420	1638045
May	222175	427290	617845	677195	704365	2648870
June	314377	434335	562955	676905	508300	2496872
July	248740	384950	432975	535825	543235	2145725
August	339295	333225	583020	829800	680570	2765910
September	270265	520345	450945	591335	832765	2665655
October	778375	229185	273770	320035	400950	2002315
November	647140	810080	1125130	993530	1062265	4638145
December	478835	468435	587375	715690	873020	3123355
January	706530	741060	819835	791690	809630	3868745
February	547980	598250	655520	509255	705745	3016750
March	422695	481530	611585	804130	879860	3199800
Total Entry Fee	5128852	5720175	6963915	7863120	8534125	34210187

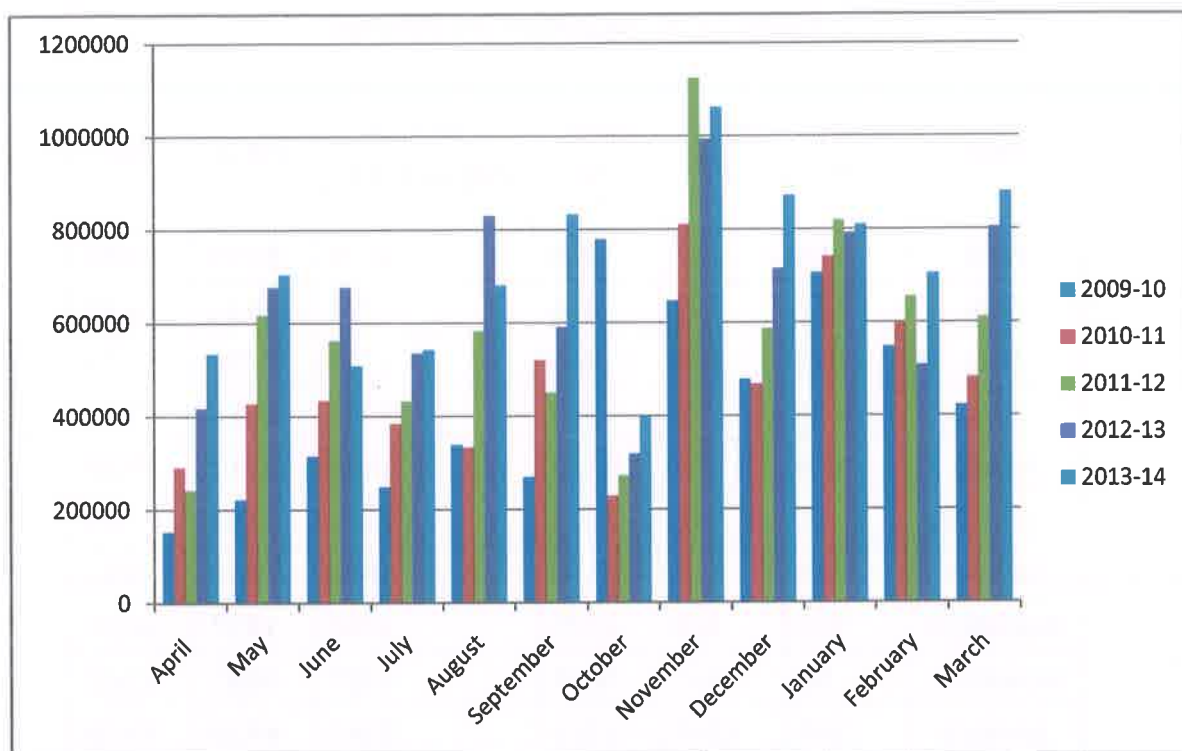


Figure-2.6 Year wise and Month wise revenue from Entry Fee of the INP West

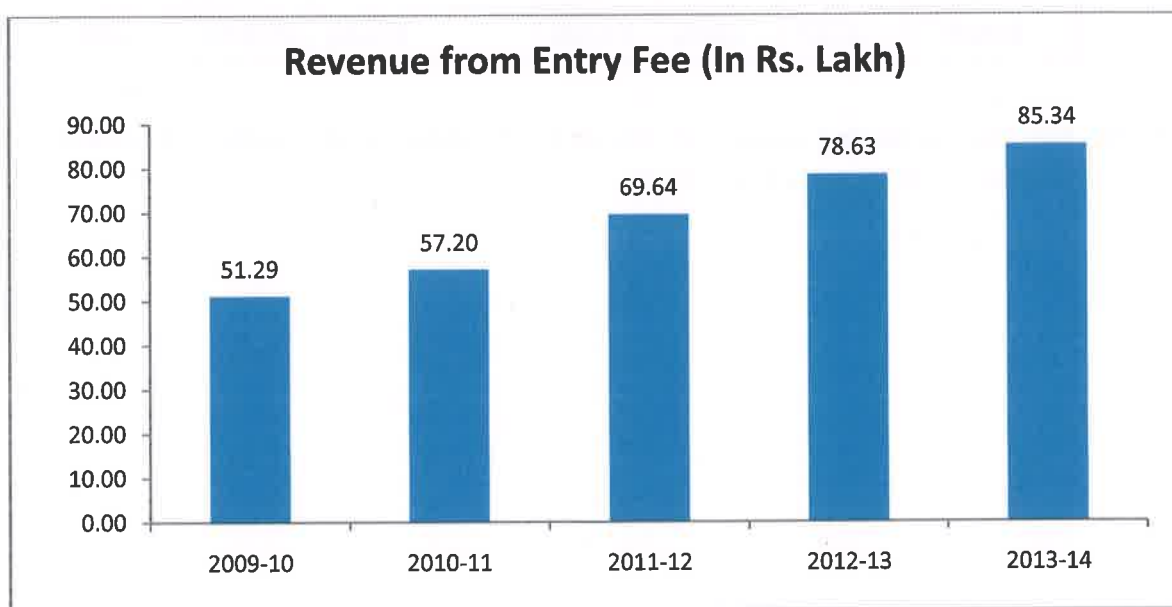


Figure-2.7 Year wise revenue from Entry Fee (in Rs.) of the INP West

Table-2.6 No. of Visitors to INP East

Year	2010-11	2011-12	2012-13	2013-14 (Up to 2/14)	Total	%
April	103	217	299	1175	1794	4.81
May	41	303	456	822	1622	4.35
June	20	167	460	1124	1771	4.75
July	146	253	839	1383	2621	7.02
August	118	159	1067	1968	3312	8.88
September	242	247	1324	1471	3284	8.8
October	29	512	590	1038	2169	5.81
November	192	328	1373	2044	3937	10.55
December	88	1521	1037	2437	5083	13.62
January	168	1297	1111	2341	4917	13.18
February	182	952	1209	1845	4188	11.22
March	253	926	1439	0	2618	7.02
Total	1582	6882	11204	17648	37316	100

Note: For the remaining month of March-2014, about 1,845 additional visitors are estimated / likely to visit INP East.

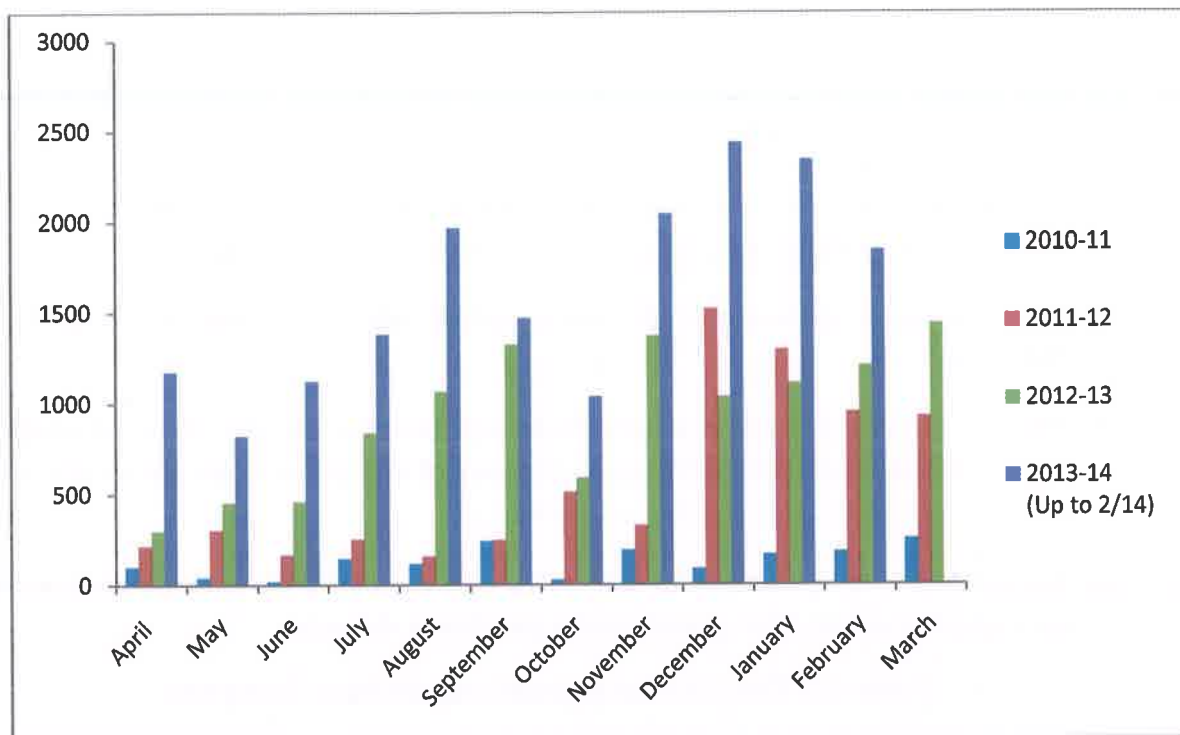


Figure-2.8 No. of Visitors to Indroda Nature Park- East

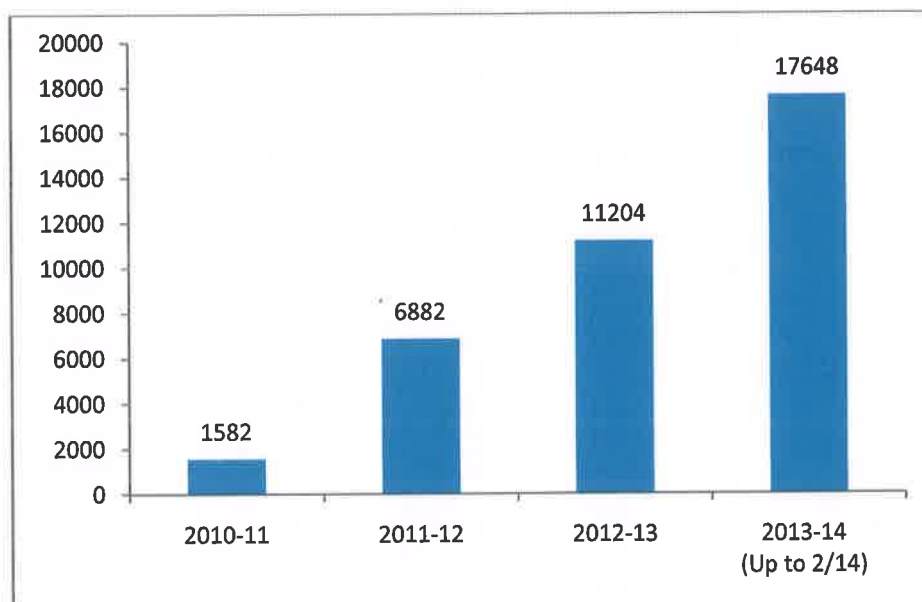


Figure-2.9 Year wise No. of Visitors to Indroda Nature Park- East

The salient observations on the basis of above data are as under:

1. The growth in the number of visitors during 2013-14 over the number of visitors during 2012-13 is 73.98%.
2. The growth in the number of visitors between the Year 2010-11 and 2012 -13 is manifold and average annual growth of last Three Years 146.24%.
3. During the months November, December and January, 36% of annual visitors visit INP West.
4. The flow of visitors continuous upto February. However, during the month of April and monsoon months of July-August number of visitors are less on accounts of examination and monsoon rains, respectively.
5. The increase in population and increasing rate of urbanization in adjoining areas are likely to cause further growth in the number of visitors.

Table-2.7 The INP East income from visitors' Entry Fee

Year	2010-11	2011-12	2012-13	2013-14 (Up to 2/14)	Total
April	1030	2170	2990	11750	17940
May	410	3030	4560	8220	16220
June	200	1670	4600	11240	17710
July	1460	2530	8390	13830	26210
August	1180	1590	10670	19680	33120
September	2420	2470	13240	14710	32840
October	290	5120	5900	10380	21690
November	1920	3280	13730	20440	39370
December	880	15210	10370	24370	50830
January	1680	12970	11110	23410	49170
February	1820	9520	12090	18450	41880
March	2530	9260	14390	0	26180
Total Entry Fee	15820	68820	112040	176480	373160

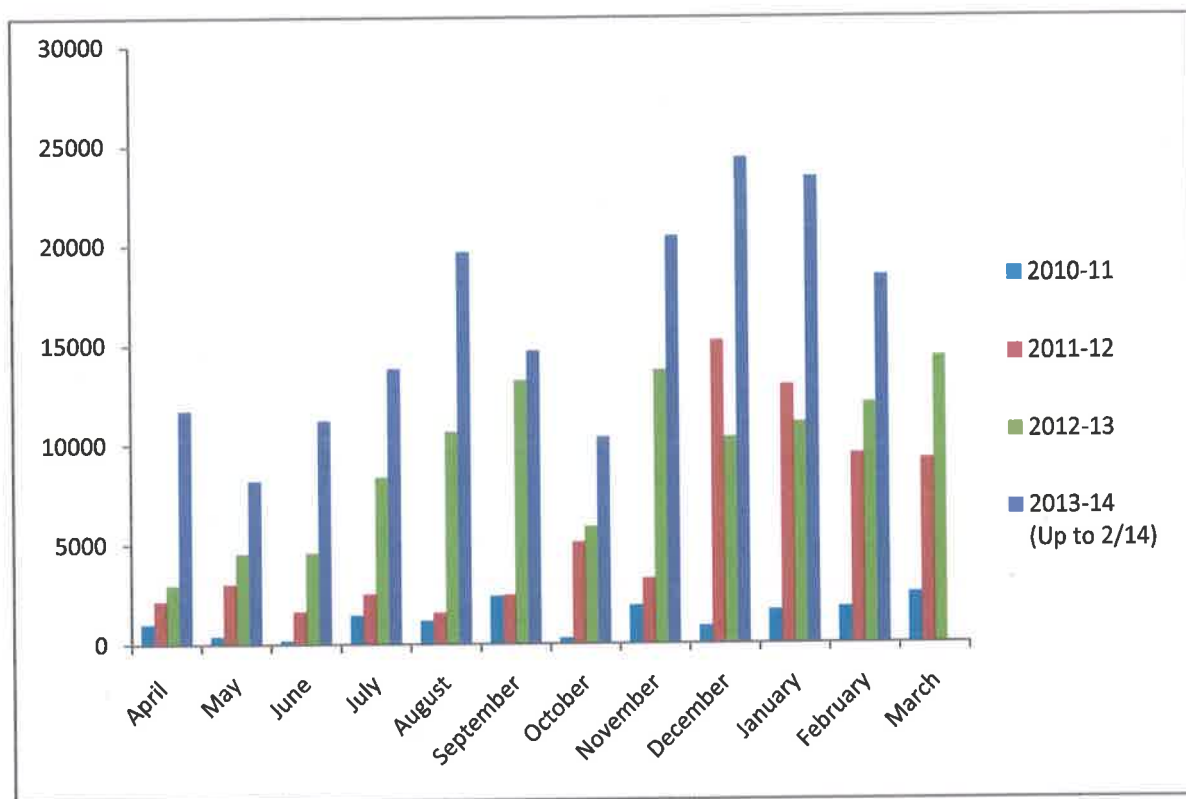


Figure-2.10 Year wise and Month wise revenue from Entry Fee of the INP East

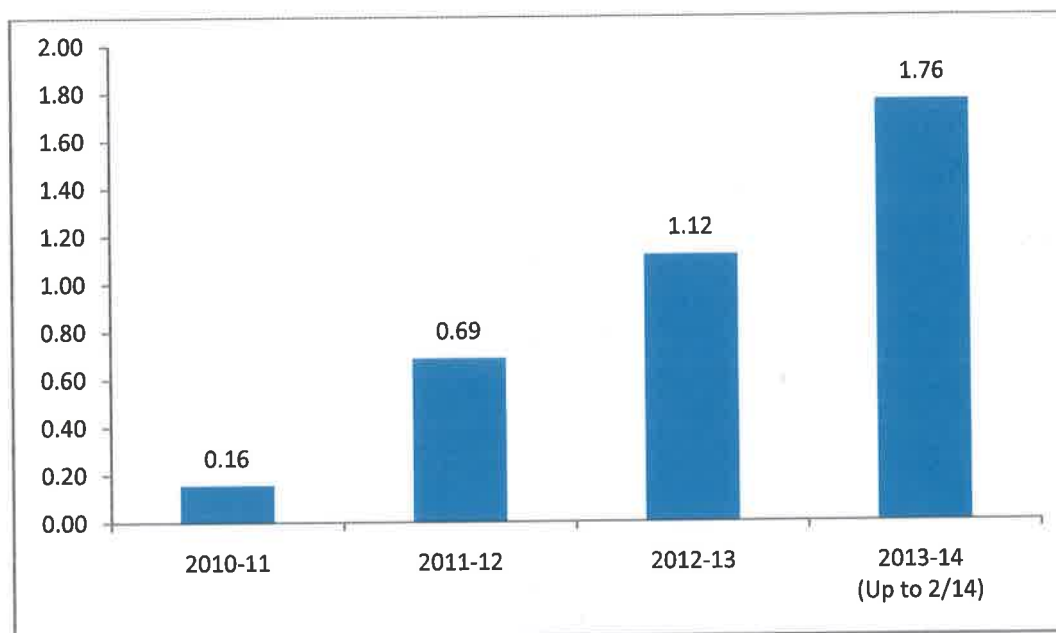


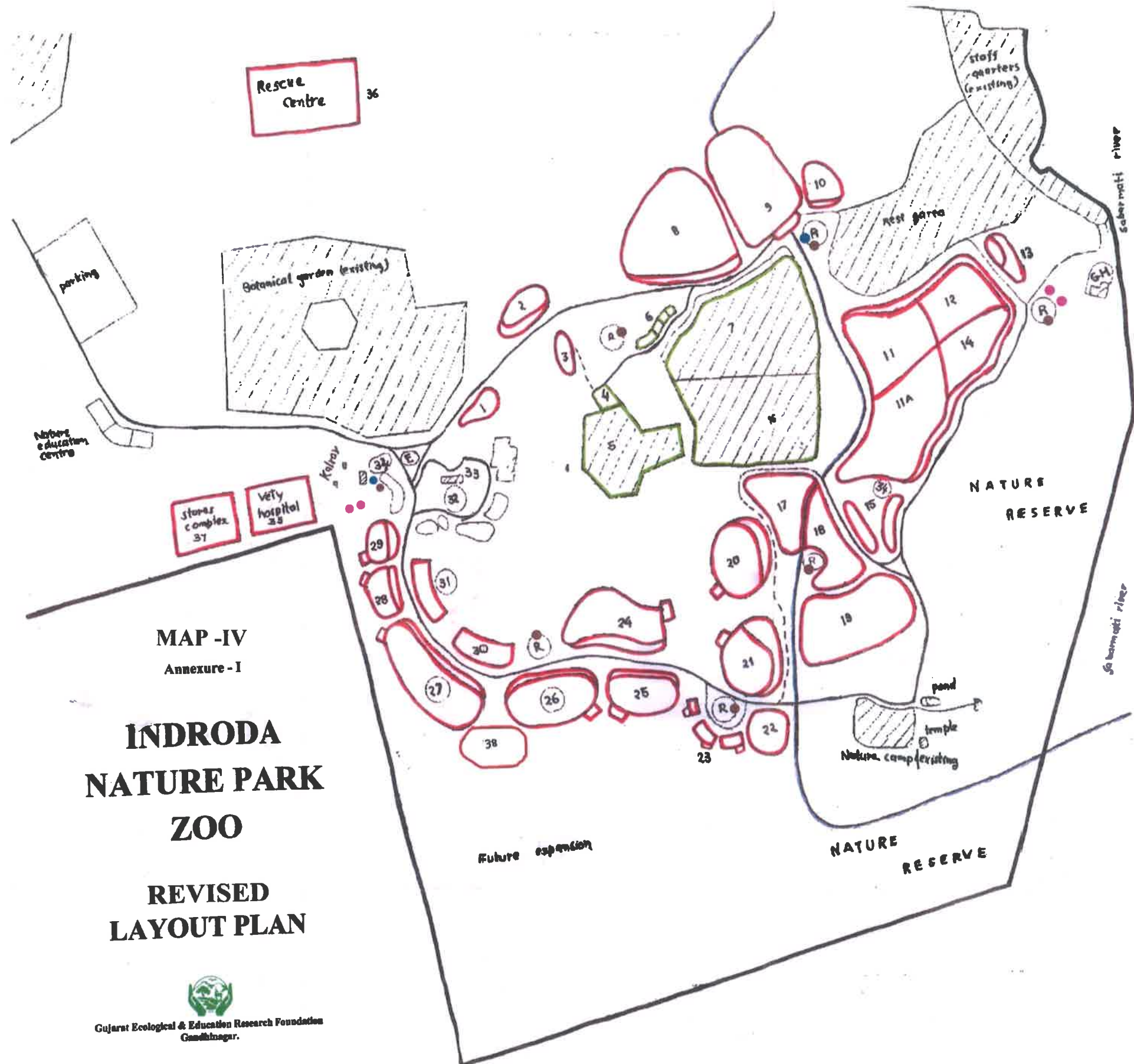
Figure-2.11 Year wise revenue from Entry Fee (in Rs.) of the INP East

MAP-IV
Annexure - I

INDRODA NATURE PARK ZOO

REVISED
LAYOUT PLAN


Gujarat Ecological & Education Research Foundation
Gandhinagar.



REFERENCES

- Road (existing) ———
- Road (Proposed) - - - - -
- Existing structures ———
- Nala ———
- Rest areas (R) ———
- Boundary ———
- Guest House (existing) G.H
- Nocturnal animal house NAH
- Fence ———
- Entrance Plaza (E) ———
- New enclosures / Structures ———
- Existing enclosures ———
- Toilet ———
- Water Point ———
- Shed ———

ANIMAL ENCLOSURES

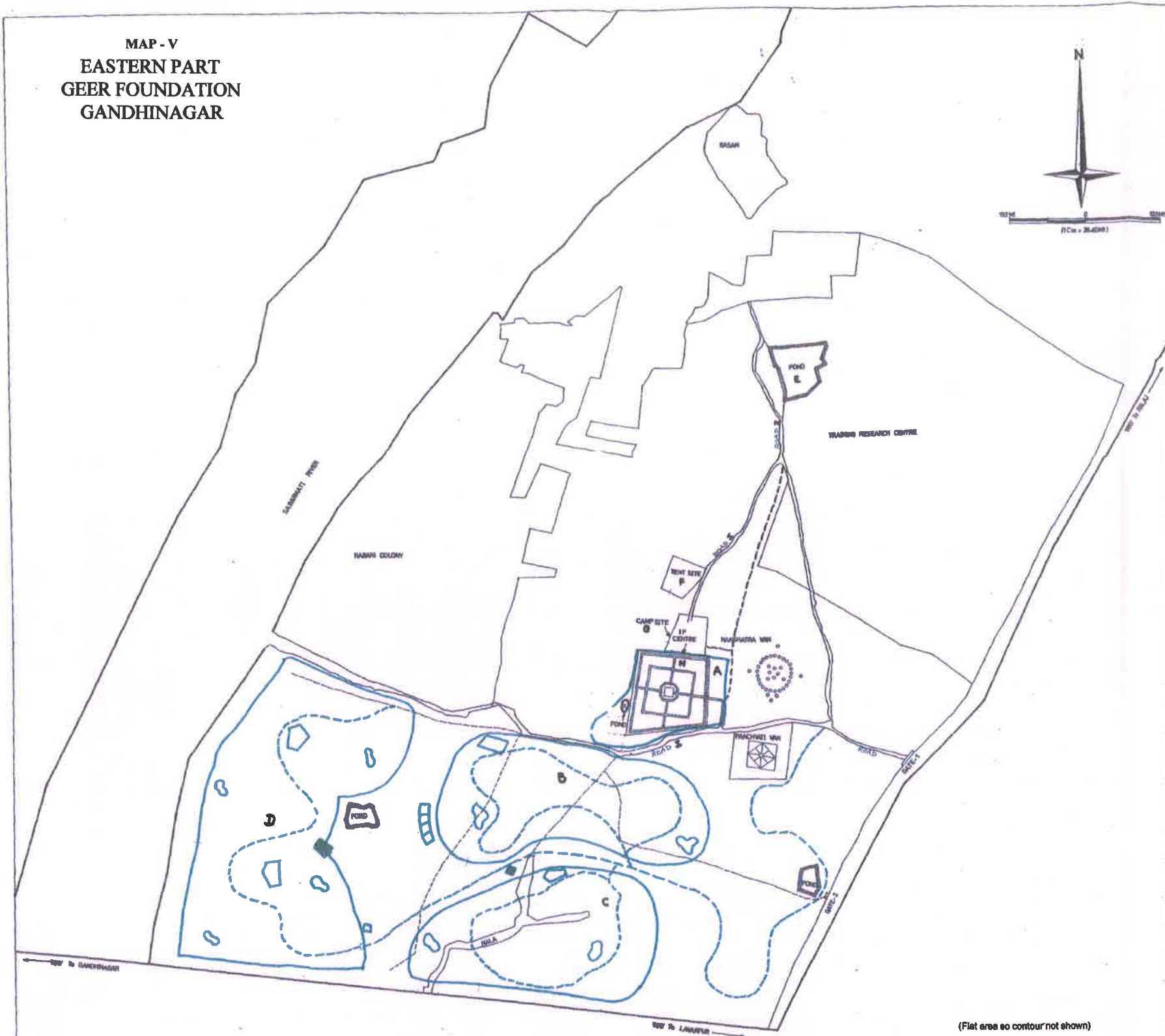
1. Flamingoes
2. Macaques
3. Bird Aviary
4. Bird Interpretation Centre
5. Walk Through Aviary
6. Birds Aviary
7. Antelope
8. Deer (Sambar and Chital)
9. Aquatic Bird Pond
10. Deer
11. Blackbuck
12. Chinkara
13. Otters
14. Chousingha
15. Small mammals
16. Wild Ass
17. Domestic Cranes
18. Common Cranes
19. Sarus Cranes
20. Asiatic Lion
21. Tiger
22. Panther
23. Small Cat
24. Sloth Bear
25. Hyena
26. Dhole
27. Wolf
28. Common Fox
29. Desert Fox
30. Birds of Prey (Hawks)
31. Bird of Prey (Vultures)
32. Reptiles
33. Nocturnal Animals
34. Wild Boar enclosure

Other references

34. Bare well
35. Veterinary Dispensary Building
36. Quarantine-cum-rescue Center
37. Rat proof storage room for food


D. S. DUNN
Minister Secretary
Ministry of Environment & Forest
Govt. of India, New Delhi
This approval is subject to change,
if any, as per the final Master Plan.

MAP - V
EASTERN PART
GEER FOUNDATION
GANDHINAGAR

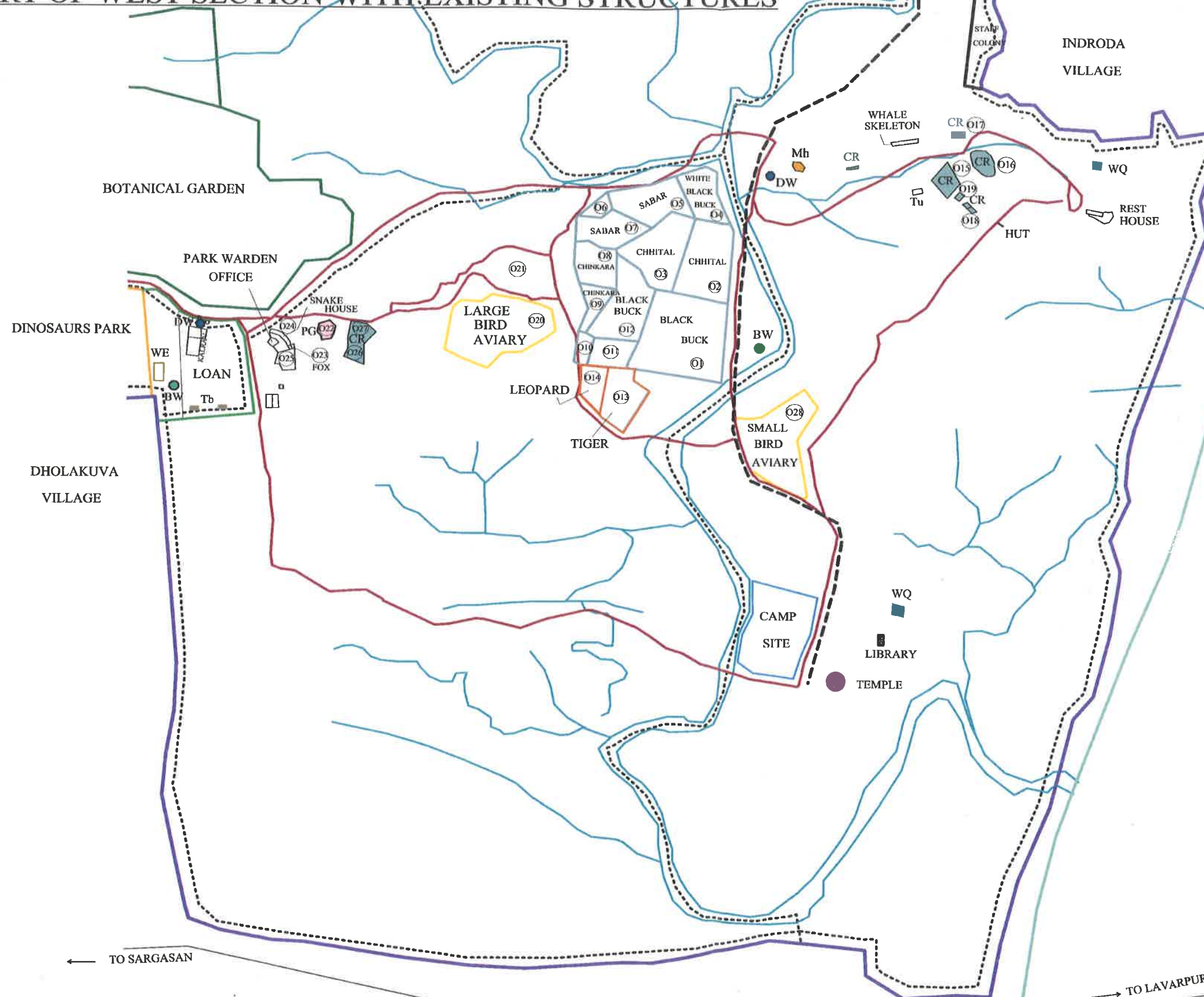
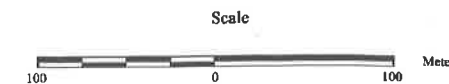


(Flat area so contour not shown)

LEGEND

- A. Proposed Butterfly Park
- B. Proposed Tiger Safari
- C. Proposed Slothbear Park
- D. Proposed Herbivorous Park
- E. Existing Pond
- F. Existing Tent Site
- G. Existing Camp Site
- H. Existing I. P. Center
- I. Existing Road.

MAP- VI INDRODA NATURE PARK PART OF WEST SECTION WITH EXISTING STRUCTURES



LEGEND

- COMPARTMENT BOUNDARY
- ROAD
- PARK BOUNDARY
- PARK PATHS
- BOTANICAL GARDEN
- DINOSAURS PARK
- LOAN
- BIRD AVIARY
- HERBIVORE CAGE
- CARNIVORE CAGE
- RIVER
- NALA
- CAMP SITE
- TEMPLE
- LIBRARY
- WATCHMAN QUARTER (WQ)
- BORE WELL & WATER TANK (BW)
- DRINKING WATER (DW)
- MIRROR HOUSE (Mh)
- CROCODILE POND (CR)
- PAKSHI GRUH (PG)
- WILD LIFE EXHIBITION (WE)
- TOILET BLOCK (Tb)
- ENCLOSURE/ CAGE CODE

Prepared by:-
J.A. Patel, Surveyor,
N.A. Patel, SRF

← TO SARGASAN

→ TO LAVARPUR
BRIDGE

CHAPTER – 3

APPRAISAL OF THE PRESENT ARRANGEMENT AND CONSTRAINTS

3.1 EXISTING LAYOUT

Development of the INP Zoo, so far, has been in parts and phases with a humble beginning as a Deer Park. It was not holistically planned like a Modern Zoological Park before initiating its development. This is reflected in its present day layout of animal enclosures with Wild Ungulate Enclosures being dominant component of the Zoo. During the course of its development Avifauna and Herpetofauna were given importance at some stage and that resulted in to "Walk-In-Aviary", some enclosures for avifauna and yet another Aviary at a distant place. All three Aviaries are at three different locations of the INP Zoo, West section. Enclosures for snakes viz. "Sarp Gruha", Crocodiles and Tortoises are for displaying Herpetofauna and their current Layout is not at one sub section. The overall existing layout of animal enclosures and Zoo facilities is as per the **Map-IV**.

3.2 CURRENT LAYOUT PLAN (MASTER PLAN 2009-2014)

The challenging task of modifications in existing INP Zoo layout with a less scope of maneuverability was discussed with experts and the then Member Secretary, CZA, at the time of preparing the Master Plan and Layout Plan in 2009. That was the time when it was also decided to add some part of the INP East (Aranya Udhyaan) to the INP Zoo for establishing "Herbivore Safari Park". Accordingly, the new INP Zoo Layout Plan was prepared in two parts and submitted to the CZA, along with the Master Plan 2009-2014. The INP Zoo (West) Layout Plan was approved by the CZA and the permission for allowing to keep some of the Ungulates in the "Herbivore Safari Park" of the INP Zoo (East) was granted by the CZA. The Layout Plan approved by CZA for INP Zoo (West) and Layout Plan that was submitted for INP Zoo (East) are as per the **Map-V** and **Map-VI**.

3.3 CURRENT ZOO FACILITIES

Current Zoo Facilities and animal displays in Nature Park with Natural ambience facilitate a rich nature and zoo visit experience to general visitors. It is being appreciated by general public. The Park Warden, who takes care of all the Sections of INP including INP Zoo, has a **Park Warden Office** centrally and strategically located in the Park to have command and quick access to various sections of the INP including INP Zoo (West). Recently, a modest and adequate **Veterinary Section** with a treatment area, treatment room, store and Veterinary Doctor's office has been added close to the Park Warden's

Office. The **Assistant Director**, GEER Foundation, who is the supervisory officer of the INP including INP Zoo, has an Office at the Main Administrative Block and Office of the Director GEER Foundation, near to the main entrance of the INP.

The Old Park Warden's Office has been converted in to **Store and Feed Supply Section**. This facility is adequate for time being, however, there is a need and scope to upgrade this facility by providing a wall fencing and adding some more space for covered storage. The INP has adequate **water supply facilities** with Two Bore wells in the INP (West) section and one Bore Well in INP (East) Section with three overhead water tanks. Waste disposal, including carcass disposal area is adequately away from the Animal Sections. Current location of Post Mortem Room is towards the South East corner of the Zoo (West) Section and it does not have PM Platform. It is already planned, designed and approved to provide a new PM room at an adequately distant location away from the Animal Section and near to the designated carcass disposal area.

Adequate resting spaces are provided at various places and also near to the Park Warden's office for visitors. Gardens in resting places along with sylvan Nature Park ambience, "Green Valley Trail", lawns etc provide large open spaces to visitors. The Botanical Garden Section of the INP (West) is adjoining to the Zoo section and provide opportunity for a very rich "Garden Visit and learning" experience to the visitors. A designated parking space is also provided close to the Botanical Garden and Zoo sections.

3.3.1 Animal Section

The Zoo at Indroda Nature Park has 8 species of mammals, 30 (27 + 3 exotic) species of birds and 13 species of reptiles as on 1st March, 2014. The Zoo has 649 wild animals including 203 exotic birds of above said 51 species and they are housed in 28 enclosures. Details of enclosure-wise animals are mentioned at Table-3.1.

Table-3.1 Animal enclosure details of INP Zoo (West)

Encl. No.	Animal/Bird	Number of animals				Remarks
		M	F	U	Total	
1	Blackbuck	19	83	0	102	7020 sq. mt
2	Cheetal (Spotted deer)	20	30	0	50	3953 sq. mt
3	Cheetal (Spotted deer)	12	25	0	37	3489 sq. mt
4	White Blackbuck	11	20	0	31	1851 sq. mt
5	Sambar	6	22	0	28	2590 sq. mt
6	Sambar	5	0	0	5	426 sq. mt
7	Vacant- Reserved for Barking deer					1912 sq. mt
8	Cheetal	7	13	0	20	1724 sq. mt
9	Chinkara	1	1	0	2	861 sq. mt
10	Empty Enclosures for operational management such as temporary shifting, isolation etc.					491 sq. mt
11	Chinkara	2	2	0	4	1183 sq. mt
12	Blackbuck	75	0	0	75	3217 sq. mt
13	Royal Bengal Tiger	0	0	0	0	1690.5 sq. m.
14	Leopard	0	1	0	1	760.10 sq. m.
15	Marsh Crocodile	2	1	0	3	419.9 sq. m
16	Marsh Crocodile	0	0	5	5	544.88 sq. m
17	Marsh Crocodile	0	0	1	1	65.62 sq. m
18	Star Tortoise	3	4	23	30	77.25 sq. m
19	Indian Porcupine	1	1	0	2	15.0 sq. m
20	Aves in walk through Aviary	-	-	-	-	6000 sq. m
21	Indian Rock Python	2	0	11	13	143.0 sq. m
22	Hexagonal aviary	5 spp. Displayed				210.0 sq. m
	(5 Enclosures)					Avg. – 42 sq. m
23	Jackal	1	1	0	2	28.0 sq. m

Encl. No.	Animal/Bird	Number of animals				Remarks
		M	F	U	Total	
24	Snakes (12 Chambers) <i>Needs major repair and modernization</i>	6 Spp. displayed in 9 Chambers				38.7 sq. m. Avg. size- 4.3 sq. m
25	Leopard	1	1	0	2	68.4 sq. m
26	Marsh Crocodile	Vacant- Needs major repair				Area to be measured
27	Ghariyal	Vacant- Needs major repair				Area to be measured
28	Aviary	Exotic birds + White Peacock + Barn Owl and Alexandrine Parakeets				279.1 sq. m

The **Map-IV** gives details of existing layout of animal enclosures. The details of the livestock are shown in **Annexure-3.1 to Annexure-3.4**. The Zoo is located in a natural surrounding full of vegetation including huge trees and therefore provides a natural habitat to the animals. The enclosures are spacious, with good vegetation within the enclosure and have facilities like retiring cum feeding cubicles for the carnivores and the feeding places for the herbivores. Many of the existing enclosures need major repairs, additions and alterations. Particularly, the herbivore enclosures do not have Service Road and animal shades are inadequate and they need major repairs. Similarly, Walk-in-Aviary also needs major repairs.

The INP Zoo (East) has a Herbivore Safari Park with total area of 26.5 hectare is established. It has two gates and seven water points. At present, no ungulate / herbivore animals are displayed as strengthening of fencing and provision of animal house is required to be made.

3.3.2 Veterinary Hospital Section

A Veterinary Section is situated in the Western Side of the Zoo. This facility is located adjoining to the Park Warden's Office. Veterinary section is having about 510 sq. ft. built up facilities as well as compound area with treatment shed as well as open space of about 2600 sq. ft. The built up area comprises a treatment room, medicine store room and office of the veterinary doctor. The Veterinary Hospital is having adequate equipments

including Dart Guns, Dart Pistol, cages for animal restrain and animal treatment etc. the laboratory equipments are being procured for diagnosis purpose. The GEER Foundation Ecological and Environment Laboratory in the main administrative block supports veterinary hospital for local diagnosis purpose. For advance diagnosis, the INP Zoo is supported by Animal Disease Investigation Office (ADIO), Ahmedabad of the Animal Husbandry Department.

3.3.3 Store and Feed Supply Section

Fresh, Nutritionally balanced food is brought almost on daily basis and the herbivore animals are fed in the special spaces/raised platforms under the shade created for the purpose. Herbivores are given daily concentrate mixture, protein rich soaked legume seeds and mineral vitamin mixture; such healthy diet reflects in higher breeding ratio in ungulates. Similarly, in case of the carnivores and the water birds also the fresh food is brought and supplied on daily basis from Ahmedabad. The Veterinary Doctor and the Animal Keeper check the quality of the food for both herbivorous and carnivorous animals and birds in the Zoo. Concentrate feed and other materials are stored for a breed period in the store near the herbivore enclosures. These Store Rooms are old and there is a need for major repairs and alterations.

3.3.4 Sanitation Section

Every enclosure has been allotted to a particular individual, who is responsible for the sanitation and the cleanliness of the enclosure under the guidance of the Veterinarian and the Zoo officer. There is a sanitation plan drawn out and strictly followed, according to which the sanitation and the cleanliness of each and every enclosure is ensured. However, there was a need to improve and enhance the norms and schedules and accordingly, new feeding schedule, feeding norms, hygiene and sanitation schedule and prophylactic steps have been improved since 2011. The same is described and prescribed in Part-II (Chapter-5).

3.3.5 Maintenance Section

There is a permanent staff looking after the maintenance aspect. The Zoo officer, who is the Park Warden, has been directly supervising the maintenance of the Zoo. There is a permanent mason and a welder engaged for the purpose of any repairs required for enclosures. There is good number of staff employed under the Zoo officer, who take adequate care of the enclosures and the crocodile ponds etc.

3.3.6 Security Section

At present, there is good security in the Zoo. There is a wall cum chain link fencing all around the Zoo. Besides, there are about 12 personals engaged to keep ward and watch on each and every animal and bird enclosure. No person without the due permission of the authority is allowed to enter in the Zoo premises. There is a special staff engaged for keeping ward and watch, during the night time. The CCTV Surveillance is designed & planned and the procurement process is being pursued.

3.3.7 Water Supply Section

There are three bore wells in the Zoo premises. All the enclosures in the Zoo have been well connected with pipelines and, therefore, have adequate facility of water. It is ensured that the clean-potable water is made available to all the animals. Water in the ponds created for waterfowls in the walk-in-aviary and the ponds for the crocodiles is replaced with fresh water on regular basis. The cleaning of the ponds is also done regularly. There are three Bore-Well and two Over Head Water Tanks with collective storage capacity of 60,000 liters. In the INP East, there is one Bore-Well with one Over Head Water Tank of storage capacity of 30,000 liters. The water supply is based on ground water and throughout the year, adequate supply of good quality water is available. The water quality is periodically monitored and prophylactic purification treatment schedule is followed.

3.3.8 Disposal of Solid Waste and Liquid Waste

Whatever solid waste occurs in the Zoo Section, is disposed off in specially dug up pits for the same, outside of the Zoo. There is hardly any liquid waste, however, the dirty water resulting while cleaning up of the crocodile ponds and walk-in-aviary is released in the natural drainage going out of Zoo. The natural drainages traversing out of the Zoo from near the above mentioned ponds are located in such a manner, that the waste water, does not adversely affect the animals in other enclosures, since there is no enclosure falling on their way.

3.3.9 Visitors Amenities, Lawns and Gardens

The Zoo and the nature park, combined make one of the most picturesque sites in Gandhinagar. River Sabarmati on one side, numerous ravines of the river traversing through this beautiful landscape, undulations with good growth of trees and shrubs are some of the strong attributes of this site. On the edge of the Zoo area, there is a botanical garden with good lawns. Within the Zoo area also there are lawns developed for the benefit of visitors. There are wooden benches of different sizes and shapes fixed at suitable places for rest. Also there are special benches prepared by carving the natural rocks, which have been arranged at suitable locations in the lawns for the benefit of the

visitors. Since the area of the Zoo is relatively large, water points have been created at three places. These small hexagonal water points have water purifier systems and the water coolers also, so as to ensure supply of clean-potable and cold drinking water to the visitors. Clean toilets have been constructed separately for ladies and gents, at two places.

Details of the existing buildings other than animal enclosures are as under:

List of buildings other than animal enclosures- INP West

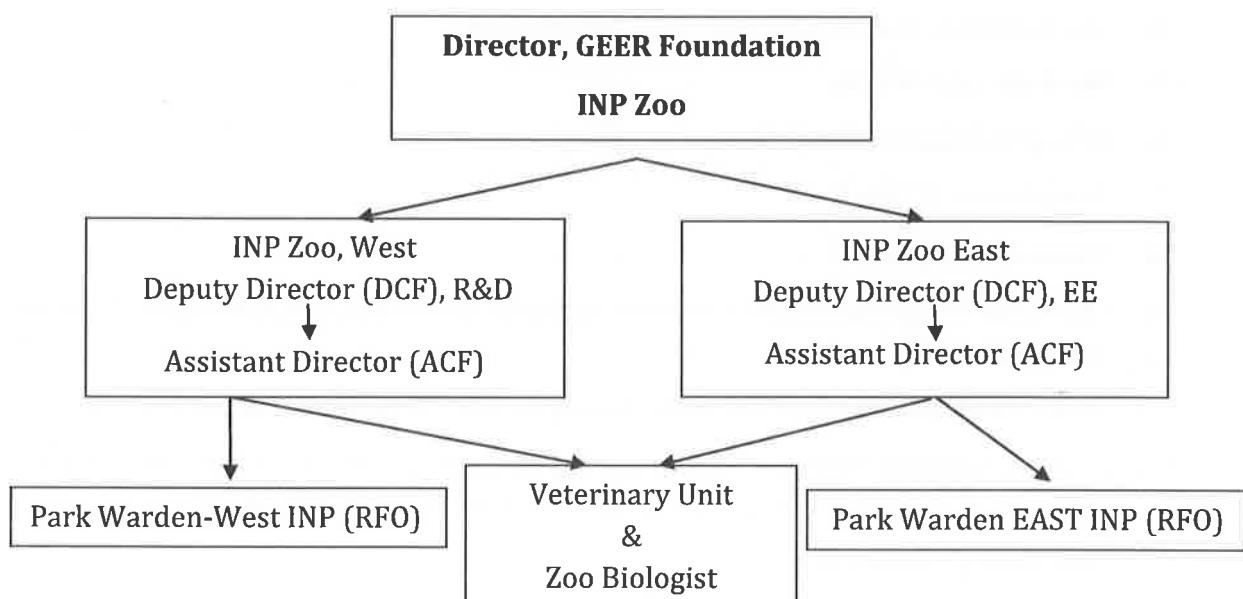
1. Office of the Park Warden, Indroda Nature Park Zoo.
2. Old building of the office of Park Warden, which is used as a store room. It needs renovation and is under process.
3. Cluster of 8 small hutments for the nature education campers.
4. 14 residential quarters for the class four zoo staff.
5. Small library building
6. Interpretation centres (2 Nos.)
7. Pump house (2 Nos.)
8. Ticket vending booth
9. One kiosk for selling nature education material like books, magazines, charts, maps, pamphlets etc.
10. Three rectangular shaped buildings having facility for pure cold mineral water
11. Modern buildings for toilet 3 for ladies & 3 for gents (2 Nos. for ladies and 2 Nos. for gents are functioning and one no. for ladies & one no. for gents under construction.)
12. One small guest house

List of buildings other than animal enclosures- INP East

13. Office of the Park Warden, Indroda Nature Park Zoo.
14. Eight rooms and a dormitory for the nature education campers.
15. Interpretation center
16. Pump house
17. buildings for toilet (2 Nos. for ladies and 2 Nos. for gents)
18. One kitchen cum store room for nature education campers
19. One amphitheater

3.4 GENERAL ZOO ADMINISTRATION SECTION

The INP Zoo is part of overall Organization of the Gujarat Ecological Education and Research (GEER) Foundation. The GEER Foundation Administrative Office is the Office of the Director, GEER Foundation and is located near to the Main Entrance and Ticket Window in a separate sub campus of administrative and other research and education facilities. At present there are two Deputy Directors, viz. (i) Deputy Director, Research and Development (R&D) and (ii) Deputy Director, Ecological Education (EE). They, besides their other duties, are in charge of development and management of INP Zoo sections West and East, respectively. For the purpose of the INP Zoo administration as part of overall GEER Foundation Administration, following administrative organization is established:



It is pertinent to mention here that the INP Zoo is one of the sections / mandates of the GEER Foundation from among many others such as ecological research, ecological education, development of Botanical Garden, management and development of Wildlife Sanctuary, and giving technical and policy inputs to the Gujarat Forest Department and Government of Gujarat, etc. Therefore, above presented Organogram is not stand alone Organization, but it is one part of overall organization of the GEER Foundation. In other words, all the officers from Director upto the rank of Forest Guards including Park Wardens have many other responsibilities other than the zoo development and management.

3.5 EXISTING ANIMAL STOCK AND ANIMAL COLLECTION PLAN

3.5.1 The Animal Stock as on 01-03-2014

As per the Central Zoo Authority, Indroda Nature Park Zoo is recognized as the Medium Category Zoo. As on 1st March 2014, the zoo animal livestock includes total 51 animal species in the Zoo including 8 species of mammals, 30 species (27 + 3 exotic) of birds and 13 species of reptiles. Total number of animals as on 1st March, 2014 was 649. From amongst these animal species, 10 species are listed as Schedule-I & II wild animal under the Wildlife (Protection) Act, 1972. Number of each of these animal species is mentioned in detail in the **Annexure-3.1 to Annexure-3.3**

3.5.2 Collection Plan as per Master Plan-2009-2014

The Animal Collection Plan as per Master Plan 2009-14 proposed additional collection of 13 mammals, 4 birds and 3 reptile species for the INP (West) [Table-3.2(A)]. For the INP (East), the Collection Plan proposed was 6 herbivore mammals [Table-3.2(B)]. The Collection Plan as per the Master Plan of 2009-14 are reproduced and presented as under:

Table: 3.2 (A)

Proposed Animal Collection Plan for INP Zoo West for the year 2009-2014

Sr. No.	Period	Mammals	Birds	Reptiles
1	1 st and 2 nd year	Tiger, Asiatic Lion, Leopard, Elephant		
2.	3 rd and 4 th year	Sloth Bear, Tiger Indian Wolf, Striped Hyena, Chousinga, Barking Deer, Hog Deer, Hanuman Langur	Cranes, Horn Bills, Flamingo	Gharial
3.	5 th and 6 th year	Indian Jackal, Indian Fox Indian Otter, Bonnet Macaque, Indian Wild Ass	Cranes, Eagle	Various species of Tortoises and Turtles

N.B.: The above list is neither exclusive nor compulsory. The collection should be finalized by the Director, GEER Foundation on availability of suitable animal, its housing and other considerations at a given time.

The above stated Collection Plan (2009-14) for INP Zoo (West) is reconsidered and it is felt that there is a need for revision of the Collection Plan. The Central Zoo Authority also

had directed to INP Zoo to revise the Collection Plan. Accordingly, the revised Collection Plan was submitted to the CZA vide this office Nos. WLP/6/A-8653-54 dated 21-11-2012 and WLP/6/A-12001-12003 dated 04-03-2013. The CZA has approved the revised Collection Plan vide their F.No. 19-33/92-CZA(72)(Vol.V)(M)/2754 dated 07-05-2013, with a condition to reduce the stock of Black Buck and Cheetal. This approved Collection Plan is enclosed as **Annexure-3.4**. As the Gujarat Forest Department desires that the INP Zoo shall participate captive conservation breeding of wild ungulates for reintroduction and / or enrichment of wild prey-base in Protected Areas (PAs), it is desirable to maintain adequate breeding stocks of wild ungulates in the INP Zoo.

Table-3.2 (B)

Proposed Animal Collection Plan for INP Zoo West for the year 2009-2014

Sr. No.	Period	Mammals
1	1 st and 2 nd year	Black buck, Sambar, Cheetal
2.	3 rd and 4 th year	Tiger, Sloth Bear
3.	5 th and 6 th year	Leopard

This Proposed Animal Collection Plan for Indroda Nature Park Zoo (for the year 2009-2014) is also reconsidered and it is felt that there is a need to revise Collection Plan for INP Zoo (East). Considering all aspects and guidelines for zoo management, it is not desirable to have Tiger, Sloth Bear and Leopard Safari in the INP Zoo (East) for the Master Plan period 2014-15 to 2023-24. Therefore, the Collection Plan only for wild ungulates in the INP Zoo (East) needs to be pursued.

3.6 ZOO RESEARCH

One of the major objectives and mandates of the GEER Foundation is Ecological and Conservation Research. The Foundation is currently pursuing this objective and mandate on the basis of Research Projects with emphasis on *In Situ* Ecosystem Based Conservation. *Ex Situ* Conservation Research is currently pursued with less emphasis and there is a need and scope to enhance the same. The research and Zoo Biologist support is currently extended from other ongoing research projects of the GEER Foundation. The INP Zoo periodically extends facility and support through a due process of permission to (a) University Students for their dissertation studies and (b) Researchers of other institutions.

3.7 CONSERVATION BREEDING

At present the INP Zoo has adequate experience of managing and breeding Wild Ungulates in captivity. Large numbers of Wildlife Protected Areas need support for Ungulate Breeding and reintroduction/enrichment of prey species. Therefore, the INP Zoo participates in the Captive Conservation Breeding and Introduction/Enrichment of wild ungulates to Protected Areas (PAs) of the Gujarat Forest Department. In the Year 2008, total 12 Cheetal (M:F:: 3:9) were provided to Rampara Wildlife Sanctuary and during the Year 2009, 2 Sambar (M:F::0:2) were provided to Barda Wildlife Sanctuary for their Conservation Breeding Programme. In the past, the GEER Foundation had participated in Captive Conservation Breeding of Marsh Crocodile and some of the captive bred of Marsh Crocodile were released in the wild with the help of the Gujarat Forest Department.

The INP Zoo is directed and accordingly it has a plan to provide breeding stock of Cheetal (Axis Deer) to some of the PAs for their Conservation Breeding Programme. For pursuing this objective, the INP Zoo is maintaining livestock of wild ungulates at a level more than required for zoo display.

Based on the current breeding stock, the details of young born in the INP Zoo (West) for wild ungulates are as under (Table-3.3):

Table-3.3

Details of young born in the INP Zoo (West) for wild ungulates

Species	No. of Birth			
	2011-12	2012-13	2013-14	Total in Three Years
Sambhar	00	03	05	08
Chhetal	10	18	09	37
Black Buck	20	27	14	61
Black Buck (White)	01	05	01	07
Chinkara	00	02	01	03
Total	31	55	30	116

Considering the mortality in the INP Zoo (West) as well as demand for breeding stock for conservation breeding coupled with the above stated information of species wise birth of young ones, it is desirable to maintain the current level of breeding and live stock of wild ungulates.

3.8 EDUCATION AND AWARENESS

Similar to the objective and mandate of Research, yet another important Objective and Mandate of the GEER Foundation is Ecological and Conservation Education. With the support of Research and Education staff, the foundation has adequate capabilities for extending such education to visitors and participants of Education Camps. Currently the INP has Two (2) Nature Educators and Three (3) Guides. Besides these education staff, Botanist, Animal Keepers and other staff also contribute to the zoo education. Senior officers, including Director, Dy Directors and Asst. Dir/ACF also, contribute to ecological, conservation and zoo education programme for various target groups. Both sections of INP Zoo, viz. West and East Sections have one Nature Education Camp Site, each, to facilitate such education. The Guide service is inadequate and need further enhancement in terms of number and capacity to impart higher quality education and to cater to the needs of different target groups with different requirements including requirement of different language medium for communication. Details of visitors are given in Chapter Two. Details of Nature Education Camps (NEC) conducted in last five years at INP West and INP East are as under (Table-3.4):

Table-3.4

Nature Education Camps (NECs) at INP West & INP East Camp Sites

Year	NECs	Participants
2011-12	40	2171
2012-13	40	2166
2013-14	50	2419
2014-15	50	2557
2015-16	50	2419
Total	237	11732

From the Year 2011-12, the NECs include a few camps for college and university students for special theme based nature education. During 2013-14, out of total 50 NECs at INP, 10 NECs with 337 participants were for college and university students.

3.9 CONSTRAINTS]

INP wall or chain link fencing is provided. However, there are sections of boundaries where the de novo fencing or repairs to existing fencing/wall is required. Adequate budget provisions are made and some parts of fencing is already repaired. However, there is need to increase the pace of this work and establish a system of maintaining the fencing

through annual repair works. Villages on the boundary are expanding in area and population exerting increased pressure on the boundaries of INP that calls for enhanced watch and ward as well as security. Planning for mandatory CCTV surveillance has been done and inquiry for procurement and installation is initiated.

A study of existing zoo layout and current layout plan reveal that they are not as per the guidelines and requirements of the modern efficient zoo. Zoo sub sections are not as per the grouping of different taxonomic groups of animals to be housed and displayed. Some of enclosures, such as enclosures of Ungulates, are devoid of adequate animal houses, Kraals, Service Roads, shades for protections against harsh weather conditions, etc. Redesigning and reconstructing enclosures pose a huge challenge in terms of intensity managerial interventions and requirement of time and financial/fund resources. Old enclosures need major repairs, renovation and redesigning as well as enrichment. The large ungulate/herbivore enclosure for safari park in INP Zoo East section is well designed, however, it needs animal shades, security strengthening.

Many of the key human resource positions are currently filled up by the staff of the Gujarat Forest Department on deputation to the GEER Foundation. Therefore, overall staff and human resource constraints of the Gujarat Forest Department also get reflected as the HR constraints in terms of (a) Vacancy of posts, (b) high turnover of personnel and (c) lack of skilled, trained, experienced and motivated staff.

Recently, staff and infrastructure for veterinary services is enhanced to meet the requirements. However, the INP Zoo is dependent on other project staff for research and zoo animal biology inputs.

For the management purpose one utility four wheel vehicle is provided and one motor cycle is being procured. However, for the standard zoo management interventions, development works, extending help to wildlife management in terms responding to the of wildlife rescue and man-wild animal conflict situations, attending to calls from general public for snake catching, etc. these two vehicles are not adequate.

Storage for field and zoo equipments, fodder and concentrate feed is available but it is not adequate and needs further enhancement and addition & improvement of existing store is required.

PART – II

FUTURE

MASTER PLAN

(2016-2017 TO 2025-26)

CHAPTER – 4

Vision, Future Objectives, Strategy & Future Action Plan

4.1 VISION

"Indroda Nature Park Zoo to be a part of overall Indroda Nature Park (West Bank & Aranya Udhyaan on East Bank) as a MEDIUM CATEGORY ZOO for the purposes of (i) Research, (ii) Captive conservation breeding and (iii) Education of general public for the subject of wild animals and their role in natural ecosystem"

4.2 OBJECTIVES

The main objective of the Indroda Nature Park (INP) Zoo, in accordance to the National Zoo Policy, 1998, is to complement and strengthen the National efforts in conservation of wild fauna.

Detailed objectives of the INP Zoo are as under:

1. Conservation:

Ex-Situ captive conservation of the protected wild animals to strengthen the National efforts in conservation of wild fauna.

2. Captive Conservation Breeding:

Captive conservation breeding of selected and prioritized wild ungulates for supporting In-Situ conservation of these species and their associate fauna through participating in planned introduction, re-introduction and enrichment of wild ungulates in Protected Areas (PAs).

3. Research and studies:

Providing opportunities for scientific studies and research useful for conservation of wild animals in captivity.

4. Conservation Education and Awareness:

Providing opportunities to zoo visitors in order to (a) get inspiration for empathy towards wild animals, (b) learn, understand and be aware about the life cycle, habitat requirement and ecology of wild animals and (c) get inspired for holistic nature conservation.

4.3 STRATEGY FOR ACHIEVING THE OBJECTIVES

1. Indroda Nature Park will continue to provide natural environment including adequate natural environment sections in the INP Zoo Section of the Park in order to provide adequate opportunity to visitors to experience such natural environment.
2. INP Zoo will give priority to endangered species of wild animals in its Collection Plan and wild animals will be acquired and maintained as per the Collection Plan approved by the Central Zoo Authority (CZA).
3. INP Zoo will endeavour to modify old animal enclosures and construct new animal enclosures for providing better housing, upkeep, health care and any special requirements such as shelters, perches, withdrawal areas, wallow, drinking water etc. of wild animals. The INP Zoo will have two types of wild animal enclosures viz. (a) traditional modern enclosures where visitors can view wild animals from outsides and (b) safari type [topsy-turvy zoo] Herbivores / Wild Ungulate Park in the Eastern Section of the INP Zoo wherein, visitors will be allowed in a highly regulated manner inside the Herbivores / Wild Ungulate Safari Park in appropriate Four-Wheel silent / less noisy vehicles.
4. The wild animals will be provided adequate space for their natural behaviour including their social & breeding requirements and protect them from adverse climate and visitor disturbance influences.
5. The INP Zoo will endeavour to provide for adequate nutrition in the form of proper diet and a veterinary health care. Overall hygiene and sanitation shall be maintained as measures for better health of animals and disease prevention.
6. The INP Zoo will endeavour to procure and maintain adequate breeding stock of wild ungulates including (a) Spotted Deer; (b) Sambar; (c) Black Buck; (d) Barking Deer, (e) Chinkara / Chhinkara and (f) Chausingha for supporting captive conservation breeding at INP Zoo as well as at identified PAs.
7. The INP Zoo is a part of overall organization set up of the Gujarat Ecological Education and Research (GEER) Foundation, Gandhinagar. The primary / main objectives of the GEER Foundation are (a) Ecological Research and (b) Ecological Education. The GEER Foundation, as part of pursuing its primary / main objectives, shall endeavour to promote research in the INP Zoo with a focus on ecology and conservation of endangered species.

8. The GEER Foundation, as part of pursuing its primary / main objective of ecological education, shall endeavour to promote studies and education on the subjects of ecology and conservation of endangered species.
9. The INP Zoo will endeavour to modernize its signages to make it (a) appropriately informative and (b) compatible to the natural surroundings of the INP.
10. The INP Zoo will endeavour to provide adequate and suitable visitor amenities including (a) proper entry and walking foot paths in display areas; (b) drinking water and other services; (c) proper resting places; (d) directional signages; (e) passive interpretation service through an orientation centre / reception centre and (f) active interpretation service through recognized guides / nature educators.
11. The GEER Foundation will endeavour to maintain high standards of security and safety of the INP including INP Zoo as well as of the visitors visiting the INP and INP Zoo.

The overall strategy of INP Zoo Management will be to properly integrate it with the overall INP management, which has ongoing plans for development of other sections, in specially designated different areas, including Botanical Garden, Earth Exhibits, Fossil Exhibits, Dinosaur Park, Nature Education Camp Sites, etc.

4.4 MASTER PLAN PERIOD AND MID-TERM REVISION

The Zoo development and management guidelines as well as rules are well-established in India. The policy rules and guidelines are now not likely to change in short duration. For the INP Zoo vision, objective and strategy are also fairly crystallized for long-term and sustained efforts for its development. It is also estimated that the pace of development in future would increase only gradually. Therefore, this Master Plan period will be for 10 Years. As per the guidelines of the CZA, this Master Plan has to provide Action Plan for 06 Years. Therefore, this Master Plan shall be reviewed at Mid-Term during the Fifth Year.

4.5 FUTURE ACTION PLAN

In pursuance of the vision, objectives and strategy, the Action Plan would mainly focus on overcoming the constraints and shortcomings discussed under Part-I: Chapter-3 of this Plan. The priority will be given to modify existing enclosures and provide them essential infrastructure such as service roads, animal houses, animal sheds, etc. Such modifications shall aim to the welfare of animals housed in such enclosures. It shall also aim to the

facilitation of visitors for the optimum zoo visitation experience. While implementing this Action Plan, focus will be on appropriate layout plan such that the display is in proper scientific logical sequence and for optimum comforts of visitors while walking for visiting various enclosures. The basis of Action Plan will be the Animal Collection Plan approved by the CZA in the Month of March-2013.

4.5.1 Animal Collection Plan

The previous Collection Plan (2009-14) for INP Zoo (West) was reconsidered and revised Collection Plan was submitted to the CZA vide this office Nos. WLP/6/A-8653-54 dated 21-11-2012 and WLP/6/A-12001-12003 dated 04-03-2013. The CZA has approved the revised Collection Plan vide their F.No. 19-33/92-CZA(72)(Vol.V)(M)/2754 dated 07-05-2013, with a condition to reduce the stock of Black Buck and Cheetal. To meet this requirement, some of the ungulates will be shifted to the Safari Park (East INP). This is planned and proposed at Page No. 50 (Table-4.2) Existing Collection and proposed collection of the INP Zoo East Safari Park. GEER Foundation has also requested the PCCF (Wildlife) & CWLW, Gujarat State vide Letter No.A/T-6/INP Zoo/9772; dated 26/02/2014, for using additional stock of ungulates at the INP Zoo, for initiating captive conservation breeding programme at suitable PAs of Guajrat. It is also considered in collection plan that 1:2 ratio of animals will be met through Animal Exchange programme, subject to availability of the Animals in future from different Zoos.

A Revised Animal Collection Plan for the INP Zoo, GEER Foundation is approved for 51 species and 438 animals. As per this approved Collection Plan, the INP Zoo Master Plan aims at adding 9 more endangered species in its display including (i) Asiatic Lion, (ii) Sloth Bear, (iii) Four-Horned Antelope, (iv) Barking Deer, (v) Indian Wild Ass, (vi) Indian Grey Wolf, (vii) Striped Hyena, (viii) Fox and (ix) Fresh Water Soft-Shelled Turtle. This approved Collection Plan is as per **Table-4.1**.

Excess stock of Marsh Crocodiles will be offered to other zoos for exchange programme. Some of the adult of them will be released in their natural protected habitats after obtaining due permission from the CWLW, Gujarat State.

Table-4.1 Existing Collection and proposed collection of the INP Zoo West

Sr. No.	Species	Existing Stock as on 1 st October 2016				Animals as per Sanctioned Collection Plan by CZA vide letter No. F. No. 19-33/92-CZA (72) (Vol. V) (M)/2754 dated on 7th May 2013.				Animals to be acquired (+) or removed (-)				Total animals after acquisition and removal			
		M	F	U.S.	T	M	F	U.S.	T	M	F	U.S.	T	M	F	U.S.	T
1	Asiatic Lion (<i>Panthera leo persica</i>)	0	0	0	0	1	2	0	3	+1	+2	0	+3	1	2	0	3
2	Tiger (<i>Panthera tigris</i>)	0	0	0	0	2	1	0	3	+1	+1	0	+2	1	1	0	2
3	Leopard (<i>Panthera pardus</i>)	2	1	0	3	3	2	0	5	0	+1	0	+1	2	2	0	4
4	Sloth Bear (<i>Ursus ursinus</i>)	0	0	0	0	1	1	0	2	+1	+2	0	+3	1	2	0	3
5	Black Buck (<i>Antilope cervicapra</i>)	94	83	0	177	46	49	25	120	-69	-43	+17	-95	25	40	17	82
6	Black Buck (white) (<i>Antilope cervicapra</i>)	11	20	0	31	2	6	3	11	-7	-8	+3	-12	4	12	3	19
7	Chinkara (Indian Gazelle) (<i>Gazella bennettii</i>)	3	3	0	6	3	5	1	9	0	+2	+1	+3	3	5	1	9
8	Sambhar (<i>Rusa unicolor</i>)	11	22	0	33	9	13	0	22	-5	-14	+1	-18	6	8	1	15
9	Spotted Deer (<i>Axis axis</i>)	39	68	0	107	19	40	16	75	-28	-48	+19	-57	11	20	19	50
10	Chouhinga (<i>Tetracerus quadricornis</i>)	0	0	0	0	1	2	0	3	+1	+2	0	+3	1	2	0	3
11	Barking Deer (<i>Muntiacus muntjak</i>)	0	0	0	0	1	2	0	3	+1	+2	0	+3	1	2	0	3
12	Indian Wild Ass (<i>Equus hemionus khur</i>)	0	0	0	0	1	2	0	3	+1	+2	0	+3	1	2	0	3
13	Indian Wolf (<i>Canis lupus</i>)	0	0	0	0	1	1	0	2	+1	+2	0	+3	1	2	0	3

Sr. No.	Species	Existing Stock as on 1 st October 2016				Animals as per Sanctioned Collection Plan by CZA vide letter No. F. No. 19-33/92-CZA (72) (Vol. V) (M)/2754 dated on 7th May 2013.				Animals to be acquired (+) or removed (-)				Total animals after acquisition and removal			
		M	F	U.S.	T	M	F	U.S.	T	M	F	U.S.	T	M	F	U.S.	T
14	Striped Hyena (<i>Hyaena hyaena</i>)	0	0	0	0	1	1	0	2	+1	+2	0	+3	1	2	0	3
15	Indian Jackal (<i>Canis aureus</i>)	1	1	0	2	1	1	0	2	0	+1	0	+1	1	2	0	3
16	Indian Fox (<i>Vulpes bengalensis</i>)	0	0	0	0	1	1	0	2	+1	+2	0	+3	1	2	0	3
17	Indian Porcupine (<i>Hystrixindica</i>)	0	0	2	2	0	0	2	2	0	0	0	0	0	0	2	2
18	Little Cormorant (<i>Phalacrocorax niger</i>)	0	0	1	1	0	0	2	2	0	0	+2	+2	0	0	3	3
19	Great White Pelican (<i>Pelecanus onocrotalus</i>)	0	0	5	5	0	0	5	5	0	0	0	0	0	0	5	5
20	Black-Crowned Night Heron (<i>Nycticorax nycticorax</i>)	0	0	20	20	0	0	20	20	0	0	0	0	0	0	20	20
21	Eurasian Spoonbill (<i>Platalea leucorodia</i>)	1	1	0	2	1	1	0	2	0	+1	0	0	1	2	0	3
22	Oriental White Ibis (<i>Threskiornis melanocephalus</i>)	2	2	0	4	2	2	0	4	0	0	0	0	2	2	0	4
23	Painted Stork (<i>Mycteria leucocephala</i>)	2	2	4	8	2	2	4	8	0	0	0	0	2	2	4	8
24	Common Crane (<i>Grus grus</i>)	0	0	2	2	0	0	2	2	0	0	0	0	0	0	2	2
25	Demoiselle Crane (<i>Grus virgo</i>)	0	0	0	0	0	0	3	3	0	0	+3	+3	0	0	3	3
26	Sarus Crane (<i>Grus antigone</i>)	1	1	0	2	1	0	1	2	0	0	0	0	1	1	0	2

Sr. No.	Species	Existing Stock as on 1 st October 2016				Animals as per Sanctioned Collection Plan by CZA vide letter No. F. No. 19-33/92-CZA (72) (Vol. V) (M)/2754 dated on 7th May 2013.				Animals to be acquired (+) or removed (-)				Total animals after acquisition and removal			
		M	F	U.S.	T	M	F	U.S.	T	M	F	U.S.	T	M	F	U.S.	T
27	Greater Flamingo (<i>Phoenicopterus ruber</i>)	0	0	0	0	0	0	2	2	0	0	+3	+3	0	0	3	3
28	Northern Pintail (<i>Anas acuta</i>)	1	1	0	2	1	1	0	2	0	+1	0	+1	1	2	0	3
29	Bar headed Goose (<i>Anser indicus</i>)	0	0	3	3	0	0	3	3	0	0	0	0	0	0	3	3
30	Gray-lag Goose (<i>Anser anser</i>)	0	0	6	6	0	0	2	2	0	0	-4	-4	0	0	2	2
31	Comb Duck (<i>Sarkidiornis melanotos</i>)	3	2	18	23	3	2	15	20	0	-3	-3	0	3	2	15	20
32	Lesser Whistling Teal (<i>Dendrocygna javanica</i>)	1	1	0	2	1	1	0	2	0	+1	0	0	1	2	0	3
33	Tawny Eagle (<i>Aquila rapax</i>)	0	0	0	0	0	0	3	3	0	0	+3	+3	0	0	3	3
34	Steppe Eagle (<i>Aquila nipalensis</i>)	0	0	2	2	1	1	0	2	0	0	0	0	0	0	2	2
35	Brahminy Kite (<i>Haliastur indus</i>)	0	0	1	1	0	0	2	2	0	0	+2	+2	0	0	3	3
36	Owl Indian Greater Horned /Eurasian Eagle Owl (<i>Bubo bubo</i>)	0	0	0	0	1	1	0	2	+1	+1	0	+2	1	1	0	2
37	Barn Owl (<i>Tyto alba</i>)	1	0	0	1	1	1	0	2	0	+2	0	+2	1	2	0	3
38	Indian Peafowl (White) (<i>Pavo cristatus</i>)	3	0	0	3	3	1	0	4	0	+1	0	+1	3	1	0	4
39	Silver Pheasant (<i>Lophura nycthemera</i>)	0	0	0	0	3	3	0	6	+3	+3	0	+6	3	3	0	6

Sr. No.	Species	Existing Stock as on 1 st October 2016				Animals as per Sanctioned Collection Plan by CZA vide letter No. F. No. 19-33/92-CZA (72) (Vol. V) (M)/2754 dated on 7th May 2013.				Animals to be acquired (+) or removed (-)				Total animals after acquisition and removal			
		M	F	U.S.	T	M	F	U.S.	T	M	F	U.S.	T	M	F	U.S.	T
40	Alexandrine Parakeet (<i>Psittaculae upatria</i>)	1	3	0	4	1	3	0	4	0	0	0	0	1	3	0	4
41	Marsh Crocodile (<i>Crocodylus palustris</i>)	1	2	33	36	1	2	43	46	0	0	0	0	1	2	33	36
42	Indian Cobra (<i>Naja naja</i>)	2	0	1	3	0	0	2	2	0	+1	0	+1	2	0	1	3
43	Indian-Rock Python (<i>Python molurus</i>)	2	0	11	13	2	0	1	3	0	0	0	0	2	0	11	13
44	Rat Snake (<i>Ptyas mucosus</i>)	0	0	3	3	0	0	3	3	0	0	0	0	0	0	3	3
45	Russell's viper (<i>Viper russelii</i>)	0	0	2	2	0	0	1	1	0	0	+1	+1	0	0	3	3
46	Common Indian Krait (<i>Bungarus caeruleus</i>)	0	0	2	2	0	0	2	2	0	0	+1	+1	0	0	3	3
47	Common Sand Boa (<i>Eryx conicus</i>)	0	0	2	2	0	0	2	2	0	0	+1	+1	0	0	3	3
48	Red Sand Boa (<i>Eryx johnii</i>)	0	0	2	2	0	0	2	2	0	0	+1	+1	0	0	3	3
49	Indian Star Tortoise (<i>Geochelone elegans</i>)	3	4	23	30	3	4	0	7	0	0	-23	-23	3	4	0	7
50	Ganges Soft-shell Turtle (<i>Aspiderates gangeticus</i>)	1	0	0	1	1	1	0	2	0	+2	0	+2	1	2	0	3
51	Fresh Water/ Indian Soft-shelled Turtle (<i>Lissemys punctata</i>)	0	0	0	0	1	1	0	2	+1	+2	0	+3	1	2	0	3

Table-4.2 Existing Collection and proposed collection of the INP Zoo East

Sr. No.	Animal Species	Existing stock as on 01-10-2016				Collection Plan Approved by CZA*				Revised collection plan			
		M	F	U	T	M	F	U	T	M	F	U	T
1	Mammals												
1.1	Spotted Deer (<i>Axis axis</i>)	0	0	0	0	12	15	0	27	10	17	0	27
1.2	Blackbuck (<i>Antelope cervicapra</i>)	0	0	0	0	15	20	0	35	15	20	0	35
1.3	Chinkara (<i>Gazella bennettii</i>)	0	0	0	0	3	3	0	6	3	3	0	6
1.4	Sambar (<i>Cervus unicolor</i>)	0	0	0	0	0	0	0	0	2	4	0	6
	Total	0	0	0	0	30	38	0	68	32	42	0	74

* CZA, New Delhi, Letter no- 23-2/2007-CZA (VOLIII) (M) Dt-30-03-2010.

The Collection Plan has three major carnivore Felids viz. Asiatic Lions, Tiger and Leopard. Asiatic Lions and Leopards are flourishing in Gujarat. Tiger was found in a low density population upto mid 1980s. They collectively represent the top trophic level of the wilderness of Gujarat and, therefore, they are important species of Collection Plan. Yet another species listed at Schedule-I of the Indian Wildlife (Protection) Act, 1972 and found only in Gujarat is Indian Wild Ass and therefore, as a representative endemic species of Gujarat this has been included in the Collection Plan. Indian Wolf (Grey Wolf), Indian Fox and jackals are representatives of Canids of Gujarat. The Striped Hyena is the main scavenger of wilderness areas of Gujarat. Sloth Bears are occupying wilderness areas of North Gujarat and the forests all along the Eastern boundary of Gujarat. The INP Zoo had its beginning as a **Deer Park** and currently also wild ungulates are the main collection of the INP Zoo. Therefore, the wild ungulates will continue to be important part of INP Zoo animal collection for the purposes of (a) display in enclosures as well as safari enclosure and (b) captive conservation breeding.

Gujarat has about 550 species of avifauna and it is one of the leading states having rich avifaunal diversity. People of Gujarat are also keenly interested in avifauna and their

associate biota. The INP Zoo, being an autonomous Government Zoo receives injured and rescued endangered birds. Therefore, 23 species representing avifauna of Gujarat will be part of the Collection Plan. Gujarat has successfully participated in Marsh Crocodile Recovery Programme and it has wide distribution of Marsh Crocodiles. Crocodile is one of the longest surviving species in Geological Time Scale and it has a high conservation education value. Visitors, both rural and urban, are always keenly interested in very attractive Star Tortoise found in the grasslands of Gujarat as well as snakes and pythons of Gujarat. Therefore, they are also part of the INP Zoo Collection Plan. Overall, taxonomic group wise approved INP Zoo Collection Plan (2013) is a good representative of wild fauna as per the following abstract details in Table-4.3.

Table-4.3 Abstract of the wild fauna in INP Zoo

Animal Taxa	No. of Species	No. of Animals
Mammals	17	267
Birds	23	102
Reptiles	11	61
Total	51	430

The approved Collection Plan does not demand huge expansion of this Medium Category Zoo. The Collection Plan also takes care of objectives of captive conservation breeding mainly of wild ungulates to support efforts of the Gujarat Forest Department for reintroducing or enriching prey-base in Protected Areas (PAs).

4.5.2 The Layout Plan

The revision of the Layout Plan and its implementation is the major thrust of this Master Plan. As described earlier, the INP Zoo has evolved in phased manner over last three decades and many of its enclosures are of old designs and facilities. They need drastic changes to meet the present day norms and standards. Keeping this central objective in focus, the revised layout plan is prepared.

As the INP Zoo is spread over two different sections on both banks of River Sabarmati, the layout plan, in which circular route of visitor's walkway is shown by Thick Black Line, is prepared and presented in three INP Zoo Layout maps / plans One each for (a) overall layout plan showing INP Zoo as part of larger Indroda Nature Park- **Map-VII**, (b) layout

plan for INP Zoo (West)- **Map-VIII** and (c) Layout Plan for INP Zoo (East)- **Map-IX (A)** and **Map-IX (B)**.

The INP Zoo West area (58.0 ha.) is without much undulation, however, a few streams flowing with water only during the rainy season criss-cross the area. There is a major outlet of rain water of Gandhinagar city in the form of a Nala, passing from the Zoo. Except during the rainy season, this natural drain remains almost dry. INP Zoo East area (98.0 ha.) consists of flat land with few small natural ponds. This is also a wilderness area of around bearing good tree growth. Topography of this part is very much suitable for the establishment of Drive Through Safari Parks for herbivores. The area of Herbivore / Ungulate Safari Park is about 26.50 Ha. with abundance of natural flora. The Herbivore / Ungulate Safari Park map is enclosed herewith clearly indicating visitors' movement path. Entire eastern part is also surrounded by the peripheral wall cum chain link fence. Topography of this part is less undulating and without steep slopes. Land is well drained.

At present, the existing enclosures are scattered, spaced from each other and they lack essential infrastructure such as service road, animal house and shades. In the past, eminent forest officer and zoo management expert was engaged by the GEER Foundation and he had, after his visit to the Indroda Nature Park suggested the Layout Plan. Keeping his suggestions, present ground conditions and approved Collection Plan (2013) in focus, a New Layout Plan is prepared as per the CZA Guidelines. The revised layout plan was discussed in a meeting chaired by CWLW & PCCF (WL), Gujarat on 5th March, 2014 at GEER Foundation. The revised Layout Plan is approved by the CWLW & PCCF (WL), Gujarat. The revised plan envisages (a) modification & upgradation of existing enclosures and (b) establishing new enclosures. For the new enclosures, rectangular shape spaces are allotted and proposed as a layout map. This map indicates only the site location of enclosures. Detailed designs of enclosures will be made to fulfill biological requirements of animals, terrain availability and other management factors. 10 meter wide space is planned between each pair of adjacent enclosures as a buffer space. At present, there are 28 Enclosures and as per the revised Master Plan and Layout Plan, there will be 36 Enclosures. The details of New Enclosures against the details of Old Enclosures with remarks for revision / modifications are as under (**Table-4.4**).

Table-4.4 List of Enclosures as per revised Layout Plan

Sr. No.	New Enclosure No.	Animals/Birds/section	Old Enclosure No.	Remarks
1	N-1	Snake house	O-24	To be modified
2	N-2	Marsh crocodile	O-26	Major repairs
3	N-3	Ghariyal	O-27	Major repairs
4	N-4	Tortoise	O-22	Major repairs
5	N-5	Birds	-	Newly proposed
6	N-6	Birds	-	Newly proposed
7	N-7	Birds	-	Newly proposed
8	N-8	Walk-in-aviary	O-20	Major repairs
9	N-9	Spotted Deer	Old enclosure no. O-1 to O-12	As per old layout plan enclosure no O-1 to O-12 is to be modified and redesigned as new encl. no. N-9 to N-18 <u>Reducing 02 Enclosures from O-1 to O-12</u>
10	N-10	Spotted Deer		
11	N-11	Black Buck		
12	N-12	Chinkara		
13	N-13	Chinkara		
14	N-14	Chausingha		
15	N-15	White Black Buck		
16	N-16	Black Buck		
17	N-17	Spotted Deer		
18	N-18	Barking Deer		
19	N-19	Sambar	-	Newly proposed
20	N-20	Sambar	O-13	Minor Repair
21	N-21	Sambar	O-14	Minor Repair
22	N-22	Wild Ass	-	Newly proposed
23	N-23	Lion	-	Newly proposed
24	N-24	Tiger	-	Newly proposed

Sr. No.	New Enclosure No.	Animals/Birds/section	Old Enclosure No.	Remarks
25	N-25	Leopard	-	Newly proposed
26	N-26	Hyena	-	Newly proposed
27	N-27	Wolf	-	Newly proposed
28	N-28	Jackal	-	Newly proposed
29	N-29	Fox	-	Newly proposed
30	N-30	Small aviary	O-28	To be modified
31	N-31	Marsh Crocodile	O-15	No major change
32	N-32	Marsh Crocodile	O-16	No major change
33	N-33	Marsh Crocodile	O-17	No major change
34	N-34	Porcupine	O-19	No major change
35	N-35	Star tortoise	O-18	No major change
36	N-36	Sloth Bear	-	Newly Proposed
		Present Indian Rock Python	O-21	To be removed
		Present Jackal	O-23	To be converted and merged with snake house as Enclosure-N1
		Present Leopard	O-25	To be converted into non-display Rescue and Treatment Enclosure (RTE) and to be numbered as RTE1

- For the revised Layout Plan, existing and new enclosures are given *de-novo* Enclosure Numbers.
- The revised Layout Plan and development include :

Abstract activity information for revised Layout Plan is as under:

Particulars	No. of Enclosures
• New Enclosures	13
• <u>Existing Enclosures to be retained (28-5 = 23)</u>	
✓ Modifications and renovation	12
✓ Major repairs	04
✓ Minor repairs	02
✓ Do not require any change at present	05
Total	36

There is a good vegetative growth in the entire area of the Zoo and hence it attains a natural look. Some of the essential infrastructures like roads and drinking water have already been created. There are three bore wells fully functional and hence these facilities are required to be just maintained.

The Layout Plan for INP Zoo West and INP Zoo East are enclosed as **Map-VII** and **Map-VIII**. Drinking water facility with water purifying systems and water coolers are provided at appropriate locations. Similarly, the electricity has been provided at all the strategic points including enclosures in the Zoo. Separate sites have been laid out for the purpose of solid waste disposal. As it is evident from the enclosed layout plan the approach road to Zoo and paths, parking arrangements, barriers etc. necessary for the Zoo have been planned out well. Details of area allocation for enclosures and non-enclosure areas are as per the following Table-4.5.

Table-4.5

Details of area allocation for enclosures and non-enclosure areas

(Area in Ha.)

Sr. No.	Names of Zoo Sections	Enclosure Area & % to Total Area	Non-Enclosures Area for Visitors' Movement Path, Service Road, Resting Places, Forest Groves	Total Area
1	INP Zoo West	6.77 (11.67%)	51.23	58.00
2	INP Zoo East	26.50 (27.04%) <i>Safari Enclosure</i>	71.50	98.00
Total		33.27 (21.33)	122.73	156.00

4.5.3 Proposal to Address the Inadequacies and Shortcomings including Infrastructure Facilities

The current inadequacies and short-comings are as under:

1. The Indroda Nature Park and its Zoo Sections need complete fencing as well as internal fencing for separating different sections of the Park.
2. The enclosures were established during 1970s and 1980s and they have inadequacies as per the prevailing norms of the CZA Rules.
3. The Current Layout does not have separate visitors' walk-ways and service roads to enclosures.
4. The enclosures need redesigning and enrichment to make them more conducive for animals and more visitors friendly by providing animal houses, shades, obstruction less viewing by visitors etc.
5. The enclosure layout is not grouped systematically as per the taxonomic classification or habitat classification.
6. An old Store is available near the Ungulate Enclosure Section which is inadequate and needs expansion as well as modification.
7. The existing Post Mortem Room needs to be shifted outside display area as per the revised Layout Plan.
8. Shortage of adequately trained manpower / human resource.

This Master Plan aims at addressing to above inadequacies and short-comings as under:

1. The GEER Foundation has already provided budget for repairing of fencing as well as establishing new fencing. This Master Plan also provides for additional fencing and periodical repairs and maintenance of fencing.
2. The major thrust of the Master Plan is Modification, Major Repairs and Enrichment of Existing Enclosures. Additional 12 New Enclosures will be designed as per the requirement of the species to be housed and CZA Guidelines.
3. Revised Layout Plan adequately takes care of separate visitors' walk-ways and service roads to enclosures.
4. The revised Layout Plan takes care of grouping enclosures as per the taxonomic groups, as far as possible.

5. This Master Plan provides for expansion and modification of existing Store Room. The area of existing Store Room will be fenced with a wall and protective gate. Additional space within the campus of this store room will be used for expansion of store room and installing Maintenance Section.
6. As per this revised Master Plan and Layout Plan, location of Post Mortem Room and carcass and zoo waste disposal sites are shifted very far from display areas. Budget for Post Mortem Room is already provided, designs are approved and new Post Mortem Room will be provided during the Master Plan implementation.
7. Recently, adequate human resource for veterinary care is provided to the INP Zoo on contract basis and as per the CZA Rules. Efforts will be made during this Master Plan implementation that the key HR positions are filled up with motivated and trained officers as well as staff. The existing staff members are periodically trained to upgrade their skills.

Specially, proposed Herbivores Safari Park of 26.5 ha is under development. The purpose of Herbivores Safari Park is to provide opportunity for visitors to understand the Herbivores animals in their near natural habitat.

Following works for development of Herbivores Safari Park are completed:

- 26.5 ha area is enclosed with wall cum chain-link fencing, giving protection to the area.
- This enclosed area has two gates viz. Visitors' Gate and Service Gate.
- The area consists of well distributed two natural small ponds and two manmade small ponds. These waterholes are linked with pipeline for water supply.
- Trees like *Ficus benghalensis*, *Acacia nilotica*, *Prosopis cineraria* etc. would give natural shade to herbivores.

Following works are ongoing / proposed in Herbivores Safari Park:

- Broken security wall and chain-link fencing is continuously repaired
- One animal house of 40 x 60 ft is proposed for captive management
- This animal house will have :
 - Two rooms of 12 x 12 ft size
 - Shade area of 12 x 40 ft and

- Kraal of 36 x 40 ft
- Special water tank and feeding manger
- Four animal shades of 15 x 20 ft size are proposed near small ponds in the park. These shades will also have feeding platforms.
- Following four herbivore species would be released in this safari park
 - Spotted Deer (*Axis axis*)
 - Blackbuck (*Antilope cervicapra*)
 - Chinkara (*Gazella bennettii*)
 - Sambar (*Cervus unicolor*)

On completion of above proposed works, the proposed safari park will be opened for visitors under following conditions:

- Visitors will be allowed in appropriate four-wheel silent / less noisy and less polluting vehicles. (Petrol Vehicles / Bharat Stage IV Diesel Vehicles)
- Visitors will have guided tours in highly regulated manner inside the Herbivores Safari Park.

Visitors will be provided information about herbivores, their habitat, habits, their natural environment and ecosystem, etc.

4.5.4 Security and Safety

An officer of the rank of Assistant Director, INP under the control of Dy. Director (Research and Development) is overall in-charge of security and safety. The watch and ward personnel work directly under the control of Park Warden (Officer of the Rank of or equivalent to the Range Forest Officers of the Gujarat Forest Department), who in turn works under the directions and control of the Assistant Director and the Dy. Director (R&D) in hierarchical manner. In addition to two Park Warden level officers for INP management, there are three other posts viz. one equivalent to the post of Forester of the Gujarat Forest Department and two posts of Forest Guards. Two additional posts of Forest Guards is proposed. From the existing five posts for the INP (2 Park Wardens, 1 Forester and 2 Guards) as on 31-03-2014, 4 posts were vacant. Only 1 Forest Guard post is filled up. The GEER Foundation has requested the Gujarat Forest Department for filling up of the vacant posts and providing two additional Forest Guard level posts for the

management, maintenance, security and development of the INP. This organizational arrangement for security and safety will be continued.

For the security and safety of the INP, including INP Zoo assets as well as of the visitors, two pronged approach is adopted. The first relates to continuing shift wise watch and ward by watchmen for safety and security purposes. The second is CCTV based surveillance. A plan for CCTV based surveillance with about 20 CCTV Cameras and about 2 to 3 Portable Cameras is prepared and preliminary procurement procedure is initiated.

Strengthening of the fencing & fencing wall and its maintenance is provided for the INP including INP Zoo management for further strengthening of safety and security.

Mammals



Tiger - *Panthera tigris*



Leopard - *Panthera pardus*



Indian Jackal - *Canis aureus*

Ungulates



Spotted Deer - *Axis axis*



Chinkara (Indian Gazelle) - *Gazella bennettii*



Black Buck - *Antelope cervicapra*



Black Buck (white) - *Antelope cervicapra*



Sambhar (Male) - *Rusa unicolor*



Sambhar (Female) - *Rusa unicolor*

Aves



Sarus Crane - *Grus antigone*



Great White Pelican - *Pelecanus onocrotalus*



Indian Peafowl (white) - *Pavo cristatus*



Silver pheasant - *Lophura nycthemera*

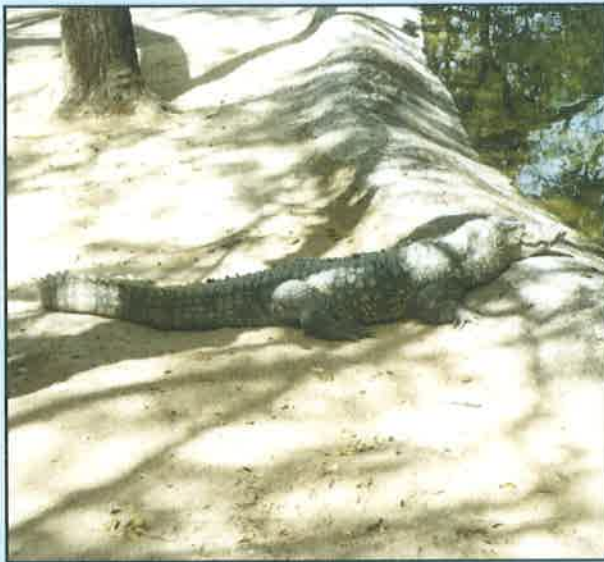


Bar-headed Goose - *Anser indicus*



Tawny Eagle - *Aquila rapax*

Reptiles



Marsh Crocodile - *Crocodylus palustris*



Star Tortoise - *Geochelone elegans*



Indian-Rock Python - *Python molurus*



Common Indian Krait - *Bungarus caeruleus*



Indian Cobra - *Naja naja*



Russell's viper - *Viper russelii*

CHAPTER-5

Animal Health Care

5.1 INSTITUTIONAL / ORGANIZATIONAL ARRANGEMENTS

The INP Zoo Veterinary Doctor with his team is responsible for animal health care, nutrition & diet, prophylactic treatment & vaccination, de-worming, treatment of diseases or injured animals, breeding and maintaining zoo hygiene and sanitation. He is provided with the assistance of one veterinary assistant and one field assistant. Besides direct assistants of the Veterinary Doctor, there are three posts including (a) Head Animal Keeper- 1, (b) Snake cum Wildlife Park Keeper- 1, and (c) Asstt. Snake cum Wildlife Park Keeper-1 who look after the INP Zoo animals as per the advice and guidance of the Veterinary Doctor and under the control of Park Warden. One additional post of Animal Park Keeper is proposed for the INP Zoo-East, particularly for the Herbivore Safari Park.

The Veterinary Doctor works under the directions and administrative control of the Asstt. Director and Dy. Director, R & D. This hierarchical administrative and organizational arrangement will be continued.

5.2 INFRASTRUCTURE AND EQUIPMENTS

Recently, a zoo veterinary facility with treatment cages, treatment room, store room for medicine and medical equipments and an office of the Veterinary Zoo Officer is established.

5.2.1 Treatment facilities including Trauma treatment under various situation and response to epidemics

Animals living in groups/herds usually fight among themselves, which cause injuries, over consciously grooming inflict self injuries, various diseases, illness conditions etc. requires emergency treatment to the affected animal. Zoo Hospital has a treatment room with advance veterinary facilities to treat the animal. If the case needs precise expertise then treatment is initiated after consultation of expert wildlife veterinarian of veterinary college, Anand, Gujarat. If the case need some more attention than case the case may be referred to the college of veterinary science and animal husbandry for further treatment.

The Veterinary Doctor based on animal collection, prevalent animal diseases, common trauma injuries etc. maintains and inventory and store of required medicine, prophylactic

drugs, vaccines, deworming drugs, dressing materials, snake anti-venom, feed supplement etc.

INP Zoo has expert and experienced human resource to restrain wild animals for treatment, including Squeeze Cage, Dart-Gun, Dart-Pistol and Dart-Blowpipe. The veterinary section of the INP Zoo is equipped with Veterinary Doctor's Kit, heating pads, head lamps and torches, surgical instruments, instruments sterilizers, flame stove, spray pumps of different types, regular store of treatment and surgical consumables, etc. Two First-Aid Kits adequately stored with required emergency medicines are deployed, one at Park Warden's Office and second at Store Room near herbivore section. The INP Zoo is in the process of procuring surgical cum treatment table and one compound light microscope.

5.2.2 Post Mortem examination and garbage disposal facilities

The old Post Mortem Room will be converted into a Store Room. Location for a new Post Mortem Room and carcass and garbage disposal facilities are located at a safe distance from animal housing and display areas. The location is indicated in the revised Layout Plan. Plans and estimates for new Post Mortem Room are technically and administratively approved. Budget allocation has been made and procurement of the implementing agency is initiated.

5.3 STOCK KEEPING AND BREEDING

The Veterinary Doctor of the INP Zoo is also responsible for providing identification marks to the zoo animals, maintain Zoo Stock Registers / Stud Books, carry out post mortem examination and guide and direct safe disposal of carcasses and zoo garbage. One of the researchers (Research Associate) of the GEER Foundation for the zoological research is given responsibility of "Zoo Biologist". He works in close association of the Assistant Director and the Veterinary Doctor of the INP. He contributes to the works of enclosure environment enrichment, pursuing Collection Plan and breeding plans.

5.4 WILD ANIMAL RESCUE AND MAN-ANIMAL CONFLICT OPERATIONS

In emergency cases, the INP Zoo is called upon by the Wildlife Wing of the Gujarat Forest Department for rescue and treatment of wild animals as well as attending to man-wild animal conflicting situations outside the zoo. In last 10 months, the team of INP Zoo headed by the Veterinary Doctor and assisted by Snack cum wildlife Park Keeper have successfully carried out two leopard and one sloth bear related operations in North Gujarat. The Gujarat Forest Department is in the process of establishing Regional Rescue

Teams (RRT) all over Gujarat. However, till these teams are established and made operational, it is envisaged that in the larger public interest the INP Zoo will have to continue to assist Wildlife Wing of the Gujarat Forest Department.

5.5 NUTRITION AND DIET

Nutritional requirement varies from species to species. Therefore, depending on the species and its requirement, following nutrition and diet chart is prepared and followed for the INP Zoo (Table-5.1):

Table-5.1 Diet Chart of animals of the INP Zoo

Mammals:

(A) Carnivore animals

Sr. No	Animal	Feed	Quantity/animal/day (Kg)
1	Royal Bengal Tiger (<i>Panthera tigris tigris</i>)	Buffalo Beef	8
1	Asiatic Lion (<i>Panthera leo persica</i>)	-----do-----	8
2	Leopard (<i>Panthera pardus</i>)	-----do-----	3.0
3	Indian Grey Wolf (<i>Canis lupes pallipes</i>)	-----do-----	2.0
3	Jackal (<i>Canis aureus</i>)	Poultry meat	0.5
4	The Indian Fox (<i>Vulpes bengalensis</i>)	-----do-----	0.3
5	Striped Hyaena (<i>Hyaena hyaena</i>)	-----do-----	1.0

(B) Herbivore Animals

Sr. No.	Animal	Quantity of Feed/Animal/day (Kg)			
		Green Grass	Dry roughage	Chick pea	Concentrate mixture
1	Sambar (<i>Cervus unicolor</i>)	10	1	0.2	0.7
2	Spotted Deer (<i>Axis axis</i>)	5	0.8	0.2	0.3
3	Black Buck (<i>Antilope cervicapra</i>)	4	0.7	0.1	0.2
4	White Black Buck (<i>Antilope cervicapra</i>)	4	0.7	0.1	0.2
5	Chinkara (<i>Gazella gazella bennetti</i>)	3	0.5	0.1	0.2
6	Chousingha / Four-horned Antelope (<i>Tetracerus quadricornis</i>)	3	0.5	0.1	0.2
7	Barking Deer (<i>Muntiacus muntjak</i>)	4	0.7	0.1	0.2
		Feed/Animal/day (Kg)			
Rodentia		Chick pea		Fruits and Vegetables	
6	Indian porcupine (<i>Hystrix indica</i>)	0.5		1	

Aves:

Sr. No.	Bird	Quantity of Feed/Bird/day (Kg)			
		Grains/legume seeds	Vegetable / Fruit	Meat	Fish
1	Crane Common (<i>Grus grus</i>)	0.40			
2	Crane Sarus (<i>grus antigone</i>)	0.30			
3	Duck Pintail (<i>Anas acuta</i>)	0.15			
4	Goose Bar-Headed (<i>Anser indicus</i>)	0.15			
5	Parakeet Alexandrine (<i>Psittacula eupatria</i>)	0.01	0.15		
6	Teal Lesser Whistling (<i>Dendrecygn a bicolor</i>)	0.15			

Sr. No.	Bird	Quantity of Feed/Bird/day (Kg)			
		Grains/legume seeds	Vegetable / Fruit	Meat	Fish
7	Dove little Brown (<i>spilopeliasenegalensis</i>)	0.05			
8	Duck Comb (<i>Sarkidiornismelanotos</i>)	0.20			
9	Cocketil (<i>Nymphicuspalustris</i>)	0.03			
10	Peafowl White (<i>Pavo cristatus</i>)	0.20	0.20		
11	Silver pheasant(<i>Lophuranycthemera</i>)	0.10	0.20		
12	Heron Night (<i>Nycticoraxnycticorax</i>)				0.34
13	Ibis White (<i>Threskiornisacthiopica</i>)				0.34
14	Owl Indian Greater horned(<i>Bubo virginianus</i>)			0.25	
15	Pelican Rosy / White (<i>Pelecanusonocrotalus</i>)				1.00
16	Stork Painted (<i>Mycteria leucocephala</i>)				0.50
17	Steppe Eagle(<i>Aquila nipalensis</i>)			0.50	
18	Cormorant little (<i>phalacrocoraxniger</i>)				0.30
19	Kite Brahminy- (<i>Tadorna ferruginea</i>)			0.25	
20	Owl Barn (<i>Tato alba</i>)			0.25	
21	Spoonbill White(<i>Platalealeucorodia</i>)				0.30
23	Stork White (<i>Ciconia ciconia</i>)				0.50

Reptiles:

Sr. No.	Animal	Quantity of feed /Animal		
		Dressed Meat (kg/week)	Vegetables (kg/ Day)	Other feed grams/Week
1	Indian Cobra (<i>Naja naja</i>)			200
2	Marsh Crocodile (Mugger) (<i>Crocodylus palustris</i>)	0.700		

Sr. No.	Animal	Quantity of feed /Animal		
		Dressed Meat (kg/week)	Vegetables (kg/ Day)	Other feed grams/Week
3	Indian Rock Python (<i>Python molurus molurus</i>)			1000
4	Indian Rat Snake /Dhaman (<i>Pryasmucosus</i>)			200
5	Russel's Viper (<i>Vipera russellii</i>)			200
6	Common Indian Krait (<i>Bungarus caeruleus</i>)			100
7	Common Sand Boa (<i>Eryx johini</i>)			150
8	Red Sand Boa (<i>Eryx conicus</i>)			150
9	Indian Star Tortoise (<i>Geochelone elegans</i>)		0.150	
10	Ganges Soft-shell Turtle (<i>Aspiderates gangeticus</i>)	0.500		

In addition to above mentioned food essential macro & micro- Minerals viz. calcium, phosphorus manganese, sulphur, copper, zinc, sodium, molybdenum, iron, chloride, Vitamins viz. Vitamin-A, Calciferol, Thiamine, Riboflavin, Pyridoxine, Cyanocobalamin, Nicotinamide, Ascorbic acid, Biotin, Carbohydrate, Salt is offered to animals by mixing in to daily concentrate feed in herbivores and meat in carnivores. Hepato-protectant is given to herbivore animals in form of powder to enhance the working capacity of the liver.

5.6 HYGIENE, SANITATION, DISINFECTION AND WATER SANITATION

Hygiene Protocol is prepared for the INP Zoo and routine practice of following the sanitation and disinfection of all enclosures of zoo animals help to maintain hygienic condition. The following hygiene protocol (Table-5.2) of INP Zoo is adhered to and the same will be practiced:

Table-5.2 Hygiene Protocol of INP Zoo

Sr. No.	Activities	Period
1	Cleaning of animal cubicle/ night shelter with clean water	Daily
2	Cleaning of the enclosure i.e. Removal of the animal excreta	Daily
3	Disinfection of the floors of animal cubicle/ house with disinfectant	Daily
4	Disinfection of the enclosure/Loafing Ground by spraying safe disinfectant and during peak season of ecto-parasites such as ticks, mites, etc. crevices in civil construction should be burnt with the flame stove.	Every Monday
5	Proper disposal of both liquid and solid wastes generated in the zoo, far away from the animal enclosure.	Daily
6	Dry organic garbage burning, far away from animal enclosure	Once in a week
7	All leftover food items, animal excreta and garbage removal from every enclosure and safe disposal in to garbage pit	Daily
8	Drainage line maintenance- removal of blocks and obstacles	Daily-quarterly disinfection with-formalin
9	Cleaning of roads, footpaths/visitor's walkway	Daily
10	Disinfection of Cleaning of roads, footpaths/visitor's walkway	Twice a month
11	Cleaning of pond and disinfection and water refilling	Once in two months
12	Disposal of dead animal carcass by burial method with utmost care to prevent the spread of disease to other animal	When need arises
12	Cleaning of water troughs of enclosure	Every alternate day

INP Zoo has total 3 bore-wells therefore, adequate clean, potable, drinking water is supplied to all enclosures round the year. Cleaning of water tanks, water troughs of enclosure is followed regularly. Random sampling of the water is carrying out for laboratory analysis, as per the recommendation water sanitation is done by chemical method. For three different seasons this protocol is to be modified as per the requirement and observation of the veterinary doctor.

5.7 VACCINATION AND DEWORMING

Vaccination:

Sr. No.	Animal	Vaccine type	Period
1	Felines	Fel-O-Vac PCT	Cubs of two month of age and booster dose - once in a year
2	Canines	(a) Anti Rabies (b) Parvo Virus (c) Leptospira (d) Canine distemper	Pups at three months of age and booster dose – once in a year
3	Aves	New Castle Disease	If need arises in case of epidemics.

Deworming:

Sr. No.	Animal	Period
1	Carnivores	Quarterly with alternate deworming formulations
2	Herbivores	Quarterly with alternate deworming formulations
3	Aves	Quarterly with alternate deworming formulations
4	Random sampling of feces of animals and droppings of birds for detection of parasites	Annually

5.8 PROPHYLACTIC MEASURES

For prevention of disease spread and morbidity amongst zoo animals during various seasons and extreme climatic conditions prophylactic measures are foremost necessity. Predetermined prophylactic measures including spraying of quick lime in every enclosure and visitor's walkway periodically and will be done regularly. Foot wash at the entry points will be maintained for every enclosure.

Use of protective gears i.e. face-mask, caps, gum-boots, hand –gloves, by animal keepers and handlers to prevent zoonotic disease transmission. Routine health check up of every animal keeper, handlers is done and tetanus toxoid is injected as a prophylactic measure. Such measures are to be continued on regular basis as per the pre-decided periodicity. Medicinal spray bath is to be given to every carnivore animal at 15 days interval to prevent Ecto-parasite infestation. Weed and unwanted vegetative growth removal procedure carried out twice during monsoon season. During extreme climatic conditions like peak summer, birds and animals are protected from direct sunlight by application of Khus grass curtain. Animals are protected by spraying of water in the enclosure by fogger and sprinkler. Providing water pools to Sambar, Tiger and Leopard for wallowing. Oral rehydrating solution (ORS) to drinking Water is added to enhance the rehydration in summer. During peak winter season, provision of heat by lamps in the earthen pot to reptiles, provision of straw as bedding material to carnivores, application of green agro net curtains to reduce the wind impact during night hours are provided.

5.9 HEALTH MONITORING

Each animal and bird are daily checked by Animal Keepers, Head Animal Keeper (Post Vacant)/ Snake cum Wildlife Park Keeper, Veterinary Assistant for health and ethological aspects followed by Veterinary Doctor. If the symptoms of sickness or abnormal behavior of animal is noticed; the animal is isolated from the herd. Veterinary Doctor diagnoses the cause and the animal is treated immediately. For this purpose, a health card/ case register is maintained. For unmarked animals that lives in herd/group; daily herd wise / group wise health report is prepared. Quality and quantity of feed given to animals is scrutinized daily by the snake cum wildlife park keeper, animal keeper cum veterinary assistant and Veterinary Doctor. Quantity of leftover feed is also determined for palatability of the feed.

In cases that need advance / further expert inputs, the Veterinary Doctor consults experts from Animal Husbandry Department (ADIO) and Veterinary College, Anand, Gujarat. The cases that need more attention are referred to the College of Veterinary Science and Animal Husbandry, Anand for further treatment.

5.10 NETWORKING

The INP Zoo has established a good institutional network and collaboration with CZA, other Zoos, Department of Animal Husbandry, government of Gujarat, particularly Animal Disease Investigation Offices (ADIO), Veterinary Colleges, Forests & Environment Department, Wildlife experts etc. Such network is extremely useful for communication of advance alert notices regarding epidemics, diseases surveillance and monitoring, advice for preventive measures, disease investigation and laboratory tests etc. such network will be further strengthened and maintained under this Master Plan.

CHAPTER-6

Disaster and Contingency Plan

6.1 PROBABILITY OF NATURAL CALAMITIES (FLOOD, CYCLONE ETC.) AND MANMADE DISASTER (FIRE, LAW & ORDER SITUATION)

6.1.1 Natural Calamities

Natural calamities include mainly fire, cyclone and earthquake, flood etc. In Gandhinagar disasters like forest fire, cyclone and earthquake are of very low probability calamities as INP Zoo is not located in cyclone and earthquake zone. High intensity earthquake of the year of 2001 (on 26th January 2001) had occurred with epicenter near Bhachau in Kachchh District. This earthquake had adverse impact to the Ahmedabad city, however, impact to the Gandhinagar city was very low. Civil structures of the INP Zoo are earthquake proof and all new buildings also will be designed as per the guidelines of the Government. Since its inception, this zoo has never suffered from any cyclonic natural calamity.

The INP area is prone to flood disaster due to its location on the banks of Sabarmati River and its adjoining ravines. The INP Zoo had experienced heavy floods during 1997 and minor floods during 2003, 2005 and 2006. Only during 1997 flood, some water inundation had taken place in low level enclosures. During 2003, 2005 and 2006 floods, there was no inundation of any animal enclosures. Recently, a weir across the River Sabarmati at a location upstream of INP areas is under construction. This weir will also serve the purpose of flood control. During the 2009-10, an artificial reservoir is construction intercepting the flood waters of one of the main natural drainages of Gandhinagar City (Sectors-1, 8, 9 and 10) is constructed upstream of INP Zoo location. This reservoir is also likely to serve as flood control. As per the revised Layout Plan, all the modified and new enclosures are proposed to be constructed on highlands within the INP Zoo area. Thus, adequate flood control and flood damage prevention measures are been taken and the same will be continued during this Master Plan. The revised plan has taken care of precautions for prevention of flood damage and the enclosures are proposed on elevated parts of the zoo.

Though the occurrence of natural calamities such as earthquake, cyclone and flood are of low probability, the INP Zoo personnel team will be trained to protect and look after animals, if such natural calamities occur.

Gandhinagar is located at latitude of 23° 13' 0" N and longitude of 72° 41' 0" E. This location receives high solar radiation. During summer, an average maximum temperature

of the day reaches up to 42°C and for a limited period the maximum temperature may reach up to 48°C. During the month of April and May, the maximum daily temperature remains above 40°C. Such high ambient temperature between 1200 hrs to 1630 hrs cause discomfort to animals and may cause heat stroke for some. Sylvan environment with good vegetative cover moderates adverse effect of such high temperature inside the INP and Zoo. Trees in enclosure provide good amount of shade against direct sun rays. The enclosures are also provided with the artificial shades. The main aviary is provided with a fogger to create moderate temperature ambience during summer. Animal houses of important carnivores are provided with air coolers. During the mid day time in summer, animal houses are kept open for the retreat of animals from their display enclosures. For birds, the topmost part of the cage is covered with Khus grass curtains and water is sprinkled three times a day. A care will be taken to design new enclosures for providing adequate shade, foggers if required and good aeration to maintain comfortable ambient temperature for animals.

6.1.2 Manmade disaster

Fire: Fire in the Zoo has never occurred in the past. It is to be noted that well planned network of water supply system is available in most of the enclosures and other area also. Adequate water is available during 24 hrs a day throughout the year. Fire station of Gandhinagar city is about 5 kms from this Zoo. This fire station has ultra-modern equipments and expert man-power at their disposal. These facilities can be utilized if need arise.

Law and order: Law and order break down usually will not affect the working of the Zoo because actual Zoo site is at a distance from main road. In addition to this, Park Warden has powers to regulate entries.

Escape of animals from enclosures: So far, no major incidence of escape of animal from the enclosure has occurred in INP Zoo since its inception. Only once, a Marsh Crocodile had escaped from its own enclosure and remain within the zoo premises near its own enclosure. The animal was recaptured immediately and necessary steps for preventing such incidence were taken. Proper strengthening and safety of enclosures is a high priority operational task of this zoo and care is exercised to avoid incidence of escaping of animals from its enclosure. This will be continued and this aspect of zoo management will remain a top priority zoo management concern. Specification suggested by Central Zoo Authority for designing enclosures, providing with adequate stand-of-barriers, training of Animal keepers, etc. are being practiced and will be continued during this Master Plan. In case of contingency, Park Warden, who is the responsible officer to tackle such situation, will mobilize the zoo personnel team including a Veterinary Doctor and others with

animal capturing equipments such as trap cages, nylon nets, chemical restraining equipments (dart gun, tranquilizing drugs etc.) for effective and immediate capture of the animal.

6.2 CONTROL OF MONKEY, DOG AND FERAL ANIMAL MENACE, IF ANY

6.2.1 Monkeys

Gandhinagar City and adjoining areas have a natural population of Common Langur (*Presbytis entellus*). INP and tree vegetation on the banks of River Sabarmati attracts langurs and langurs have made such areas as their habitat. Common Langur is a protected wild animal species under the Indian Wildlife (Protection) Act, 1972, list Schedule-II Part-I. Therefore, the INP management has to support conservation of this species. Based on the experience, it is observed that Common Langurs are not menace to any consequence for the INP Zoo. The only issue of langur management is protecting newly planted saplings against damage caused by their foraging. The protection of newly planted saplings is achieved by providing effective tree guards.

6.2.2 Feral Dogs

Two villages located on the boundary of INP and both of them have a kind of a privilege for the right of way. These villages are having large population of feral dogs. This causes entry of feral dogs into the INP. The INP Zoo has a plan to overcome this menace of feral dogs by providing effective fencing on the boundaries. The fencing construction and repair works have been initiated and adequate budget provision for further strengthening of boundary fencing has been made. During this Master Plan also, adequate steps will be taken to strengthen the boundary fencing and maintain it properly. Visitors will be educated for not feeding feral dogs and any other free ranging mammals and birds.

6.2.3 Feral livestock

INP including INP Zoo is well-protected against entry of feral livestock. This will be continued effectively during this Master Plan also.

6.3 ARRANGEMENT OF FOOD IN CASES OF STRIKE / NON-SUPPLY BY CONTRACTOR

This Zoo has never experienced break in the supply of food materials for zoo animals due to any kind of strike. Different kinds of food materials for zoo animals such as buffalo beef, fish, mutton, poultry meat, green fodder, dry fodder, supplement feed etc. are supplied from nearby cities like Ahmedabad and Gandhinagar. A well-drafted periodical

contract agreements for food material supply are made through a meticulous selection and procurement procedures with conditions of regular and timely supply. Besides, Zoo management has adequate authority to purchase required food material from any other supplier in case of emergency or contingency. The zoo has adequate storage facility and under this Master Plan, further capacity improvement for storing food material is provided.

6.4 FIRST-AID FACILITY

Care is being exercised for preventing human injury of any form for the staff & workers of the INP Zoo and also for the visitors. Adequate stand of barriers are provided to the enclosures and visitors are forewarned for not going too close to any enclosure or free ranging wild animals. Therefore, the possibility of human injuries is minimized. Regular vigilance by the Zoo staff also helps in avoiding this type of incidences. So far, incidence of human injury caused by zoo animals has not happened in this Zoo.

Three First Aid kits are deployed in the INP. The kits are well-provided with emergency medicines and provisions for treating wounds. Zoo staff practice and provided first aid services to the injured person. Sufficient stock of anti-snake venom medicine is also maintained. INP Zoo, which is part of the Gujarat Ecological Education and Research (GEER), Foundation, has availability of several vehicles to take the injured person to hospital. Moreover, Emergency Ambulance Service is also available in Gandhinagar City. The INP zoo is located only about 5 km from the Civil Hospital. These services are available to the INP to effectively respond to any emergency.

6.5 DEALING WITH RESCUED WILD ANIMALS

Gandhinagar city is far from wildlife habitats and State Forest Department has a plan to develop Wild Animal Rescue Centers in vicinity of the wildlife areas, occasions of arrival of rescued wild animals to the INP Zoo is less. Therefore, the INP Zoo has no plan for having a section of Wild Animal Rescue Center. However, being a semi-government establishment, the INP Zoo is called upon by the Gujarat Forest Department for assisting in wild animal rescue operations in some of the emergency cases. Besides, Langurs, Reptiles and Avifauna are rescued from nearby human habitations. These rescued animals are sometimes required to be looked after by the INP Zoo. Therefore, only some necessary arrangement for keeping rescued animals is established in the INP Zoo. This activity is planned with an adequate care for quarantine and upkeep facilities to be provided at a separate location in the off display area.

CHAPTER-7

Capacity Building and Regional Cooperation

7.1 CAPACITY BUILDING

The INP Zoo needs human resource development for further strengthening the zoo development and management. This is to be done by two pronged approach of (a) filling the vacant existing posts and additional proposed posts by motivated and trained personnel and (b) by facilitating various kinds of training of the staff. The zoo staff, both senior as well as operational level / frontline staff need appropriate training for efficient discharge of their respective duties.

7.1.1 Zoo Management Training

The zoo management is a specialized subject and the zoo management knowledge and skills include (a) knowledge of wildlife conservation policy, (b) zoo policy as a part of wildlife conservation policy, (c) philosophy and concepts of zoo and zoo management, (d) various legal provisions such as Indian Wildlife (Protection) Act, 1972, the Recognition of Zoo Rule, 1992 and 2009 and the Biological Diversity Act, 2002, (e) zoo designing and planning, (f) designing and enrichment of animal enclosures, (g) zoo veterinary science, (h) guidelines and protocols of captive conservation breeding etc. The officers of the rank of Dy. Director (R&D), Assistant Director, Park Warden and Veterinary Doctor should be facilitated to have benefits of training for such knowledge and skills. Besides zoo management specific trainings, they also need general management trainings. During this Master Plan period efforts will be made to train officers who are willing to continue to work in the field of zoo management. During the year 2010-11, the Park Warden was trained for 8 Days training at Sakkarbaug Zoo, Junagadh. During the Year 2011-12, Assistant Director was deputed for One Week Training organized by the Central Zoo Authority at Nehru Zoological Park, Hyderabad. The Veterinary Doctor, INP Zoo was deputed for One Week Workshop / Training in January-2011 at Arignar Anna Zoological Park (AAZP), Vandalur, Chennai jointly organized by the CZA, AAZP and Madras Veterinary College, Chennai. Yet another Veterinary Doctor was sent for a customized training at Sakkarbaug Zoo, Junagadh and Gir National Park and Sanctuary. The current incumbent Veterinary Doctor was also sent for a customized training at Sakkarbaug Zoo, Junagadh and Gir National Park and Sanctuary. However, due to high turnover / attrition rate of human resource these efforts, though, were useful to the society at large, but it was not beneficial to the INP Zoo. None-the-less, the INP Zoo will continue to train officers for zoo management and zoo veterinary science.

Sr. No.	Designation	Training Programme	Training Venue	Financial Year
9	Park Warden	Training-Cum-Workshop on Policy & Legal Issues. (5/12/2011 to 9/12/2011)	Central academy for state forest service	2011-12
10	Snake cum wildlife park keeper	Different aspect of Animal welfare (26/3/2012 to 30/3/2012)	NIAW, Ballabhgarh, Haryana	2011-12
11	Vet. Doctor	Wild life Treatment and Management training visit (18/12/2012 to 21/12/2012)	Sakkarbaug Zoo & Sasan-Gir, Junagadh	2012-13
12	Vet. Doctor	Wild life Treatment and Management training visit (25/11/2013 to 30/11/2013)	Sakkarbaug Zoo & Sasan-Gir, Junagadh and Rajkot Zoo	2013-14
13	Animal Keeper	Animal Keepers Training Programme (03/12/2010 to 17/12/2010)	Kakariya Zoo, Ahmedabad	2010-11
14				
15	Animal Keeper	Management of Carnivores in Captivity (16/01/2012 to 30/01/2012)	Sakkarbaug Zoo, Junagadh	2011-12
16				
17	Animal Keeper	Animal Keepers Training Programme (03/12/2012 to 17/12/2012)	Kakariya Zoo, Ahmedabad	2012-13
18				
19	Animal Keepers	Staff training programme (11/12/2012 to 14/12/2012)	INP zoo, Gandhinagar.	2012-13
20	Animal Keeper	Animal Keepers Training Programme (17/01/2014 to 31/01/2014)	Kakariya Zoo, Ahmedabad	2013-14
21				

Six different types of proposed training programmes for zoo personnel. (Table-7.2 gives details of proposed training / capacity building plan).

Table – 7.2
Various Trainings to be held for INP Zoo staff in future for capacity building

Sr. No.	Training Programme	Inclusion of Staff members	Training Venue	Year
1	First –Aid Training	All members of Zoo Staff	INP Zoo	2014-15
2	Mock drills and Emergency Service Training	All members of Zoo Staff	INP Zoo	2014-15
3	CZA Sponsored Animal Keepers Training Programme	Animal Keepers	As Decided by CZA	Every Year
4	Wildlife Treatment & Management Training (Sponsored by CZA, Veterinary College, Department of Forest and Environment or other Zoos)	Veterinary Doctor, Veterinary Assistant	As arranged by different govt. Institutes.	-
5	Zoo visitor management training/Workshops	Dy. Director(R&D) Asst. Director Park Warden, Vet. Doctor	As arranged by the CZA and other organizations.	
6	Zoo staff training programme	All members of Zoo staff	INP Zoo	Once in a year

7.1.5 First-Aid Training

Incidences of medical emergencies, though very few, were reported for zoo staff and zoo visitors. For effective zoo management, such emergencies are required to be responded in efficient manner through first-aid treatment. In recent past, no first-aid training was imparted. For the Year 2014-15, this has been kept as a priority programme and a planning process has been initiated for two first-aid training programs during the first half of Year-2014-15.

7.2 REGIONAL COOPERATION

The INP Zoo needs regional cooperation of various organizations, training institutions and zoos for the followings:

1. Enriching the animal collection as per the approved Collection Plan.
2. Exchange of zoo animals for breeding.
3. Training of frontline / zoo operations staff.
4. Animal disease diagnosis and treatment.

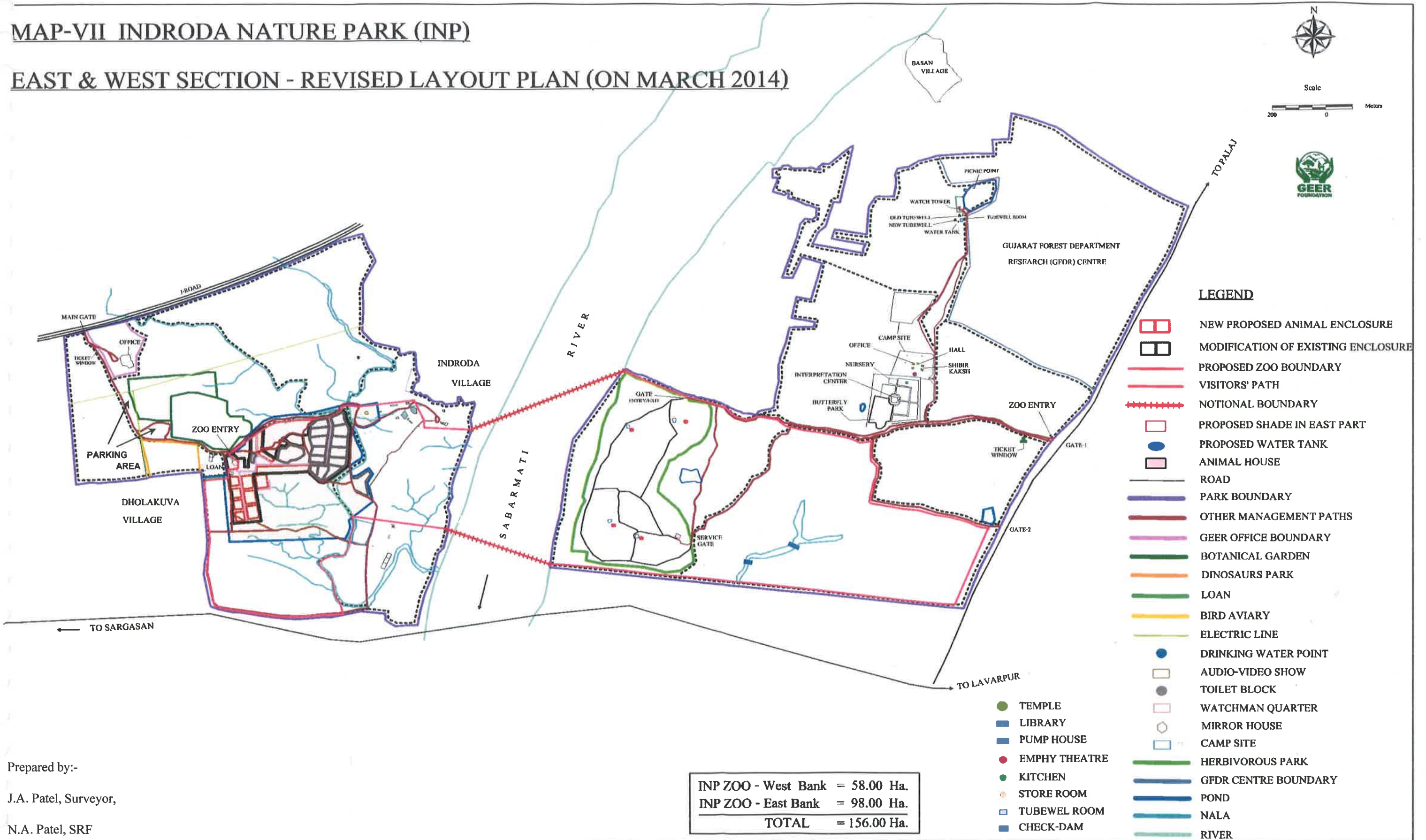
In turn, the INP Zoo is able to extend cooperation for:

1. Training of officers and frontline staff for nature conservation, ecology, wildlife conservation, rescue and animal handling operations etc.
2. Providing selected herbivore animal stock as founder population or enrichment population for introduction / reintroduction of prey-base in Protected Areas as per the IUCN Guidelines-2013.
3. Extending support to the Gujarat Forest Department for field operations related to wild animal rescue and dealing with man-wildlife conflict situation.
4. Every year, NGOs, Gujarat Forest Department and the GEER Foundation (INP Zoo) get to gather for attending to avifauna rescue operations during Kite Flying Festival and save and treat large number of birds.
5. The GEER Foundation conducts about 50 Nature Education Camps (Three Days / Camp) at INP for about 2500 students. Wild animal education and awareness at the INP Zoo is one of the important education activities for students during the NEC.

This kind of regional cooperation and networking with other organizations will be continued in a planned manner during the period of this Master Plan.

MAP-VII INDRODA NATURE PARK (INP)

EAST & WEST SECTION - REVISED LAYOUT PLAN (ON MARCH 2014)



Prepared by:-

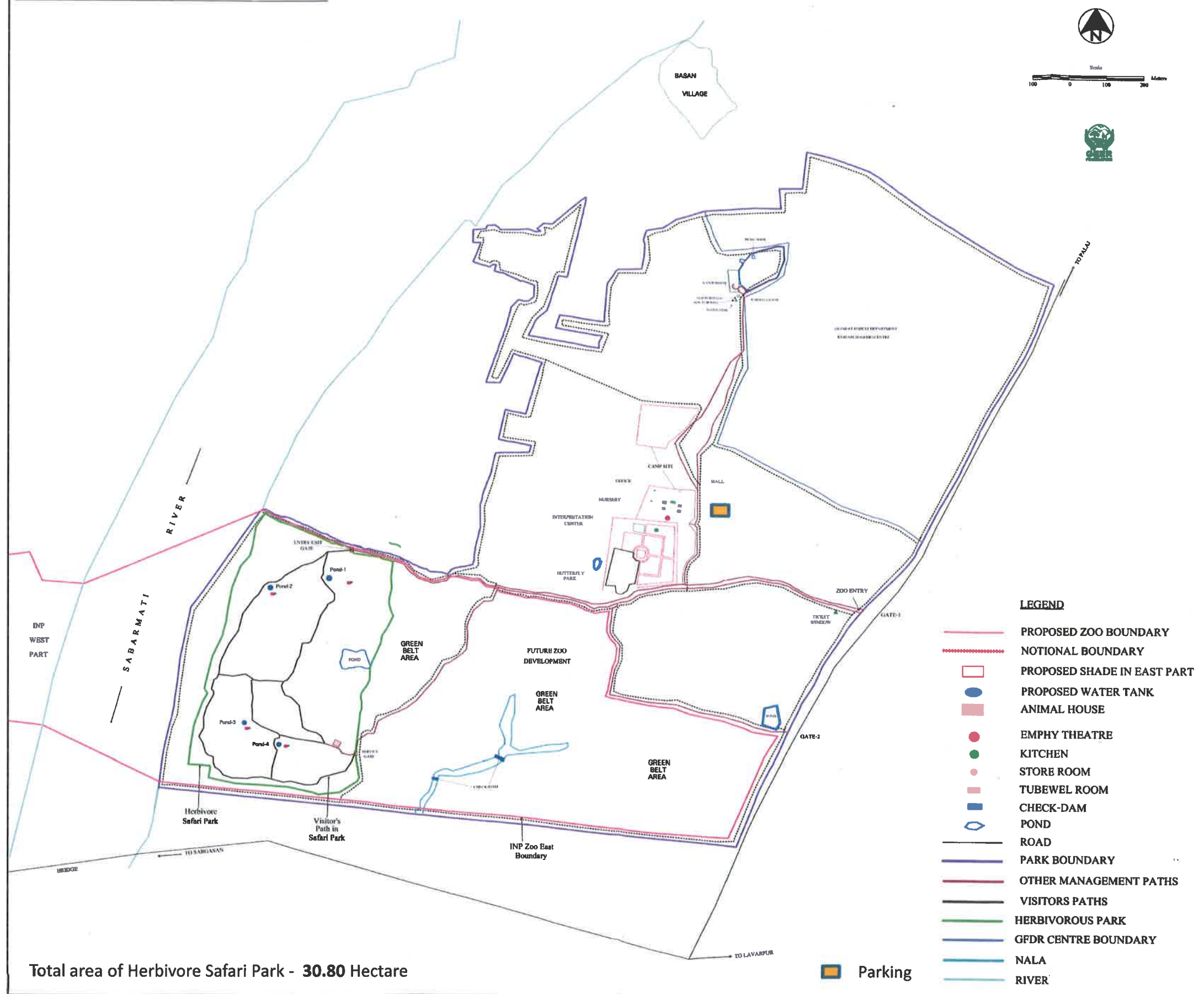
J.A. Patel, Surveyor,

N.A. Patel, SRF

MAP- VIII INDRODA NATURE PARK
PART OF WEST SECTION LAYOUT PLAN (REVISED - Sep-2016))

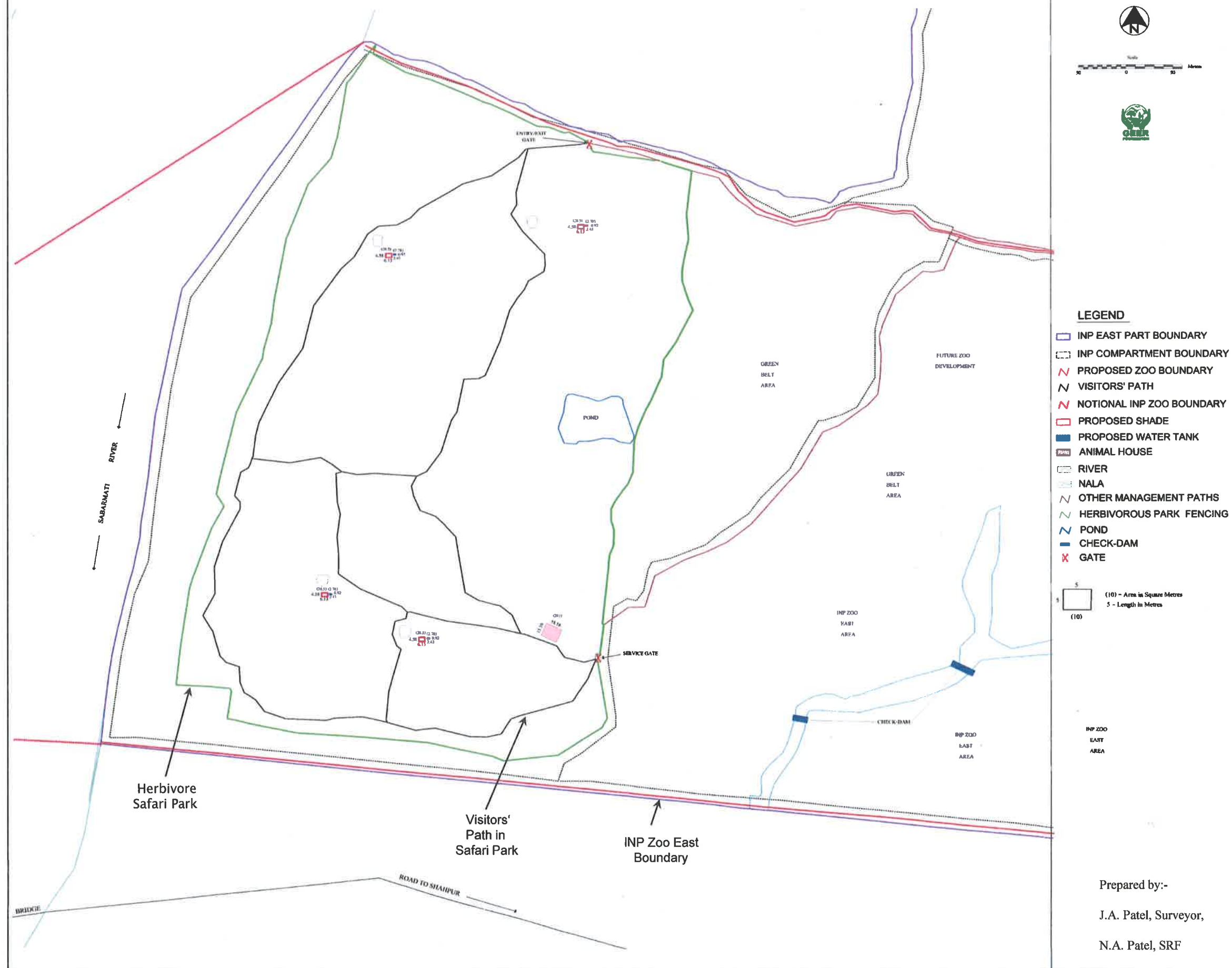


MAP - IX A INDRODA NATURE PARK (INP)
EAST SECTION WITH LAYOUT PLAN (Revised Sep-2016)



MAP-IX B INDRODA NATURE PARK (INP)

PART OF EAST SECTION- LAYOUT PLAN (REVISED - March -2014)



Veterinary Treatment and Care

Treatment of Carnivore and Reptile



Leopard in squeeze cage for treatment



Extraction of maggots from Russell's viper

Feed Distribution



Green fodder offered to Black buck

Sanitation



Sanitization of enclosure through disinfectant spraying



Sanitization of enclosure through disinfectant powder spreading

Veterinary Treatment and Care

Treatment of Avifauna



Oriental Honey Buzzard



Spotted Owlet

Orthopedic Surgical Treatment of Herbivore



Sambar infant before treatment



Sambar infant while treatment



Sambar infant after fracture repair



Amputation surgery in Blue bull

CHAPTER-8

Computerized Data Management, Reporting and IT Applications

The head / administrative office of the GEER Foundation located in the INP campus has modern IT applications and data management systems. For the digital communication, the head office is connected with independent Broadband network as well as it is facilitated with the Gujarat State Wide Area Network (GSWAN)- the official communication network of the Government of Gujarat. The head office is adequately computerized with data handling and data management capacity. It also has a Remote Sensing and GIS laboratory. There is a scientific library with good collection of books on zoo management, wildlife conservation, nature conservation, ecology and ecosystem management and biodiversity and various related subjects. The Dy. Director (R&D) and the Assistant Director who are also looking after the zoo management and development activities are part of the head office of the GEER Foundation. Thus, this communication and IT network is also available to INP Zoo as one of the units of the GEER Foundation.

The offices of the Park Warden and Veterinary Doctor are located at a distance of only about less than one km from the head office of the GEER Foundation. Both these offices are provided with adequate numbers of computers for IT and data management. These two offices will also be connected for communication network.

8.1 DATA MANAGEMENT

The INP Zoo data management is computerized using major formats prescribed by the report of the Expert Group on Zoos, 1973 (Appendix-VIII to XVI). These formats are reproduced as under:

Appendix-VIII
Animal Stock Register
Receipt

S.No. & Date	Species	Date of arrival in zoo	No. arrived		
			Male	Female	Total
1	2	3	4		
By Birth	Other Sources			Total No. in stock	Cost of estimated value
	Donation	Purchase	Exchange		
		5		6	7

Disposal

Date	No. disposed of			How disposed of			Cost or estimated value	
	Male	Female	Total	Death	Others			
					Donation	Sale		Exchange
1	2		3			4		
Total disposed of			Balance			Remarks		
Male	Female	Total	Male	Female	Total			
5			6			7		

Note : In the remarks column give

1. Doner or donee in respect of donations :
2. Agency exchanged in case of exchange :
3. Cause of death and disposal or carcass in case of death.

APPENDIX-IX
Animal History Card/Sheet
Zoological Park

Stock register S. No.....Housed in.....

Name	Scientific name
Sex	Vernacular name
Distinguishing mark Percentage	Habitat

Acquisition	Disposal
1. How and from where acquired.	1. How and where Disposed.
2. When acquired	2. When disposal of
3. Age on arrival	3. Age at disposal
4. Size and weight on arrival	4. Size and weight
	5. Pathological findings in case of death.

Normal temperature	Gestation period	Other information
--------------------	------------------	-------------------

Page 2

Date	Observation	Observer	Date	Observation	Observer
------	-------------	----------	------	-------------	----------

APPENDIX-X
Daily Report
Zoological Park

Dated :

S. No.	Item	Name of animal	Sex	Enclosure	Ramarks
1.	Receipts				
2.	Births				
3.	Transfer				
4.	Mating activity				
5.	Disposal				
6.	Death				
7.	Diet change				
8.	Other observation				
9.	Maintenance required				

10. Prophylactic measures adopted

 Signature of
 Reporting Officer

11. Sickness (Out-patic)

 Signature of
 Veterinary Officer

12. Sickness (In

General remarks of Director

Action taken

Signature

Signature

APPENDIX-XI***Diet Sheet******Zoological Park***

S. No.	Name of Animal	Beat No.	Alteration in number (+) or (-)	Alteration in diet. Description/Qnty.	Remarks
--------	----------------	----------	------------------------------------	--	---------

Signature

APPENDIX-XII

Treatment Sheet
Zoological Park _____

Species _____

S. No.	Date	Personal name of animal	Symptoms : (i) Disease (ii) Condition of animal	Diagnosis	Description	Reaction to Treatment	Remarks of V.O.
--------	------	-------------------------	---	-----------	-------------	-----------------------	-----------------

APPENDIX-XIII
Treatment Register (Hospital)
A. Outdoor patients

S. No.	Species	Symptom	Diagnosis	Treatment	Remarks
--------	---------	---------	-----------	-----------	---------

B. Indoor patients

APPENDIX-XIV

Veterinary Necropsy Protocol
Post-mortem Report
Zoological Park

No.	Date
Kind of animals (with remarks of identification if any)	Scientific name Sex Personal name Age Size Weight
Time, date and place of death. Time and date of post-mortem examination Short history of illness, if any.	
A. General description	
B. Organ-wise description of lesions -	
(1) Head and neck	(a) Skull and brain (b) Cervical vertebrae
(2) Thorax	(a) Lungs (b) Heart (c) Ribs
(3) Abdomen	(a) Liver (b) Stomach (c) Intestines (d) Kidney (e) Spleen
(4) Pelvic girdle	(a) Uterus and Ovaries (b) Bladder (c) Genital passage
(5) Limbs	(a) Fore limbs (b) Hind limbs
(6) Any other special features : Biological tests done (if any)	
(i) Blood (ii) Urine (iii) Discharges (iv) Biopsy	
(7) Opinion	
(8) Instructions for disposal	Signature _____ Name _____ Designation _____ (Seal)
Place : _____	
Date : _____	

APPENDIX-XV
Post-mortem Register
 Zoological Park

Month :

Sl. No.	Species	Date & time of death	Cause of death	Disposal of carcass		Death occurred in enclosure or hospital	Remarks
				Buried	Skinned		

APPENDIX-XIV
Proforma for Stud-Book of Animals
SPECIES
HOW MANY INDIVIDUALS

Photograph of the Species.

- (a) Name of Individual
- (b) Sex
- (c) Date of birth
- (d) Place of birth
- (e) Parentage :
 - Father
 - Mother
- (f) Age/estimated age
- (g) Date of arrival at your collection
- (h) Previous owner's
- (i) Present owner
- (j) Date of death
- (k) Place of death
- (l) Post-mortem findings
- (m) What happened with corpse.
- (n) Characteristic.
- (o) Remarks :
 - Mature
 - First mating
 - First delivery (Abortion)
 - First off-spring naturally raised
 - First off-spring had to be hand reared.

Stud-book No.

Stud-book No.

NB. - The above proforma is to be filled for each individual separately and subsequently only the information to be incorporated should be intimated in future reports.

Besides the above listed datasheets, following datasheets will also be used by the INP Zoo for the zoo management.

INDRODA NATURE PARK ZOO, GEER FOUNDATION, GANDHINAGAR

Modified and Improved Animal History Card

Vernacular name of the species	Scientific Name of the species
Home name and ID number of the animal	Sex: M/F:
Distinguishing Mark:	Type of marking-Transponder / Ear tag / Ring / Others :
National Studbook number of the animal	International Studbook number of the animal
Sire : (Name and National Studbook number)	Dam: (Name and National Studbook number
Date of Birth (dd:mm:yyyy)	When and from acquired
Physical health check up details	Genetic health check up details
Date of death (dd:mm:yyyy) or other mode of disposal	Remarks

ઇન્દોડા પ્રકૃતિ ઉદ્યાન
 ગાંધીનગર

તા:- / /

પ્રાણીઓની તંદુરસ્તી અંગેનો દૈનિક રીપોર્ટ

ઇન્દોડા પ્રકૃતિ ઉદ્યાન

પ્રાણીની જાત	પિંજરા ક્રમાંક	વિગત
સાબર	સા.પિ.ક	
સફેદ કાળીયાર	સફે.કા.પિં.ક	
કાળીયાર	કા.પિં.ક	
ચિતલ	ચિ.પિં.ક	
ચિંકારા	ચિં.પિં.ક	
વાઘ	વા.પિં.ક	
દિપડા	દિ.પિં.ક	
શિયાળ	શિ.પિં.ક	
શાહુડી	શા.પિં.ક	

 પાર્ક વેટરનરીયન
 ઇન્દોડા પાર્ક, ગાંધીનગર

 પાર્ક વોર્ડન શ્રી
 ઇન્દોડા પાર્ક, ગાંધીનગર

 સ્નેક કમ વાઇલ્ડ લાઇફ પાર્ક કીપર
 ઇન્દોડા પાર્ક, ગાંધીનગર

Indroda Nature Park, Gandhinagar

ANIMAL TREATMENT CARD

- | | | |
|-----|------------------------------------|--------------------------|
| 1. | Card No | : |
| 2. | Common Name & Individual Name | : |
| 3. | Scientific Name | : |
| 4. | Animal ID | : |
| 5. | National Studbook No. (If any) | : |
| 6. | Sex: _____ Date of Birth/Age _____ | : |
| 7. | Date & Time of illness | : |
| 8. | Date & Time of Treatment | : |
| 9. | History of illness | : |
| 10. | Physical details: | |
| | Body weight: _____ | Respiration: _____ |
| | Temperature: _____ | Mucous membrane: _____ |
| | Pulse: _____ | Secretion, if any: _____ |
| 11. | Physical Analysis: | |
| | Gait: _____ | Defecation: _____ |
| | Urination: _____ | Feeding habit: _____ |
| 12. | Tests Conducted: | |
| | Urine: _____ | Skin scrapings: _____ |
| | Faecal: _____ | Blood: _____ |
| | Biopsy: _____ | x-ray: _____ |
| 13. | Other examination (If any) | : |
| 14. | Remarks : | |

Veterinary Doctor
INP Zoo

Format of case and treatment report to be attached with Animal Treatment Card

Date	Details of observations and treatment given	Signature of Veterinary Officer

[illegible]

દેનીક અહેવાલ																	
વિભાગનું નામ:-પશ્ચીમચીસુપ વિભાગ			ઇન્દોડા પ્રકૃતિ ઉદ્યાન, ગાંધીનગર														
નામ-વિગત	સંખ્યા	શકભાજી	કુટ			અનાજ			કાંચ			મટન			મચ્છી		
* વિવિધલક્ષી પાંજરું:-	કુલ	આરોલ	વધેલ	ખાધેલ	આરોલ	વધેલ	આરોલ	વધેલ	ખાધેલ	આરોલ	વધેલ	ખાધેલ	આરોલ	વધેલ	આરોલ	વધેલ	ખાધેલ
															નવર:-વપસ/અ/	વધેલ	વધેલ
															ગાંધીનગર. તા:-	/ 2018-19	ગાંધીનગર. તા:-
સાદર રવાના:- નાટલ નિયામકશ્રી ગીર ફાઉન્ડેશન ગાંધીનગર તરફ જાણ સારું.																	
આ સ્તેક કમ વાઇલ્ડ લાઇફ પાર્કનીપર																પાર્ક વોર્ડન-વ-પરિશ્ચેત્ર વન અધિકારી	
ઇન્દોડા નેચર પાર્ક, ગાંધીનગર																ઇન્દોડા નેચર પાર્ક, ગાંધીનગર	

Format of a Letter for reporting supply of rescued animal to the INP Zooતી:-
વાર:-

પ્રતિ,
પાર્કવોર્ડનશ્રી,
ઇન્દ્રોડા નેચર પાર્ક, ગાંધીનગર.

વિષય:- રેસ્ક્યુ માટે લાવવામાં આવેલ પ્રાણી/પક્ષી ની માહિતી.

આથી હું નીચે સહી કરનાર અને નીચે જણાવેલી વિગતે ઇન્દ્રોડા પાર્કમાં રેસ્ક્યુ/ સારવાર માટે પ્રાણી/ પક્ષી લાવેલ છું.

અનુ.નં

વિગત

(1) પ્રાણીની જાતી:-.....

.....

(2) કયાંથી મળેલ:-

(સરનામા સાથે) :-

(3) લાવનારનું પુરુ નામ:-.....

(સરનામા, ફોન સાથે) :-

(4) કોના આદેશથી સ્વીકારેલ છે:-.....

.....

(5) પ્રાણીની હાલની સ્થિતિ:-

.....

(6) અન્ય માહિતી:-

.....

પ્રાણી લાવનારની સહી:-

પ્રાણી સ્વીકારનારની સહી:-

Indroda Nature Park Zoo, GEER Foundation, Gandhinagar (Gujarat)

Veterinary Necropsy / PM Examination Protocol

No	Date:					
Kind of animal (with remarks of identification if any)	Scientific Name	Sex	Personal Name	Age(Approx.)	Size	Weight
Time, date place of death						
Time, date of post-mortem examination						
Short history of illness if any						
A. General description						
B. Organ-wise description of lesions						
(1) Head and neck :-	(a) Skull and brain (b) Cervical vertebrae					
(2) Thorax:-	(a) Lungs (b) Heart (c) Ribs					
(3) Abdomen :-	(a) liver (b) Stomach (c) Intestines (d) Kidney (e) Spleen					
(4) Pelvic girdle:-	(a) Uterus and Ovaries : (b)Bladder : (c) General passage :					
(5) Limbs:-	(a) Fore limbs (b) Hind limbs					
(6) Any other special features						
(7) Laboratory tests done (if any) :-	(a) Blood (b) Urine (c) Discharges (d) Biopsy					
(7) Opinion:						
(8) Instruction for disposal:						

Place: - Gandhinagar
Date: -

Signature:-
Name:
Designation: Veterinary Officer
Indroda Nature Park

This data keeping will be continued and further strengthened. Veterinary Doctor, INP Zoo will be responsible for the data maintenance and management at his office with regards to animal stock, health, nutrition and diets, inventory of medicines and drugs, veterinary and animal restrain equipments, recruitment / birth, new arrivals from outside, animals supplied to other zoos, mortality, PM examination records etc. The Park Warden will be responsible for data related to infrastructure particularly roads, enclosures, other civil buildings, procurement of food / feed material, number of visitors and visitors' facilities, training programmes etc. Both the Park Warden and the Veterinary Doctor will be responsible for analyzing the data managed by them for drawing inferences and recommending improvements in management as and when required.

The Park Warden and the Veterinary Doctor will be responsible for reporting their respective data, inferences, their opinion based on analysis of the data and other correspondence from the INP Zoo Unit to the Head office of the GEER Foundation.

The Dy. Director (R & D) will be responsible for (a) reporting new arrivals / birth, supplied to other zoos and mortality to the PCCF, Wildlife / CWLW, Gujarat State, (b) monthly as well as quarterly stock report to the CZA and (c) any other reports required by the CZA.

CHAPTER-9

INP Zoo Administration, Management and Personnel Plan

9.1 INP ZOO ADMINISTRATION

The evolution and development, including its present administrative arrangements, the INP Zoo as one of the units of Indroda Nature Park under the administration of the GEER Foundation is narrated in Chapter-1 of this Master Plan. Accordingly, the INP Zoo is, and it will continue to be the part of the INP under the administrative control of the GEER Foundation. The GEER Foundation will continue its endeavour to manage and develop the INP Zoo towards (a) its overall mandate of ecological education and ecological research, (b) its mission to contribute to conservation, restoration and enrichment of ecosystem and natural heritage and (c) to the national vision for conservation of threatened wild animals through captive conservation, captive conservation breeding, research and education.

The GEER Foundation is an autonomous society and public trust constituted and currently under the administration of the Forests & Environment Department, Government of Gujarat. For the purpose of administrative linkages with the Government of Gujarat, the GEER Foundation is partially under the administrative control of the Wildlife Wing of the Gujarat Forest Department. The Foundation receives Operations & Management as well as Development grant as a Grant-in-Aid from the Government of Gujarat through the Forests & Environment Department and the Gujarat Forest Department. Accordingly, one of the units of the GEER Foundation, INP Zoo is also under the administration of the Government of Gujarat as a part of an autonomous Foundation.

The head of the Foundation is the Director, GEER Foundation. Therefore, the INP Zoo is under the administrative control of the Director, GEER Foundation through the Dy. Director (R&D) and the Assistant Director. During late 2000s, it was decided by the GEER Foundation to extend the INP Zoo area by including the part of the INP East (Aranya Udhyaan) to the INP Zoo for the purpose of Herbivore Safari Park (HSP). For the purpose of administrative convenience, the two parts of the INP viz. INP West and INP East were put under Dy. Director (Research and Development) and Dy. Director (Ecological Education), respectively. This administrative arrangement was done during 2008-09. The same is currently being continued.

For the day-to-day operations, management and implementing developmental works, (a) Park Warden, INP West and (b) Park Warden (earlier nomenclature-“Technical

Assistant”), INP East, are the responsible officers with the set of staff provided to them. Their works are guided, supervised and controlled by the Assistant Director, GEER Foundation and Assistant Conservator of Forests, (EE), INP East, respectively.

However, the current arrangement is not in tandem with the scheme of zoo administration and management requirements under the Zoo Rules and Guidelines of the CZA. As per the Recognitions of Zoos Rule, 1992 Rule No. 10 (12), (13) & (14) necessitates administrative pattern of (a) one Full Time Officer In Charge of the Zoo, (b) every Medium Zoo shall have an official with masters degree in wildlife science / zoology as a full time curator solely responsible for looking after the upkeep of animals and maintenance of the animal enclosures and (c) each Medium zoo shall have at least one Full Time Veterinarian, respectively. Therefore, there is a need to make necessary administrative rearrangement and adjustments for the INP Zoo administration and management. Such rearrangement and adjustments aim at ***“The unified chain of command for administration, management, monitoring and reporting, without any dichotomy for the entire INP Zoo, i.e. INP Zoo West and INP Zoo East.”*** Therefore, the following readjusted administration and management is provided under this Master Plan:

Director, GEER Foundation:

The Director, GEER Foundation will function as direction division for the entire organizational function of the GEER Foundation for which INP Zoo is one among several other units and functions. Considering his larger role and responsibilities, he will not be able to allot **Full Time** and energy only for the INP Zoo administration, operations, management and development. Generally, the Director, GEER Foundation is the officer of the rank of the Chief Conservator of Forests or Additional Principal Chief Conservation of Forests with wider responsibilities of ecological research, ecological education, management and development of Wildlife Sanctuary under the control of the GEER Foundation and guiding and directing INP. Therefore, administration, operations, management and development of the INP Zoo is assigned to an appropriate level officer viz. the Dy. Director (R&D). The Director will continue to be the Head of the Department for GEER Foundation for the purpose of directions and the Dy. Director (R&D) will be the Head of the INP Zoo as one of the units of the GEER Foundation.

Zoo Officer In-charge of the INP Zoo:

Considering administrative arrangements of other zoos, it is observed that officers of the rank of Dy. Conservator of Forests are posted as Zoo Officer In-Charge for Large and Medium Zoos. DCF level officers are supposed to be capable of administering and

managing a Medium Category Zoo. For example, the Sakkarbaug Zoo, Junagadh, Gujarat, which is a "Large Category Zoo", is headed by the Director, Sakkarbaug Zoo who is an officer of the rank of Dy. Conservator of Forests. Therefore, the Dy. Director (R & D), GEER Foundation, who is an officer of the rank of Dy. Conservator of Forests (DCF), will act as **Zoo Officer In-charge of the INP Zoo i.e. INP Zoo East and INP Zoo West**. The Government of Gujarat in Forests & Environment Department will be requested for posting a motivated and trained officer (DCF) as Dy. Director (R&D) and the Zoo Officer In-Charge of the INP Zoo.

The Dy. Director (R & D)- Zoo Officer In-charge of the entire INP Zoo shall be responsible for all administrative, operations, management and development functions of the INP Zoo as per the provisions of (a) the Indian Wildlife (Protection) Act, 1972, (b) the Recognitions of the Zoo Rule, 1992, (c) the Recognitions of the Zoo Rule, 2009 and (d) the Guidelines issued by the Central Zoo Authority. His functions will include, *inter alia*, proper housing, upkeep and health care of the animals, proper visitor management and ensuring the safety and security. For discharge of his function Zoo Director will assign duties, direct, guide, supervise and monitor the works of personnel posted under his control for the purpose of zoo administration, operations, management and development of INP Zoo. The Dy. Director (R & D), Zoo Officer In-charge INP Zoo is authorized and he will be responsible to directly communicate to the Member Secretary, CZA for the purposes of Recognition of Zoo Rules and various compliances under these rules. His services will be controlled and supervised by the Director, GEER Foundation. The Dy. Director (R&D) and Zoo Officer In-Charge of the INP Zoo will have adequate delegated powers for administration, management and developmental works. A request has already been submitted to the F&ED, Government of Gujarat for enhancing financial powers and powers for administrative approval.

Assistant Director, GEER Foundation:

The Assistant Director, GEER Foundation will directly assist the Dy. Director (R & D), Zoo Officer In-charge INP Zoo. As per the current duty and function allocation, Asstt. Director, GEER Foundation is assigned duties of developmental works, development and maintenance of the zoo and proposal related to zoo animal exchange etc. As per the current administrative arrangements, Assistant Conservator of Forests, Ecological Education, INP East is also assigned the work of developmental works, development and maintenance of the zoo and proposal related to zoo animal exchange etc. for INP Zoo East. However, it is observed that this system is not effective. Therefore, entire INP Zoo i.e. INP Zoo West and INP Zoo East will be put under one officer of the rank of the Assistant Conservator of Forests posted as Assistant Director, GEER Foundation.

He will be relieved from the responsibilities of the INP Zoo East. However, such changes will be made only after the approval of this Master Plan by the competent authority.

The Assistant Director is authorised and he will be responsible for INP Zoo administration, operations, management and development functions of INP Zoo West and INP Zoo East, as per the directions, guidance of the Dy. Director (R & D) as a Zoo Officer In-charge of INP Zoo. His services will be controlled and supervised by the Dy. Director (R & D).

Zoo Curator:

Park Warden of the rank of Range Forest Officer (RFO) will act as curator of the Zoo. In GEER Foundation, two posts of Park Wardens of the rank of Range Forest Officer are sanctioned for the purposes of protection, operations, management and development of the INP West and INP East. However, as on March 31, 2014, both these posts are vacant since long. Both these Park Wardens will continue to function as per the present work distribution of protection, operations, management and development of the INP West and INP East, including INP Zoo West and INP Zoo East, respectively. However, they both will now onwards function under the directions, guidance and supervision of the Assistant Director, GEER Foundation and Dy. Director (R & D), Zoo Officer In-charge INP Zoo in that order of hierarchical arrangement. They both will be responsible for the functions of "Zoo Curator" for their respective INP Zoo West and INP Zoo East. They will upkeep and maintain animal collection and animal housing including timely cleaning and disinfections of animal enclosures, timely feeding of animals in the prescribed manner, keeping a close watch on general health conditions of the animal and take steps for getting sick animals treated on priority basis including crating, shifting and transportation of animals within the Zoo.

Veterinary Doctor, INP Zoo:

The post of the Veterinary Doctor, INP Zoo is currently created to comply with the Recognition of the Zoo Rules as a Temporary Contractual Post. Proposal for creation of permanent post is approved in principle by the Forests & Environment Department, Government of Gujarat with a direction for submission of a New Budget Item Proposal. Accordingly, the proposal has been submitted for the Budget of the year 2014-15. He will be authorized and responsible for the functions of Veterinary Doctor for entire INP Zoo. His services will be controlled, guided, supervised and monitored by the Assistant Director, GEER Foundation and Dy. Director (R & D), Zoo Officer In-charge INP Zoo in that order of hierarchical arrangement.

Biologist:

The Research Associate, Zoology, GEER Foundation is currently assigned duties of INP Zoo Biologist in addition to his main functions of research under various research projects of GEER Foundation. His services are guided, supervised and monitored by Dy. Director (R & D), Zoo Officer In-charge INP Zoo.

Education activities:

The Dy. Director (EE) and Assistant Conservator of Forests (EE) along with their team of nature educators, who are responsible for various ecological, nature and conservation education, will extend their services also for the zoo education.

9.2 INP ZOO MANAGEMENT

The INP Zoo operations, management and development goals are decided and accordingly, the Annual Action Plans (AAPs) are prepared for each year as part of AAP of INP. The AAPs are vetted by the Chief Wildlife Warden, Gujarat State and submitted to the F&ED, Government of Gujarat for sanction and allocation of grants. These AAPs are implemented by the GEER Foundation through the Dy. Director (R&D) and Dy. Director (EE) for INP West and INP East, respectively. The Dy. Director (R&D) and the Zoo Officers In-Charge of the INP Zoo will be responsible for implementing the AAP for Zoo management. The Dy. Director (R&D) will prepare the Zoo Annual Administration and Management Report (English Language) at the end of each Financial Year.

9.2.1 Resource Mobilization Including Revenue

The GEER Foundation receives financial resources for the zoo administration and management as part overall Grant-In-Aid to the Foundation. The details of the Grant-In-Aid to the GEER Foundation, fund for the zoo development and management as part of Grant-In-Aid and overall revenue received as Entry Fee and other miscellaneous revenue for the entire INP is as per the following Table-9.1.

Table-9.1
Financial Resources in terms of Grant-In-Aid and Revenue for the GEER Foundation
(Rs. In Lakh)

Year	Total Grant-In-Aid	Funds for the INP from total Grant-In-Aid (Col. (2))						Revenue		
		INP West			INP East			INP West	INP East	Total
		Total	Zoo*	Other than Zoo	Total	Zoo**	Other than Zoo			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2011-12	336.00	89.25	53.55	35.70	22.00	5.30	16.70	69.64	0.69	70.33
2012-13	370.00	123.50	74.10	49.40	16.00	3.85	12.15	78.63	1.12	79.75
2013-14	397.00	144.00	86.40	57.60	29.00	6.95	22.05	85.34	1.76	87.10

* Average 60% of total of INP West (Col.3) expenditure is for the Zoo

** Average 24% of total of INP West (Col.6) expenditure is for the Zoo

The above table indicates that the total Grant-In-Aid to the GEER Foundation increases at the average annual rate of 9% to 10 % over last three years. The revenue is the function of number of visitors and as the entry rates are not changed, increase in revenue is in proportion of the increase in number of visitors. As narrated in Chapter-2 of this Master Plan, the average rate of increase in number of visitors in last three years 8.10% and, therefore, the revenue is likely to increase at the rate of 8.10% only. As per the above table, the average annual increase in revenue over last three year is about 11% to 12%.

Therefore, in a scenario of business as usual the financial resources are likely to increase on an average annual rate of 10%. However, the cost of maintenance is increasing at a higher rate. It is observed that the labour cost over last two years has increased on an average rate of 11.5%, the food and medicine for animals is increasing on an average annual of 30% and the cost of civil works is increasing at an average annual rate of about 15%. Therefore, even if only the maintenance (without development) is considered, the financial resources are required to be increased at a higher annual rate of about 20% against the current rate of 10%. For facilitating development plan as per this Master Plan, more financial resources will be required than the usual nominal increase in Grant-In-Aid.

9.3 PERSONNEL PLAN

The existing human resource available as a Sanctioned Post is not adequate. As per the norms of zoo management appropriately trained human resource is essential and critical to the zoo management. Considering the need for maintenance and future development plan, a Human Resource Development Plan is prepared. The following Table-9.2 give details of the (a) Sanctioned Posts, (b) currently filled up Posts and (c) proposed posts for effective management of the INP Zoo.

Table-9.2

Details of Human Resource Requirement at Indroda Nature Park Zoo

Sr. No.	Name of Cadre	No. of Post Sanctioned	No. of Post filled up	Post required to be abolished or to be accounted under other section of INP	Post Proposed	Total Post	Remarks
Western Side							
1	Assistant Conservator of Forest	1	1	0	0	1	
2	Park Warden of the rank of Range Forest Officer	1	0	0	0	1	
3	Veterinary Officer	1	1	0	0	1	
4	Veterinary Assistant	1	1	0	0	1	
5	Zoo Education Guide	0	0	0	3	3	
6	Accountant	1	1	0	0	1	
7	Forester	1	0	0	0	1	
8	Forest Guard (Forest Area & Zoo Area)	1	0	0	1	2	
9	Snake Cum Wildlife Park Keeper	1	1	0	0	1	
10	Asstt. Snake Cum Wildlife Park Keeper	1	1	0	0	1	
11	Ticket Window Clerk	0	0	0	2	2	

Sr. No.	Name of Cadre	No. of Post Sanctioned	No. of Post filled up	Post required to be abolished or to be accounted under other section of INP	Post Proposed	Total Post	Remarks
12	Ticket Checker	0	0	0	2	2	
13	Bird Breeder	1	1	0	0	1	
14	Store clerk	0	0	0	1	1	
15	Driver	1	0	0	2	3	
16	Plumber Cum Pump Operator	1	0	0	0	1	
17	Watchman	1	0	0	3	4	
18	Watchman Cum Mali	1	0	1	0	0	
19	Welder Cum Attendant	1	0	1	0	0	
20	Sweeper Cum Keeper	1	0	0	0	1	
21	Watchman Cum Camp Attendant	1	0	1	0	0	
22	Head Animal Keeper/Curator	1	0	0	0	1	
23	Nature Education Assistant	1	0	1	0	0	
24	Artist	1	0	1	0	0	
25	Kitchen Manager Cum Supervisor	1	0	1	0	0	
26	Library Attendant	1	0	1	0	0	
	Total of INP Zoo Western Side	22	7	7	14	29	
Eastern Side							
1	Park Warden of the rank of Range Forest Officer	1	0	0	0	1	
2	Accountant	1	1	0	0	1	

Sr. No.	Name of Cadre	No. of Post Sanctioned	No. of Post filled up	Post required to be abolished or to be accounted under other section of INP	Post Proposed	Total Post	Remarks
3	Forester	1	0	0	0	1	
4	Forest Guard	1	1	0	0	1	
5	Zoo Education Guide	0	0	0	2	2	
6	Sweeper Cum Keeper	0	0	0	2	2	
7	Driver	0	0	0	1	1	
8	Watchman	0	0	0	2	2	
	Total of INP Zoo Eastern Side	4	2	0	7	11	
Total of INP Zoo (Western Side & Eastern Side)		26	9	7	21	40	

CHAPTER-10

Broad Budget Analysis for Implementing the Plan

10.1 INP ZOO BUDGET

The INP Zoo Budget estimate for First Six Years of this Master Plan is prepared as per the guidelines of the CZA. Besides the requirement of CZA guidelines, INP Zoo specific conditions such as (a) large number of enclosures established in 1978 as Deer Park need major modifications, (b) changes that have occurred in INP Zoo over last 3 decades, (c) Zoo area spread over two sides of the River Sabarmati and (d) protection, security and safety of needs of INP Zoo have been considered for identifying necessary activities and action plan.

Accordingly, the budget estimates for activities and Action Plan are presented separately for (a) Action Plans for INP Zoo West and INP Zoo East as well as (b) maintenance plan and development plan.

As elaborated earlier in Chapter-4 under Vision and Objectives, action plan and budget estimates are prepared mainly for (a) modernization and upgradation of the INP Zoo, (b) enhancing animal housing and display facilities to accommodate number of species and number of animals as per the approved Collection Plan and (c) facilitating research and education. The planning has also taken care that the INP Zoo remains only a Medium Category Zoo as envisioned under Chapter-4.

The action plan activities are spread over Six Years in such a manner that necessary modifications of the existing enclosures are attended in earlier part of the Master Plan period whereas new enclosures are taken up gradually. The animal treatment facilities have been established and plan for activities of shifting the Post Mortem Examination (PME) room and carcass disposal sites have already been initiated. Such veterinary and animal health facilities are spread over the Master Plan period as concurrent maintenance and development activities.

The zoo education activities will be dovetailed with the existing ecological education activities of the GEER Foundation such as Nature Education activities, National Green Corps activities etc. Therefore, no specific funds are provided for Zoo Education except for repairs and up-gradation of (a) Bird Interpretation Centre and (b) Wildlife Gallery Interpretation Centre.

Following Table-10.1 is a budget estimate of development plan, Table-10.2 is budget estimate of maintenance plan, Table-10.3 is the abstract of overall budget estimate and Table-10.4 is the abstract Budget estimate for major activities. The Year wise cost estimate is for the Management Plan Period of 10 years.

Table-10.1
Budget estimate and financial implications for INP Zoo Development
(Rs. In Lakhs)

Sr. No.	Activity	No.	Unit	Qty	Rate	Year - 1		Year - 2		Year - 3		Year - 4		Year - 5		Year - 6		Year - 7		Year - 8		Year - 9		Year - 10		Total		
						Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.
1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
INP Zoo West																												
1	Treatment enclosure	5	Sq.mt	75	0.02	5	1.5	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	5	1.5	
2	Trap Cage Portable	2	No.	2	0.72	2	1.45	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	2	1.45	
3	Treatment Cage Portable	2	No.	2	0.625	2	1.25	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	2	1.25	
4	Laboratory and dispensary equipments	LS	LS	LS	0	LS	0.5	LS	1.5	LS	0.5	LS	0.5	LS	0.5	LS	0.5	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	8.00	
5	Construction of a moat type enclosure for a pair of Asiatic lions	1	Sq.mt	2000	0.017	0	0	0	0	0	0	1	44.2	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	1	44.2	
6	Construction of an enclosure for a pair of Panthers	1	Sq.mt	1000	0.027	1	27	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	1	27	
7	Construction of a moat-type enclosure for pair of tigers	1	Sq.mt	2000	0.017	1	34	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	1	34	
8	Construction of an enclosure for a pair of Sloth Bear	1	Sq.mt	1000	0.017	0	0	0	0	0	0	0	0	0	1	23.8	0	0	0	0.00	0	0.00	0	0.00	0	0.00	1	23.8
9	Strengthening of existing Snake park	1	Sq.mt	150	0.21	1	40	0	0	0	0	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	1	40	
10	Strengthening Birds aviary	1	Sq.mt	5700	0.0077	0	0	1	48.3	0	0	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	1	48.3	
11	Construction of an enclosure for Chinkara	2	Sq.mt	2710	0.0077	0	0	0	0	0	0	2	54.25	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	2	54.25	
12	Construction of an enclosure for Spotted Deers	3	Sq.mt	2440	0.0077	0	0	1	20.65	2	45.1	0	0	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	3	65.75	
13	Construction of an enclosure for Blackbuck	3	Sq.mt	3089	0.0077	0	0	0	0	2	57.1	1	30.9	0	0	0	0	0	0.00	0	0.00	0	0.00	0	0.00	3	88	

Sr. No.	Activity	No.	Unit	Qty	Rate	Year - 1		Year - 2		Year - 3		Year - 4		Year - 5		Year - 6		Year - 7		Year - 8		Year - 9		Year - 10		Total	
						Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.		
1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
14	Construction of enclosure for Sambar	1	Sq.mt	2260	0.0077	1	17.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	17.4
15	Construction of an enclosure for Chowsinga	1	Sq.mt	2830	0.0077	0	0	0	0	0	0	1	28.3	0	0	0	0	0	0	0	0	0	0	0	0	1	28.3
16	Construction of an enclosure for Wild Ass	1	Sq.mt	4000	0.0086	0	0	0	0	0	0	0	0	1	48.15	0	0	0	0	0	0	0	0	0	0	1	48.15
17	Construction of an enclosure for Barking Deer	1	Sq.mt	2860	0.0077	0	0	1	24.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	24.2
18	Construction of an enclosure for a pair of Hyena	1	Sq.mt	500	0.0098	0	0	0	0	0	0	0	0	0	0	1	7.35	0	0	0	0	0	0	0	0	1	7.35
19	Construction of an enclosure for a pair of Wolf	1	Sq.mt	500	0.0098	0	0	0	0	0	0	0	0	0	0	1	7.35	0	0	0	0	0	0	0	0	1	7.35
20	Construction of an enclosure for pair of Jackal	1	Sq.mt	500	0.0098	0	0	0	0	0	0	0	0	0	0	1	7.35	0	0	0	0	0	0	0	0	1	7.35
21	Construction of an enclosure for pair of common fox	1	Sq.mt	500	0.0098	0	0	0	0	0	0	0	0	0	0	1	7.35	0	0	0	0	0	0	0	0	1	7.35
22	Construction of an enclosure for Indian Peafowl (white)	1	Sq.mt	40	0.03	0	0	1	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.3
23	Construction of enclosure unite for Alexander Parakeet, Silver Pheasant, Barn Owl, Eurasian Eagle Owl, Steppe Eagle, Tawny Eagle, Brahminy Kite	7	Sq.mt	140	0.03	0	0	7	32.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	32.35
24	Construction of wall fencing of INP	1	Rmt	1410	0.052	1	73.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	73.3
25	Rat-proof storage room for feed	1	Sq.mt	150	0.100	0	0	1	16.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	16.5

Sr. No.	Activity	No.	Unit	Qty	Rate	Year - 1		Year - 2		Year - 3		Year - 4		Year - 5		Year - 6		Year - 7		Year - 8		Year - 9		Year - 10		Total	
						Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.		
1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
26	Repairs and Modification of ponds-cum-enclosure for Crocodiles and Gharial	2	Sq.mt	150	0.0100	0	0	0	0	2	36.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36.00
27	Up gradation of roads and foot path	20	Sq.mt	2000	0.015	0	0	0	0	2	18.00	0	0	3	40.5	0	0	3	13.40	4	21.50	4	25.75	4	30.95	20	150.10
28	Garbage disposal system	0	0	0	0	LS	0.25	LS	0.25	LS	0.3	LS	0.3	LS	0.35	LS	0.35	LS	0.40	LS	0.40	LS	0.50	LS	0.50	LS	3.60
29	Mini tractor	1	0	0	0	0	0	0	0	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9.00
30	Upgradation of water supply and drainage facility	2	Rmt.	400	0.005	0	0	1	2.4	0	0	0	0	0	0	0	0	0	0	0	1	7.15	0	0.00	0	2	9.55
31	Zoo orientation-cum-interpretation centre																										
	(a) Repair of Bird Interpretation Centre	12	No.	1	0.5	0	0	0	0	0	0	0	0	12	8.4	0	0	0	0	0	0	0	0	0	0	0	8.40
	(b) Repair of Wildlife Gallery Interpretation Centre	1	Sq.mt	150	0.03	0	0	1	4.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4.95
32	Strengthening parking facility	8	Sq.mt	500	0.0075	0	0	2	8.25	0	0	0	0	0	0	2	11.25	0	0	2	26.85	0	0.00	2	38.65	8	85
33	Food distribution Van	1	0	1	7	0	0	0	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7.00
34	Research facility & Research Support	1	0	1	3	LS	3	LS	3	LS	3	LS	3	LS	3	LS	3	LS	4.00	LS	4.00	LS	4.00	LS	4.00	LS	34.00
35	CCTV Camera Unit	17	No.	17	1	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	17
36	Accessories and Equipments	1	0	0	1.5	1	1.5	0	1.5	0	1.5	0	1.5	0	1.5	0	1.5	0	2.00	0	2.00	0	2.00	0	2.00	1	17
37	Signages	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	New Design	27	Sq.ft	25	0.07	0	0	27	2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	2.1
	New Design	12	Sq.ft	72	0.027	0	0	12	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0.35
	Sticker on board	125	Sq.ft.	282	0.014	0	0	125	1.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	125	1.9
	On Mosaic Tiles	3	Sq.ft.	150	0.25	0	0	3	0.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.85
	Repair to Old Signages	13	Sq.ft.	300	0.0009	0	0	13	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0.3
	Total						218.15		170.65		177.5		162.95		126.2		46		20.8		62.9		33.3		77.1		1095.5

Sr. No.	Activity	No.	Unit	Qty	Rate	Year - 1		Year - 2		Year - 3		Year - 4		Year - 5		Year - 6		Year - 7		Year - 8		Year - 9		Year - 10		Total		
						Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.			
1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
INP Zoo East																												
1	Strengthening of Safari Park for Herbivores	1	0	0	44.8	1	44.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	44.8	
2	Rat-proof storage room for feed	1	0	0	6	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	
3	Security and Safety-CCTV Camera	5	0	0	1.6	5	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	8	
4	Signages	10	0	0	0.2	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	2	
5	Food distribution Van	1	0	0	7	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	
Total																												
Total of INP Zoo (West & East)																												

Table-10.2
Budget estimate and financial implications for INP Zoo Maintenance

Sr. No.	Activity	Qty.	Rate	Yr-1	Yr-2	Yr-3	Yr-4	Yr-5	Yr-6	Yr-7	Yr-8	Yr-9	(Rs. In Lakhs)		
													Yr-10	Yr-11	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
INP Zoo West															
1	Annual expenditure for existing and additional staff salary	29		73.45	88.15	105.75	126.95	152.30	182.75	219.30	263.16	315.79	378.95	1906.55	
3	Watch and ward and general upkeep	38	0.72	27.35	32.80	39.40	47.30	56.70	68.10	81.72	98.06	117.68	141.21	710.32	
4	Maintenance of infrastructure (Light bill, Electric, Road, Building, Fencing, Water, Drainage, Cleaning & Other)			18.00	21.60	25.90	31.10	37.30	44.80	53.76	64.51	77.41	92.90	467.28	
5	Expenditure for food and ration			63.00	75.60	90.70	108.85	130.65	156.70	188.04	225.65	270.78	324.93	1634.90	
6	Expenditure for medicine and drugs			7.00	8.40	10.10	12.10	14.50	17.40	20.88	25.06	30.07	36.08	181.58	
	Total			188.80	226.55	271.85	326.30	391.45	469.75	563.70	676.44	811.73	974.07	4900.64	
	10% Contingency			18.90	22.65	27.20	32.60	39.15	47.00	56.37	67.64	81.17	97.41	490.09	
	Total of INP Zoo West			207.70	249.20	299.05	358.90	430.60	516.75	620.07	744.08	892.90	1071.48	5390.74	
INP Zoo East															
1	Expenditure for additional staff			12.00	14.40	17.30	20.70	24.90	29.90	35.88	43.06	51.67	62.00	311.80	
2	Maintenance of infrastructure (Road, Parking, Water Supply, CCTV Camera, ect.)			6.00	7.20	8.60	5.20	6.20	7.45	8.94	10.73	12.87	15.45	88.64	
3	Expenditure for food and ration			10.00	12.00	14.40	17.30	20.75	24.90	29.88	35.86	43.03	51.63	259.75	
4	Expenditure for medicine and drugs			3.00	3.60	4.30	5.20	6.20	7.45	8.94	10.73	12.87	15.45	77.74	
	Total			31.00	37.20	44.60	48.40	58.05	69.70	83.64	100.37	120.44	144.53	737.93	
	10% Contingency			3.10	3.70	4.45	4.85	5.80	6.10	8.36	10.04	12.04	14.45	72.90	
	Total of INP Zoo East			34.10	40.90	49.05	53.25	63.85	75.80	92.00	110.40	132.49	158.98	810.83	
	Total of INP Zoo (West & East)			241.8	290.1	348.1	412.15	494.45	592.55	712.07	854.49	1025.39	1230.46	6201.56	

Table-10.3

Master Plan for the Indroda Nature Park Zoo Abstract of Financial Projections

(Rs. In lakhs)

Sr. No.	Activity	Yr-1	Yr-2	Yr-3	Yr-4	Yr-5	Yr-6	Yr-7	Yr-8	Yr-9	Yr-10	Total
1	2	3	4	5	6	7	8	9	10	11	12	9
INP Zoo West												
1	Development Plan	218.15	170.65	177.50	162.95	126.20	46.00	20.80	62.90	33.25	77.10	1095.50
2	Maintenance Plan	207.70	249.20	299.05	358.90	430.60	516.75	620.07	744.08	892.90	1071.48	5390.73
	Total of INP Zoo West	417.35	419.85	454.95	521.85	556.80	562.75	640.87	806.98	926.15	1148.58	6486.23
INP Zoo East												
1	Development Plan	61.80	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.80
2	Maintenance Plan	34.10	40.90	49.05	53.25	63.85	75.80	92.00	110.40	132.49	158.98	810.82
	Total of INP Zoo East	95.90	46.90	49.05	53.25	63.85	75.80	92.00	110.40	132.49	158.98	878.62
	Total of INP Zoo (West & East)	513.25	466.75	504	575.1	620.65	638.55	732.87	917.38	1058.64	1307.56	7364.85

N.B.: All financial projections are provisional. They may differ at the time of implementation depending upon financial situation or difference in daily wages and market position.

Table-10.4
Abstract Budget estimate for major activities

Sr. No.	Activity	Nos.	Total Budget for Six Year	Percentage
1	Salary	36	2218.35	30.12
2	Modification of Old Cages	15	429.60	5.83
3	Operation Cost and Maintenance Contingency	LS	3771.76	51.21
4	Cost of New Enclosure	12	257.60	3.50
5	New Vehicle	3	23.00	0.31
6	Upgradation of Veterinary Facility	10 & LS	29.20	0.40
7	Education Awareness Programme	13	13.35	0.18
8	Research Activity	Lump -sum	34.00	0.46
9	C.C.T.V.	22	25.00	0.34
10	Minor repairs, miscellaneous, contingency and others	Lump -sum	562.99	7.65
	Total		7364.85	100

The INP Zoo Master Plan is prepared following norms and guidelines of the Central Zoo Authority. The salient features include, (a) total enclosure areas is less than 30% of the total INP Zoo area, (b) area for each enclosure is as per the norms for animals to be housed, (c) number of enclosures are planned as per the Zoo Animal Collection Plan approved by the Central Zoo Authority in 2013, (d) veterinary facilities and post mortem examination as well as carcass disposal sites are placed and selected strategically, (e) health monitoring, sanitation and treatment protocols are provided as required and, (f) critical manpower is planned as per the Recognition of the Zoo Rules. Strategy for overcoming constraints and difficulties are also specified, for which, the INP Zoo Management needs support and facilitation from the Government of Gujarat and the Central Zoo Authority. It is believed that this Master Plan would help in achieving objectives of INP Zoo management and development in the service of wild animal conservation, research and education of general public.

Annexure-2.1

ક્રમિક: એલએનડી/૧૮૦૦/૩૬૧૭૬૧૨,

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ચકાની અને માર્ગદર્શકાર વિભાગ,
સચિવાલય, ગાંધી નગર,
તારીખ ૧૮/૮/૯૬

પ્રતિ,

નિયંત્રક,
નેચરલ હીફ્ટી યુનિયન,
બ્લોક નંબર ૧૧,
સેક્ટર-૮, ગાંધી નગર.

વિષય - નેચરલ હીફ્ટી યુનિયનના પિઠાણ કામો ને....
ગાંધી નગરમાં જમીન જમાવવા બાબત....

મહાશય,

ઉપરોક્ત વિષયના કોપના તારીખ ૩૦/૧૮/૯૬ના પત્ર

ક્રમિક: જમન-૧૦૭/એ-૧૨૬ ના મુજબાને મોકલવામાં આવેલા

નકલમાં બતાવેલ અવકાશ અને કાંચિયાની વધારાની જમીનને માલિકી
રાત સેક્ટર જમીન નીચે જમાવેલ જમીન પાલન કરવાની જગ્યા
નેચરલ હીફ્ટી યુનિયન માટે નિયત કરવામાં આવેલ છે

૧૨. જમીનનું જોડાણ કચ્છા ઉપર સર્વે થવા પછી નકલિયા
પ્રમાણે મોકલવામાં રહેશે

૧૩. "અ", "બ", "ક", અને "ડ" વિભાગોની જમીન નેચરલ હીફ્ટી
યુનિયન માટે નિયત કરેલ છે તેમજ ઉચ્ચતા માપણની જમીનનો
જમાવેલ થતો નથી.

૧૪. જે જમીન વન વિભાગે માલિકી કરેલ છે તે પિઠાણવાળા માટે
વપરવાની રહેશે

૧૫. આ જમીનની વહીવટી અધિકારી કામો અને માર્ગદર્શકાર
વિભાગ કે જે કાંચિયાની જમીન સંપાદન કરેલા છે તેની રહેશે

૧૬. આ જમીનમાં જાનક પ્રમોટના વધારાની માલિકી કામો અને
માર્ગદર્શકાર વિભાગ કરેલ પત્ર નાના માલિકી કામો મુખ્ય નગર
નિયામક અને સ્થાપત્ય સ્વચ્છતા રક્ષાની મુખ્યમંત્રિ મેળાને વન વિભાગને
મોકલવામાં રહેશે

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૧૬. માપના કામો માટે જરૂરિયાતીકામ કરવા માટે દેવાની
તેમજ નકલરૂપે ૩૦ થી વધુ દોષ તેને જોડવાનીમકાની અને માર્ગ
વ્યવહાર વિભાગને જુદા રહેશે

૧૭. નિયત કરેલ જમીન ઉપર કોઈપણ જાતનું કામ અનધિકૃત
અધિકાર કે કમીશન ન થાય તે જોવાની જવાબદારી વન વિભાગની
રહેશે

મા નિયત જમીન કોની હવ નિયતન મુખ્ય નગર નિયોજ
અને કમપાલ્ય સલાહકારશ્રી ની સંપર્ક સાધી કરાવો દેવા
જનતા છે

માપની વિસ્તાર,

૧. ૫૦૦ અવકાશ ૧૧

નાયબ સચિવ

મકાની અને માર્ગવ્યવહાર વિભાગ

વિડીયો - ઉપર મુજબ

નકલ રવાના -

૧. સેકશન અધિકારીશ્રી, મેલી, વન અને સહકાર વિભાગ
વરક જણે તેમજ જરૂરિયાતીકામ

શ્રીમા મા સાથે તે વિભાગ કાઉન્સિલ કમિટી ડાયરેક્ટર-૧-૨૦૦૧
૮૨૨૦ ડાયા-૨ અને ડાયરેક્ટર-૧-૨૦૦૧ ૪૨૮૧૫-૨ પરત
કે

૨. મુખ્ય નગર નિયોજકશ્રી અને કમપાલ્ય સલાહકારશ્રી,

બોરોની ૨૧, સચિવાલય, મલિયા નગર

વરક જણે તેમજ આગળની જરૂરિયાતીકામ

૩. મકાન અને માર્ગ વ્યવહાર વિભાગ કોઈકે સાબા, જાડા

૪. કલેક્ટરશ્રી, મલિયા નગર (ગા+૨૫૫ સુધી)

Annexure-2.2

**MEMORANDUM
OF
ASSOCIATION
AND
RULES & REGULATIONS**

**GUJARAT ECOLOGICAL EDUCATION
AND RESEARCH (GEER) FOUNDATION**

CB-11, SECTOR-8, GANDHINAGAR-382009

**Registered under the
Indian Societies Registration Act (XXI) of 1960**

Spl./R.S./lg.

નોંધણીના દાખલો

સન ૧૮૬૦ નો મંડળીઓની નોંધણી બાબતનો અધિનિયમ
(સન ૧૮૬૦ નો ૨૧મો અધિનિયમ)

નોંધણી નંબર ગુજ/૫૦/ગાંધીનગર

આથી દાખલો આપવામાં આવે છે કે ગુજરાત ઇકોસોલ્યુશન
એન્ડ રીસર્ચ (પ્રા.) લિમિટેડ, ગાંધીનગરને
આજ ૨૪-૧૧-૮૨ તારીખે, મંડળીઓની નોંધણી બાબતના (સન ૧૮૬૦ના
૨૧મો) અધિનિયમ અન્વયે યોગ્ય રીતે નોંધવામાં આવી છે.

મારી સહીથી આજ તારીખ ૨૪ માહે નવેમ્બર સને ૧૯૮૨ ને
દિને આપ્યો.

સહી/-

મંડળીઓની નોંધણીઓના આસિસ્ટન્ટ રજિસ્ટ્રાર,
અમદાવાદ વિભાગ. અમદાવાદ

[સ્પે.-સી. આ (બી પીટી) રજી.

નોંધણીનો દાખલો

આથી દાખલો આપવામાં આવે છે કે હેઠળ જણાવેલ સાર્વજનિક ટ્રસ્ટને સન ૧૯૫૦ના મુંબઈના સાર્વજનિક ટ્રસ્ટો બાબતના (સન ૧૯૫૦ના મુંબઈના ૨૯મા) અધિનિયમ અન્વયે અમદાવાદ પ્રદેશ, અમદાવાદ ખાતેની સાર્વજનિક ટ્રસ્ટ નોંધણી કચેરીમાં ચોગ્ય રીતે નોંધવામાં આવ્યું છે.

સાર્વજનિક ટ્રસ્ટનું નામ ગુજરાત ઇકોલોજિકલ એજ્યુકેશન ઓન્ડ રીસર્ચ (ગીર) ફાઉન્ડેશન, ગાંધીનગર.

સાર્વજનિક ટ્રસ્ટોનો રજિસ્ટરમાંનો નંબર એફ/૩૬/ગાંધીનગર
કેને દાખલો આપ્યો તે શ્રી જે. ડી. ટાલીયા, ગાંધીનગર.
મારી સહીથી આજ તારીખ ૨૪ માએ નવેમ્બર સને ૧૯૮૨ ને દિને આપ્યો.

સહી/-

નાયબ ચેરિટી કમિશનર,
અમદાવાદ પ્રદેશ, અમદાવાદ.

**TO BE PUBLISHED IN PART II SECTION 3
SUB-SECTION (ii) OF THE GAZETTE OF
GOVERNMENT OF INDIA
MINISTRY OF FINANCE (DEPARTMENT OF REVENUE)
New Delhi, the 30-12-83**

**NOTIFICATION
INCOME TAX**

No. 5556 (F. No. 203/194/83-IIA. II) : It is hereby notified for general information that the institution/association mentioned below and its programmes given hereunder has been approved by the Secy., Department of Environment, Government of India, New Delhi, being the Prescribed Authority under rule 6A AC of Income-tax Rules 1962 for the section 35 CCB of the Income-tax Act, 1961 :-

NAME OF THE INSTITUTION

**Gujarat Ecological Education & Research (GEER)
Foundation, Gandhinagar.**

PROGRAMME

"Setting up of the Natural History Museum, Gujarat"
Both the approvals accorded by the Prescribed Authority namely (i) to the institution under sub-section (2) and (ii) to the programme under section (1) of section 35CCB are valid for a period of three years commencing from 1st September, 1983 subject to the following conditions :-

- (i) **The Gujarat Ecological Education and Research (GEER) Foundation Gandhinagar, shall maintain a separate account of the donations received by it for conservation activities;**

- (ii) The Foundation shall furnish progress reports of the conservation programmes to the Prescribed Authority for every financial year by the 30th June each year.
- (iii) The Foundation shall submit to the Prescribed Authority by the 30th June each year a copy of the audited annual accounts showing total income and liabilities and a copy of each of these documents sent to the concerned Commissioner of I, Tax.
- (iv) The approval is subject to the continued satisfaction of the Prescribed Authority and may be withdrawn with retrospective effect, if considered necessary.

Copy forwarded to :

Sd/-

(M. G. C. Goyal)

Under Secretary to the Government of India

Annexure-2.3

Extra No. 53



REGISTERED No. G/GNR/2

Director	
GEER Foundation	
Gandhinagar	
Inward No.	2492
Date	21/3/03

The Gujarat Government Gazette

EXTRA ORDINARY

PUBLISHED BY AUTHORITY

Vol. XLIV] MONDAY, MAY 19, 2003/VAISAKHA, 29, 1925

Separate paging is given to this Part in order that it may be filed as a Separate Compilation.

PART IV-A

Rules and Orders (Other than those published in Part I, I-A and I-L) made by the Government of Gujarat under the Central Acts.

FORESTS & ENVIRONMENT DEPARTMENT

Notification

 Sachivalaya, Gandhinagar, 7th May, 2003.

INDIAN FOREST ACT, 1927 ((XVI OF 1927)).

No. GVN-2003-(8)-JJM-1003-245-K :-In exercise of the powers conferred by section 29 of Indian Forest Act (XVI of 1927), the Government of Gujarat is pleased to declare the area of Gandhinagar Town Ship of Gandhinagar Taluka, Gandhinagar District under the GEER Foundation, Gandhinagar specified in this schedule annexed to be Protected Forest with effect from the date of this notification.

SCHEDULE

Town : Gandhinagar		Taluka : Gandhinagar		District : Gandhinagar	
Sr.No.	Name of Village	Survey No.	Area	Boundaries	
			Ha		
1	Gandhinagar Town	Indroda Park	428.00	North : J. Road, Indroda Village, Basan Village and old survey No. of Basan Village 1,2,250,249,248, 247/1, 247, 219, 218, 217, 215, 214, 200 East : Boundary of the Gandhinagar Town South : Dholakuva village and Boundary of Gandhinagar Town West : Dholakuva Village and Government waste land.	

 By order and in the name of Governor of Gujarat,
ANANT PATEL,
 Under Secretary to Government.

IV-A-Ex.-53-1

53-1

Annexure-2.4
Free Living Species Occurring in the INP Zoo West Campus- Flora

Sr. No.	Name of the Species	Local name
1	2	3
1	<i>Dillenia pentagyna</i>	Karmal
2	<i>Michelia champaca</i>	Sonchampa
3	<i>Magnolia grandiflora</i>	Safed champo
4	<i>Magnolia pumilla</i>	-
5	<i>Annona muricata</i>	Mamphal
6	<i>Annona reticulata</i>	Ramphal
7	<i>Annona squamosa</i>	Sitafal
8	<i>Cananga odorata</i>	-
9	<i>Miliusa tomentosa</i>	Umbha
10	<i>Polyalthia cerasoides</i>	Um, Umda
11	<i>Polyalthia longifolia</i>	Asopalav
12	<i>Artabotrys hexapetalus</i>	Nagchampo, Nagkesar
13	<i>Capparis grandis</i>	Dumro, Thikari
14	<i>Crateva nurvala</i> var. <i>nurvala</i>	Vayvarno
15	<i>Crateva adansonii</i> subsp. <i>odora</i>	-
16	<i>Calophyllum inophyllum</i>	Unci
17	<i>Garcinia indica</i>	Kokam
18	<i>Garcinia spicata</i>	Karmala Outh
19	<i>Ochrocarpus logifolius</i>	
20	<i>Cochlospermum religiosum</i>	-
21	<i>Casearia elliptica</i>	Dholo Umbha, Kirmada, Tondrum
22	<i>C. esculenta</i>	Tandol
23	<i>C. graveolens</i>	Kirambira, Manjo
24	<i>Flacourtia indica</i>	Labri, bhekal
25	<i>F. montana</i>	-

Sr. No.	Name of the Species	Local name
1	2	3
26	<i>Tamarix aphylla</i>	-
27	<i>Tamarix dioica</i>	Prans
28	<i>Tamarix stricta</i>	-
29	<i>Tamarix troupii</i>	-
30	<i>Kydia calycina</i>	Petari, Hiravani, Waring
31	<i>Thespesia populnea</i>	Paras piplo
32	<i>Adansonia digitata</i>	Rukhdo, Gorakh
33	<i>Bombax ceiba</i>	Shimalo
34	<i>Ceiba pentandra</i>	Laso Shimalo, Kapok tree, Dholo Shimalo
35	<i>Eriolaena candollei</i>	Both
36	<i>Eriolaena hookeriana</i>	-
37	<i>Eriolaena stocksii</i>	-
38	<i>Firmiania colorata</i>	Kodaro
39	<i>Gauzuma ulmifolia</i>	Rudrakshi
40	<i>Helicteres isora</i>	Maradsing / Aatardi
41	<i>Heritiera toralis</i>	Sundri
42	<i>Kleinhovia hospita</i>	-
43	<i>Melhanian denhamii</i>	-
44	<i>Pterospermum acerifolium</i>	Kanak champo
45	<i>Pterospermum suberifolium</i>	Muchkund
46	<i>Pterygota alata</i>	-
47	<i>Spathodea campanulata</i>	-
48	<i>Sterculia foetida</i>	Kamarkakdi
49	<i>Sterculia guttata</i>	Goldero Kookar
50	<i>Sterculia urens</i>	Kadayo
51	<i>Sterculia villosa</i>	Sardol, Udal
52	<i>Theobroma cacao</i>	-

Sr. No.	Name of the Species	Local name
1	2	3
53	<i>Grewia columnaris</i>	-
54	<i>Grewia disperma</i>	-
55	<i>Grewia subinequalis</i>	Phalsa
56	<i>Grewia tiliaefolia</i>	Dhaman
57	<i>Elaeocarpus ganitrus</i>	Rudraksh/ Bhadraksh
58	<i>Guacum officinale</i>	-
59	<i>Averrhoa carambola</i>	Kamrakh
60	<i>Aegle marmelos</i>	Bili
61	<i>Altantia monophylla</i>	Ranlimbu, Makad limbu
62	<i>Citrus limettiodes</i>	-
63	<i>Citrus limon</i>	Limbu
64	<i>Citrus mexima</i>	Papnus
65	<i>Citrus medica</i>	Bijoru
66	<i>Citrus reticulata</i>	Narangi
67	<i>Citrus cinensis</i>	Mosambi
68	<i>Limonia acidissima</i>	Kothi
69	<i>Murraya koenigii</i>	Mithulimbo
70	<i>Murraya paniculata</i>	Kamini, Jaswanthi
71	<i>Toddalia aculeata</i>	Jungli Kali Mirchi
72	<i>Zanthoxylum alatum</i>	Tejbal
73	<i>Ailanthus excelsa</i>	Arduso
74	<i>Balanites aegyptiaca</i>	Ingoriyo
75	<i>Boswellia serrata</i>	Saledi, Gugal
76	<i>Bursea delphichiana</i>	-
77	<i>Commiphora wightii</i>	Gugal
78	<i>Garuga pinnata</i>	Kakad
79	<i>Agalaia odoratissima</i>	Govindini

Sr. No.	Name of the Species	Local name
1	2	3
80	<i>Amoora rohituka</i>	Rohido, Rohitak
81	<i>Azadirachta indica</i>	Limdo
82	<i>Cedrela toona</i>	Maha Neem, Toon
83	<i>Chloroxylon swietenia</i>	Bherio
84	<i>Dysoxylum binectariferum</i>	Burumbi
85	<i>Heynea trijuga</i>	-
86	<i>Melia azedarach</i>	Bakan Limdo
87	<i>Melia composita</i>	Limbaro
88	<i>Soyimida febrifuga</i>	Ron-Ragat Rohido
89	<i>Swietenia mahagoni</i>	-
90	<i>Swietenia macrophylla</i>	-
91	<i>Cassia glauca</i>	Bhutad
92	<i>Maytenus emarginata</i>	Vikalo
93	<i>Zizyphus glaberrima</i>	Ghatbor
94	<i>Zizyphus glaberata</i>	Bor
95	<i>Zizyphus mauritiana</i>	-
96	<i>Zizyphus zylopyra</i>	Ghat Bor
97	<i>Filicum decipiens</i>	Ningal
98	<i>Litchi chinensis</i>	Litchi
99	<i>Sapindus emarginatus</i>	Aritha
100	<i>Sapindus laurifolius</i>	Aritha
101	<i>Schleichera oleosa</i>	Kusum
102	<i>Anacardium occidentale</i>	Kanju
103	<i>Buchanania lanzan</i>	Charoli
104	<i>Lannea coromandelica</i>	Modad
105	<i>Mangifera indica</i>	Mango
106	<i>Pistacia vera</i>	Pista

Sr. No.	Name of the Species	Local name
1	2	3
107	<i>Rhus mysurensis</i>	Kashelo
108	<i>Schinus molle</i>	California paper tree
109	<i>Semecarpus anacardium</i>	Bhilamo
110	<i>Spondias mangifera</i>	Ambado
111	<i>Moringa concanensis</i>	Jungli Saragavo
112	<i>Moringa oleifera</i>	Saragavo
113	<i>Butea monosperma</i>	Khakhro
114	<i>Dalbergia lanceolaria</i>	Tantoshi
115	<i>Dalbergia latifolia</i>	Sisham
116	<i>Dalbergia paniculata</i>	Patrali
117	<i>Dalbergia sissoo</i>	Sissoo
118	<i>Pongamia pinnata</i>	Karani
119	<i>Erythrina suberosa</i>	Jagoriyo
120	<i>Erythrina variegeta</i>	Pangarvo Panarvo
121	<i>Gliricidia sepium</i>	-
122	<i>Millettia ovalifolia</i>	-
123	<i>Ougeinia oojeinensis</i>	Tanach
124	<i>Pterocarpus marsupium</i>	Biyo
125	<i>Sebania grandiflora</i>	Agathio
126	<i>Sesbania javanica</i>	-
127	<i>Sesbania sesban</i>	Shevari
128	<i>Amherstia nobilis</i>	-
129	<i>Bauhinia purpurea</i>	Kachner
130	<i>Bauhinia racemosa</i>	Asondaro
131	<i>Bauhinia retusa</i>	Koilar
132	<i>Bauhinia tomentosa</i>	Pilo Asitaro
133	<i>Bauhinia variegata</i>	Kovidar

Sr. No.	Name of the Species	Local name
1	2	3
134	<i>Brownea coccinea</i>	-
135	<i>Caesalpinia coriaria</i>	Divi-Divi
136	<i>Caesalpinia sapan</i>	-
137	<i>Cassia fistula</i>	Garmalo, Amaltas
138	<i>Cassia grandis</i>	-
139	<i>Cassia javanica</i>	-
140	<i>Cassia marginiata</i>	-
141	<i>Cassia moschata</i>	-
142	<i>Cassia nodosa</i>	Motiaval
143	<i>Cassia renigera</i>	-
144	<i>Cassia siamea</i>	Kasid
145	<i>Cassia surattensis</i>	-
146	<i>Colvillea racemosa</i>	-
147	<i>Delonix elata</i>	Sandesaro
148	<i>Delonix regia</i>	Gulmohar
149	<i>Haematoxylon compechianum</i>	-
150	<i>Hardwickia binata</i>	Arjan
151	<i>Parkinsonia aculeata</i>	Ram baval
152	<i>Peltophorum pterocarpum</i>	Sonmohar
153	<i>Piliostigma foveolatum</i>	Tamraphali, chamuli
154	<i>Piliostigma malabaricum</i>	Khatumbo, khatamli
155	<i>Saraca asoca</i>	Ashoka tree
156	<i>Tamarindus indica</i>	Amli
157	<i>Acacia auriculiformis</i>	Bebali baval
158	<i>Acacia chundra</i>	Khair
159	<i>Acacia eburnea</i>	Bhatakiyo Baval
160	<i>Acacia farnesiana</i>	Gandhilo khair, Tal Baval

Sr. No.	Name of the Species	Local name
1	2	3
161	<i>Acacia ferrunginea</i>	Kanti, Khaigar
162	<i>Acacia</i>	Hermo Baval
163	<i>Acacia nilotica</i>	Deshi Baval
164	<i>Acacia planiformis</i>	Chhatro baval
165	<i>Acacia polycantha</i>	Gobia
166	<i>Acacia senegal</i>	Gorad
167	<i>Adenanthera pavonina</i>	Ratanjali
168	<i>Adenanthera microsperma</i>	Nani Ratanjali
169	<i>Albizia amara</i>	-
170	<i>Albizia lebbeck</i>	Kalo siris
171	<i>Albizia odoratissima</i>	Dholo siris
172	<i>Albizia procera</i>	Ghorad
173	<i>Dichrostachys cinerea</i>	Majith, Mordhaundhiya
174	<i>Leucaena leucocephala</i>	Subaval
175	<i>Parkia biglandulosa</i>	Chanduphal
176	<i>Pithecellobium dulce</i>	Goras Aml, Jungle Jalebi
177	<i>Prosopis cineraria</i>	Khijdo
178	<i>Prosopis juliflora</i>	Gondo baval
179	<i>Prosopis stephaniana</i>	Bethi-khijdi
180	<i>Samanea saman</i>	Barsati
181	<i>Bruguiera gymnorhiza</i>	Sanvar
182	<i>Rhizophora gymnorhiza</i>	Karod
183	<i>Anogeissus latifolia</i>	Dhavdo
184	<i>Anogeissus pendula</i>	Dhankra
185	<i>Anogeissus sericea</i>	Anadrakh
186	<i>Terminalia arjuna</i>	Arjun Sadad
187	<i>Terminalia bellirica</i>	Baheda

Sr. No.	Name of the Species	Local name
1	2	3
188	<i>Terminalia catappa</i>	Badam
189	<i>Terminalia chebula</i>	Harde
190	<i>Terminalia crenulata</i>	Sadad
191	<i>Barringtonia acutangula</i>	Dhatrithal
192	<i>Barringtonia racemosa</i>	Samudraphal
193	<i>Calistemon lanceolatus</i>	Bottle brush
194	<i>Couropita quianensis</i>	Kalashpati
195	<i>Eucalyptus citriodora</i>	Nilgiri
196	<i>Eucalyptus hybrid</i>	Nilgiri
197	<i>Melaleuca luecadendron</i>	Cayaputi
198	<i>Psidium guajava</i>	Jamfal
199	<i>Syzygium aromaticum</i>	Laving
200	<i>Syzygium cumini</i>	Jambu
201	<i>Syzygium heyneanum</i>	Jaliambu
202	<i>Syzygium rubicundum</i>	Vanjambu
203	<i>Syzygium malaccense</i>	Safed Jambu
204	<i>Careya arborea</i>	Kumbhi
205	<i>Lagerstroemia indicia</i>	Chinai Mendi
206	<i>Lagerstroemia lanceolata</i>	Nano Bondara
207	<i>Lagerstroemia parviflora</i>	Bondara
208	<i>Lagerstroemia speciosa</i>	Jarul
209	<i>Punica granatum</i>	Dadam
210	<i>Carica papaya</i>	Papaiya
211	<i>Alangium salvifolium</i>	Ankot
212	<i>Adina cordifolia</i>	Halдарво, Haldu
213	<i>Anthocephalus indicus</i>	Kadamba
214	<i>Gardenia resinifera</i>	Penderi

Sr. No.	Name of the Species	Local name
1	2	3
215	<i>Gardenia turgida</i>	Gangedi
216	<i>Hymenodictyon excelsum</i>	Bhammar chal
217	<i>Ixora arborea</i>	Neveri
218	<i>Ixora brachiata</i>	Garbale
219	<i>Meyna laxiflora</i>	Ali, Alu Fulkhado, Gordadi
220	<i>Mitragyna parvifolia</i>	Kalam
221	<i>Morinda citrifolia</i>	Saraji, Aal
222	<i>Morinda tomentosa</i>	Aal
223	<i>Spermadictyon suaveolens</i>	-
224	<i>Wendlandia heynei</i>	-
225	<i>Xeromphis spinosa</i>	Mindhol
226	<i>Xeromphis ulignosa</i>	Gangedi Ghali
227	<i>Chrysophllum caiato</i>	Star apple
228	<i>Madhuca indicia</i>	Mahuda
229	<i>Madhuca longifolia</i>	Mahuda
230	<i>Manilkara hexandra</i>	Rayan
231	<i>Manilkara zapota</i>	Chik
232	<i>Mimusops elengi</i>	Bakul, Borsali`
233	<i>Diospyros chloroxylon</i>	-
234	<i>Diospyros cordifolia</i>	-
235	<i>Diospyros melanoxylan</i>	Timru
236	<i>Diospyros montana</i>	-
237	<i>Diospyros tomentosa</i>	Makrodi
238	<i>Nyctanthes arbortristis</i>	Parijatak
239	<i>Schrebera swietenoides</i>	Markho, Mokho
240	<i>Salvadora oleoides</i>	Piludi
241	<i>Salvadora persica</i>	Varkhadi, Piludi

Sr. No.	Name of the Species	Local name
1	2	3
242	<i>Alstonia scholaris</i>	Saptaparni
243	<i>Holarrhena antidysenterica</i>	Indrajav, Kalukado
244	<i>Plumeria rubra</i>	Champo, Khadochampo
245	<i>Thevetia peruviana</i>	Pilikaren
246	<i>Wrightia tinctoria</i>	Dudhalo, Audi
247	<i>Wrightia tomentosa</i>	Dudhalo
248	<i>Strychnos nuxyomica</i>	Zerochalu
249	<i>Strychnos potatorum</i>	Nirmali
250	<i>Cordia dichotoma</i>	Gundo, Moto gundo
251	<i>Cordia monoica</i>	Kathigundi, Karapti
252	<i>Cordia perrottetii</i>	Jungli gundi
253	<i>Cordia sebestene</i>	Lalgundo
254	<i>Cordia domestica</i>	Godadio sag
255	<i>Cordia gharaf</i>	Gundi
256	<i>Cordia macleodii</i>	Dehivi
257	<i>Cordia wallichii</i>	-
258	<i>Ehretia aspera</i>	Nani vadhwardi
259	<i>Ehretia laevis</i>	Vadhwardi
260	<i>Bignonia magopotamica</i>	-
261	<i>Crescentia alata</i>	-
262	<i>Crescentia cujete</i>	-
263	<i>Dolichandrone falcata</i>	Medsinghi, Mardsingh
264	<i>Haplophragma adenophyllum</i>	-
265	<i>Haplophragma quadriloculare</i>	Waras
266	<i>Jacaranda mimosifolia</i>	-
267	<i>Kigelia pinnata</i>	-
268	<i>Millingtonia hortensis</i>	Buch

Sr. No.	Name of the Species	Local name
1	2	3
269	<i>Oroxylum indicum</i>	Tetu
270	<i>Spathodea campanulata</i>	-
271	<i>Tecoma argentea</i>	-
272	<i>Tecomella undulata</i>	Ragal Rohido
273	<i>Dolichandrone atrovirens</i>	Padri, Padad
274	<i>Parmentiera cerifera</i>	-
275	<i>Radermachera xylocarpa</i>	-
276	<i>Stereospermum personatum</i>	Papad
277	<i>Stereospermum suaveolana</i>	-
278	<i>Tebubia sp.</i>	-
279	<i>Avicennia marina</i>	Tivar
280	<i>Avicennia officinalis</i>	Tavariya
281	<i>Clerodendrum multiflorum</i>	Arni
282	<i>Gmelina arborea</i>	Seven
283	<i>Tectona grandis</i>	Sag
284	<i>Vitex negundo</i>	Nagod
285	<i>Chitharexylum suberratum</i>	-
286	<i>Grevillea robusta</i>	-
287	<i>Santalum album</i>	Sukhad
288	<i>Bridelia retusa</i>	Monj, Asan
289	<i>Bridelia squamosa</i>	Asan
290	<i>Cicca acida</i>	Harap ravdi
291	<i>Drypetes roxburghii</i>	Putranjivan
292	<i>Emblica officinalis</i>	Amla
293	<i>Excaecaria agallocha</i>	Tagar
294	<i>Antidesma ghaesaembilla</i>	-
295	<i>Hevea brasiliensis</i>	-

Sr. No.	Name of the Species	Local name
1	2	3
296	<i>Pura crepitans</i>	-
297	<i>Mallotus philippensis</i>	Kapilo
298	<i>Sapium insigne</i>	Sherod
299	<i>Trevvia polycarpa</i>	Petar
300	<i>Holoptela integrifolia</i>	Kanjo
301	<i>Trenna orientalia</i>	Geol, Vanjali
302	<i>Trenna politoria</i>	-
303	<i>Artocarpus heterophyllus</i>	Phanus
304	<i>Artocarpus lakoocha</i>	Nana Phanus lakush
305	<i>Artocarpus hirsuta</i>	Jangle Phanus
306	<i>Artocarpus communis</i>	Vilayati Phanus
307	<i>Ficus asperrima</i>	Kharoti, Bhoyumber
308	<i>Ficus benghalensis</i>	Vad
309	<i>Ficus benjamina</i>	Vadli
310	<i>Ficus carica</i>	Ajnir
311	<i>Ficus mysorensis</i>	Pipli
312	<i>Ficus elastica</i>	Rubber tree
313	<i>Ficus hispida</i>	Dhedh Umardo
314	<i>Ficus krishnae</i>	Krishna vad
315	<i>Ficus nervosa</i>	-
316	<i>Ficus nitida</i>	-
317	<i>Ficus nuda</i>	-
318	<i>Ficus racemosa</i>	Uniro
319	<i>Ficus religiosa</i>	Piplo
320	<i>Morus alba</i>	Shetur
321	<i>Ficus amplissima</i>	Pipar
322	<i>Ficus arnottiana</i>	Khadak Payar

Sr. No.	Name of the Species	Local name
1	2	3
323	<i>Ficus microcarpa</i>	Nandrukhi Vad
324	<i>Ficus rumphii</i>	Payar, Pili
325	<i>Ficus virens</i>	Pipli
326	<i>Strbulbus asper</i>	Herero
327	<i>Casuarina equisetifolia</i>	-
328	<i>Salix tetrasperma</i>	-
329	<i>Roystonea regia</i>	Bottle palm
330	<i>Caryota urens</i>	Shiv Jala
331	<i>Phoenix sylvestries</i>	Khajur

Annexure-2.5
Free Living Species Occurring INP Zoo and surrounding area of Indroda Nature Park- Fauna

Sr. No.	Common Name	Scientific Name
1	2	3
Mammals		
1	Hanuman Langur	<i>Presbytis entellus</i>
2	Indian Hare	<i>Lepus nigricollis</i>
3	Jackal	<i>Canis aureus</i>
4	Indian Porcupine	<i>Hystrix indica</i>
5	Grey Mongoose (Common Mongoose)	<i>Herpestes edwardsii</i>
6	Pale Hedgehog	<i>Hemiechinus micropus</i>
7	Blue bull	<i>Boselaphus tragocamelus</i>
8	Rusty-Spotted cat	<i>Prionailurus rubiginosus</i>
9	Five-striped Palm squirrel	<i>Funambulus palmarum</i>
10	Small Indian civet	<i>Viverricula indica</i>
Birds		
1	Alexandrine Parakeet	<i>Psittacula eupatria</i>
2	Alpine Swift	<i>Tachymarptis melba</i>
3	Ashy Drongo	<i>Dicrurus leucophaeus</i>
4	Ashy Prinia	<i>Prinia socialis</i>
5	Ashy-crowned Sparrow-Lark	<i>Eremopterix grisea</i>
6	Asian Koel	<i>Eudynamys scolopacea</i>
7	Asian Openbill	<i>Anastomus oscitans</i>
8	Asian Palm Swift	<i>Cypsiurus balasiensis</i>
9	Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>
10	Bank Myna	<i>Acridotheres ginginianus</i>
11	Barn-owl	<i>Tyto alba</i>
12	Baya Weaver	<i>Ploceus philippinus philippinus</i>

Sr. No.	Common Name	Scientific Name
1	2	3
13	Bay-backed Shrike	<i>Lanius vittatus</i>
14	Black Drongo	<i>Dicrurus macrocercus</i>
15	Black Ibis	<i>Pseudibis papillosa</i>
16	Black Kite	<i>Milvus migrans</i>
17	Black Redstart	<i>Tringa tetanus</i>
18	Black-crowned Night-heron	<i>Nycticorax nycticorax</i>
19	Black-headed Cuckooshrike	<i>Coracina melanoptera</i>
20	Black-shouldered Kite	<i>Elanus caeruleus</i>
21	Black-winged Stilt	<i>Himantopus himantopus</i>
22	Blue Rock Thrush	<i>Monticola rufiventris</i>
23	Blue-cheeked Bee-eater	<i>Merops persicus</i>
24	Blue-tailed Bee-eater	<i>Merops philippinus</i>
25	Bluethroat	<i>Luscinia svecica</i>
26	Booted Warbler	<i>Hippolais caligata</i>
27	Brahminy Duck	<i>Tadorna ferruginea</i>
28	Brahminy Starling	<i>Sturnus pagodarum</i>
29	Brown Rock Pipit	<i>Anthus similis</i>
30	Cattle Egret	<i>Bubulcus ibis</i>
31	Changeable Hawk-Eagle	<i>Spizaetus cirrhatus</i>
32	Chestnut-shouldered Petronia	<i>Petronia xanthocollis</i>
33	Citrine Wagtail	<i>Motacilla citreola</i>
34	Clamorous Reed Warbler	<i>Acrocephalus stentoreus</i>
35	Collared Scops-Owl	<i>Otus bakkamoena</i>
36	Comb Duck	<i>Sarkidiornis melanotos</i>
37	Common Babbler	<i>Turdoides caudatus</i>
38	Common Chiffchaff	<i>Phylloscopus collybita</i>
39	Common Coot	<i>Fulica atra</i>

Sr. No.	Common Name	Scientific Name
1	2	3
40	Common Crane	<i>Grus grus</i>
41	Common Greenshank	<i>Tringa nebularia</i>
42	Common Hawk-cuckoo	<i>Hierococcyx varius</i>
43	Common Hoopoe	<i>Upupa epops</i>
44	Common Iora	<i>Aegithina tiphia</i>
45	Common Kestrel	<i>Falco tinnunculus</i>
46	Common Kingfisher	<i>Alcedo atthis</i>
47	Common Lesser Whitethroat	<i>Sylvia curruca</i>
48	Common moorhen	<i>Gallinula chloropus</i>
49	Common Myna	<i>Acridotheres tristis</i>
50	Common Pochard	<i>Aythya ferina</i>
51	Common Quail	<i>Cotumix cotumix</i>
52	Common Redshank	<i>Tringa totanus</i>
53	Common Sandpiper	<i>Actitis hypoleucos</i>
54	Common Snipe	<i>Gallinago gallinago</i>
55	Common Stone Chat	<i>Saxicola torquata</i>
56	Common Swallow	<i>Hirundo rustica</i>
57	Common Tailorbird	<i>Orthotomus sutorius</i>
58	Common Teal	<i>Anas crecca</i>
59	Common Woodshrike	<i>Tephrodornis pondicerianus</i>
60	Coppersmith Barbet	<i>Megalaima haemacephala</i>
61	Crested Bunting	<i>Melophs lathamii</i>
62	Crested Lark	<i>Galerida cristata</i>
63	Crested Serpent-Eagle	<i>Spilornis cheela</i>
64	Darter	<i>Anhinga melanogaster</i>
65	Desert Wheatear	<i>Oenanthe deserti</i>
66	Dusky Crag-martin	<i>Hirundo concolor</i>

Sr. No.	Common Name	Scientific Name
1	2	3
67	Eurasian Collared-dove	<i>Streptopelia decaocto</i>
68	Eurasian Curlew	<i>Numenius arquata</i>
69	Eurasian Eagle-owl	<i>Bubo bubo</i>
70	Eurasian Golden Oriole	<i>Oriolus oriolus</i>
71	Eurasian Sparrowhawk	<i>Accipiter nisus</i>
72	Eurasian Spoonbill	<i>Platalea leucorodia</i>
73	Eurasian Thick-knee	<i>Burhinus oedicephalus</i>
74	Eurasian Wryneck	<i>Jynx torquilla</i>
75	Forest Wagtail	<i>Dendronanthus indicus</i>
76	Glossy Ibis	<i>Plegadis falcinellus</i>
77	Great Cormorant	<i>Phalacrocorax carbo</i>
78	Great White Pelican	<i>Pelecanus onocrotalus</i>
79	Greater Coucal	<i>Centropus sinensis</i>
80	Green Bee-eater	<i>Merops orientalis</i>
81	Green Sandpiper	<i>Tringa ochropus</i>
82	Greenish Leaf Warbler	<i>Phylloscopus trochiloides</i>
83	Grey Francolin	<i>Francolinus pondicerianus</i>
84	Grey Heron	<i>Ardea cinerea</i>
85	Grey Wagtail	<i>Motocilla cinerea</i>
86	Grey-breasted Prinia	<i>Prinia hodgsonii</i>
87	Grey-headed Flycatcher	<i>Culicicapa ceylonensis</i>
88	Hair-crested Drongo	<i>Dicrurus hottentotus</i>
89	House Crow	<i>Corvus splendens</i>
90	House Sparrow	<i>Passer domesticus</i>
91	House Swift	<i>Apus affinis</i>
92	Indian Bushlark	<i>Mirafra erythroptera</i>
93	Indian Cuckoo	<i>Cuculus micropterus</i>

Sr. No.	Common Name	Scientific Name
1	2	3
94	Indian Grey Hornbill	<i>Ocyceror Birostris</i>
95	Indian Nightjar	<i>Caprimulgus asiaticus</i>
96	Indian Peafowl	<i>Pavo cristatus</i>
97	Indian Pitta	<i>Pitta brachyura</i>
98	Indian Pond-heron	<i>Ardeola grayii</i>
99	Indian Robin	<i>Saxicoloides fulicata</i>
100	Indian Roller	<i>Coracias benghalensis</i>
101	Indian Silverbill	<i>Lonchura malabarica</i>
102	Intermediate Egret	<i>Mesophoyx intermedia</i>
103	Jungle Babbler	<i>Turdoides striatus</i>
104	Jungle Bush-quail	<i>Perdica asiatica</i>
105	Jungle Crow	<i>Corvus macrorhynchos</i>
106	Jungle Owlet	<i>Glaucopteryx radiatum</i>
107	Jungle Prinia	<i>Prinia sylvatica</i>
108	Large Cuckoo-Shrike	<i>Coracina macei</i>
109	Large Egret	<i>Casmerodius albus</i>
110	Large Grey Babbler	<i>Turdoides malcolmi</i>
111	Large Woodshrike	<i>Tephrodornis gularis</i>
112	Laughing Dove	<i>Streptopelia senegalensis</i>
113	Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>
114	Lesser Whistling-duck	<i>Dendrocygna javanica</i>
115	Little Cormorant	<i>Phalacrocorax niger</i>
116	Little Egret	<i>Egretta garzetta</i>
117	Little Grebe	<i>Tachybaptus ruficollis</i>
118	Little Ringed Plover	<i>Charadrius dubius</i>
119	Long-tailed Shrike	<i>Lanius schach erythronotus</i>
120	Marshall's Iora	<i>Aegithina nigrolutea</i>

Sr. No.	Common Name	Scientific Name
1	2	3
121	Mottled Wood Owl	<i>Strix ocellata</i>
122	Northern Pintail	<i>Anas acuta</i>
123	Northern Shoveler	<i>Anas clypeata</i>
124	Oriental Honey-buzzard	<i>Pernis ptilorhynchus</i>
125	Oriental Magpie-Robin	<i>Copsychus saularis</i>
126	Oriental Tree Pipit	<i>Anthus trivialis</i>
127	Oriental White Ibis	<i>Threskiornis melanocephalus</i>
128	Oriental White-eye	<i>Zosterops palpebrosus</i>
129	Orphean Warbler	<i>Sylvia hortensis</i>
130	Painted Stork	<i>Mycteria leucocephala</i>
131	Pallid Harrier	<i>Circus macrourus</i>
132	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>
133	Pied Avocet	<i>Recurvirostra avosetta</i>
134	Pied Bush Chat	<i>Saxicola caprata</i>
135	Pied Crested Cuckoo	<i>Clamator jacobinus</i>
136	Pied Kingfisher	<i>Ceryle rudis</i>
137	Plain Prinia	<i>Prinia inornata</i>
138	Plume-headed Parakeet	<i>Psittacula cyanocephala</i>
139	Purple Heron	<i>Ardea purpurea</i>
140	Purple Moorhen	<i>Porphyrio porphyrio</i>
141	Purple Sunbird	<i>Nectarinia asiatica</i>
142	Purple-rumped Sunbird	<i>Nectarinia zeylonia</i>
143	Red Collared-dove	<i>Streptopelia tranquebarica</i>
144	Red-breasted Flycatcher	<i>Ficedula parva</i>
145	Red-headed Falcon	<i>Falco chicquera</i>
146	Red-rumped Swallow	<i>Hirundo daurica</i>
147	Red-vented Bulbul	<i>Pycnonotus cafer</i>

Sr. No.	Common Name	Scientific Name
1	2	3
148	Red-wattled Lapwing	<i>Vanellus indicus</i>
149	River Tern	<i>Sterna aurantia</i>
150	Rock Pigeon	<i>Columba livia</i>
151	Rose-ringed Parakeet	<i>Psittacula krameri</i>
152	Rosy Starling	<i>Sturnus roseus</i>
153	Rufous Fronted Prinia	<i>Prinia buchanani</i>
154	Rufous tailed Lark	<i>Ammomanes phoenicura</i>
155	Rufous Treepie	<i>Dendrocitta vagabunda</i>
156	Rufous-tailed Finch-Lark	<i>Ammomanes phoenicurus</i>
157	Savanna Nightjar	<i>Caprimulgus affinis</i>
158	Scaly-breasted Munia	<i>Lonchura punctulata</i>
159	Shikra	<i>Accipiter badius cenchroides</i>
160	Short-toed Snake-Eagle	<i>Circaetus gallicus</i>
161	Short-toed snake Eagle	<i>Circaetus gallicus</i>
162	Siberian Rubythroat	<i>Luscinia calliope</i>
163	Singing Bushlark	<i>Mirafra cantillans</i>
164	Sirkeer Malkoha	<i>Phaenicophaeus leschenaultii</i>
165	Small Minivet	<i>Pericrocotus cinnamomeus</i>
166	Southern Grey Shrike	<i>Lanius meridionalis</i>
167	Spot-billed Duck	<i>Anas poecilorhyncha</i>
168	Spotted Dove	<i>Streptopelia chinensis</i>
169	Spotted Flycatcher	<i>Muscicapa striata</i>
170	Spotted Owlet	<i>Athene brama</i>
171	Streaked Weaver Bird	<i>Ploceus manyar</i>
172	Streaked Wren-Warbler	<i>Prinia gracilis</i>
173	Sulphur-bellied Warbler	<i>Phylloscopus griseolus</i>
174	Sykes's Lark	<i>Galerida deva</i>

Sr. No.	Common Name	Scientific Name
1	2	3
175	Tawny-bellied Babbler	<i>Dumetia hypertythra</i>
176	Tickell's Blue Flycatcher	<i>Cyornis tickelliae</i>
177	Tickell's Fowerpecker	<i>Dicaeum agile</i>
178	Ultramarine Flycatcher	<i>Muscicapa superciliaris</i>
179	Variable Wheater	<i>Oenanthe picata</i>
180	Verditer Flycatcher	<i>Eumyias thalassina</i>
181	Western Marsh Harrier	<i>Circus aeruginosus</i>
182	White Eyed Buzzard	<i>Butastur teesa</i>
183	White Stork	<i>Ciconia ciconia</i>
184	White Wagtail	<i>Motacilla alba</i>
185	White-bellied Drongo	<i>Dicrurus caerulescens</i>
186	White-bellied Minivet	<i>Pericrocotus erythropygius</i>
187	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>
188	White-browed Bulbul	<i>Pycnonotus luteolus</i>
189	White-browed Fantail Flycatcher	<i>Rhipidura aureola</i>
190	White-eared bulbul	<i>Pycnonotus leucotis</i>
191	White-eyed Buzzard	<i>Butaster teesa</i>
192	White-necked Stork	<i>Ciconia episcopus</i>
193	White-throated Fantail Flycatcher	<i>Rhipidura albicollis</i>
194	White-throated Kingfisher	<i>Halcyon smyrnensis</i>
195	Wire-tailed Swallow	<i>Hirundo smithii</i>
196	Wood Sandpiper	<i>Tringa glareola</i>
197	Yellow fronted pied Woodpecker	<i>Dendrocopos mahrattensis</i>
198	Yellow Wagtail	<i>Motacilla flava</i>
199	Yellow-eyed Babbler	<i>Chrysomma sinense</i>
200	Yellow-legged Green Pigeon	<i>Treron phoenicoptera</i>
201	Yellow-wattled Lapwing	<i>Vanellus malarbaricus</i>

Sr. No.	Common Name	Scientific Name
1	2	3
Reptiles		
1	Indian Cobra	<i>Naja naja</i>
2	Common Krait	<i>Bungarus caeruleus</i>
3	Common San boa	<i>Gongylophis conicus</i>
4	Red San-Boa	<i>Eryx johnii</i>
5	Indian Rock Python	<i>Python molurus</i>
6	Common Cat Snake	<i>Boiga trigonata</i>
7	Small-banded Kukri Snake	<i>Oligodon fasciolatus</i>
8	Common Worm Snake	<i>Typhlina bramina</i>
9	Bronze back tree snake	<i>Dendrelaphis gorei</i>
10	Russel's Viper	<i>Daboia russelii</i>
11	Saw-scaled viper	<i>Echis carinata</i>
12	Trinket Snake	<i>Elaphe helena</i>
13	Indian Wolf Snake	<i>Lycodon capucinus</i>
14	Barred Wolf Snake	<i>Lycodon striatus</i>
15	Checkered keel-back	<i>Xenochrophis piscator</i>
16	Common Garden Lizard	<i>Calotes versicolor</i> (Daudin)
17	Common Indian Monitor	<i>Varanus Bengalensis</i>
18	Fan-Throated Lizard	<i>Sitana ponticeriana</i>
19	Brahminy Skink	<i>Mabuya carinata</i>
20	Indian Flapshell	<i>Lissemys punctata</i>

Annexure-3.1
INP West
Animal Livestock as on (01/10/2016)

**As approved by the CZA vide No.F.No.19-33/92-CZA(72)(Vol.IV)(M)
dated 04/10/2010**

Sr. No.	Animal Species	Opening stock as on 01-10-2016			
		M	F	U	T
Mammals					
1	Chinkara - Indian Gazzelle (Gazella gazella Gennetti)	3	3	0	6
2	Jackal (Canis qureus)	1	1	0	2
3	Leopard / Panther (Panthera pardus)	2	1	0	3
4	Porcupine Bengal (Altherurus meccouous assamensis)	0	0	2	2
5	Black Buck (Black) (Antilope cervicapra)	94	83	0	177
6	Black Buck (white) (Antilope cervicapra)	11	20	0	31
7	Deer Samber (Cervus unicolor)	11	22	0	33
8	Deer Spotted - Chital (Axis axis)	39	68	0	107
9	Tiger (Panthera tigris)	0	0	0	0
	Total Mammals	161	198	2	361

Annexure-3.2
INP West
Birds Livestock as on (01/10/2016)

**As approved by the CZA vide No.F.No.19-33/92-CZA(72)(Vol.IV)(M)
dated 04/10/2010**

Sr. No.	Animal Species	Opening stock as on 01-10-2016			
		M	F	U	T
Birds					
1	Cormorant Little (<i>Phalacrocorax niger</i>)	0	0	1	1
2	Crane Common (<i>Grus grus</i>)	0	0	2	2
3	Crane Sarus (<i>Grus antigone</i>)	1	1	0	2
4	Brahminy Kite	0	0	1	1
5	Duck Pin Tail (<i>Anas acuta</i>)	1	1	0	2
6	Egret Cattle (<i>Bubulcus ibis</i>)	1	1	0	2
7	Egret Little (<i>Egretta garretta</i>)	1	1	0	2
8	Goose Bar Headed (<i>Answer indicus</i>)	0	0	3	3
9	Goose Gray leg	0	0	6	6
10	Great White Pelican	0	0	6	6
11	Myna Common (<i>Acridotheres tristis</i>)	1	1	0	2
12	Owl Barn (<i>Tyto alba</i>)	1	0	0	1
13	Parakeet Alexandrine (<i>Psittacula eupatria</i>)	1	3	0	4
14	Peafowl (<i>Pavo cristatus</i>)	3	0	0	3
15	Spoonbill White (<i>Platalea leucorodia</i>)	1	1	0	2
16	Teal Large Whistling (<i>Dendrecygnna bicolor</i>)	1	1	0	2
17	Tawny Eagle	0	0	1	1
18	Steppe Eagle	0	0	2	2
19	Silver Pheasant	0	0	0	0

Sr. No.	Animal Species	Opening stock as on 01-10-2016			
		M	F	U	T
20	Babbler Common (<i>Turdodies caudatus</i>)	5	2	0	7
21	Dove Little Brown	2	2	2	6
22	Duck, Comb (<i>Sarkidiornis melanotos</i>)	3	2	18	23
23	Heron Night (<i>Nycticorax nycticorax</i>)	0	0	20	20
24	Ibis White (<i>Threskiornis acthiopica</i>)	2	2	0	4
25	Owl Indian Greater Horned	0	0	0	0
26	Parakeet Rose Ring (<i>Psittacula</i>)	0	0	5	5
27	Stork Painted (<i>Myeteria leueoeephala</i>)	2	2	5	9
	Sub Total Birds	26	20	72	118
	Love Birds	0	0	20	20
	Budgerigar	0	0	160	160
	Cocketil	0	0	3	3
	Sub Total Birds	0	0	183	183
	Grand Total	26	20	255	301

Annexure-3.3
INP West
Reptiles Livestock as on (01/10/2016)

**As approved by the CZA vide No.F.No.19-33/92-CZA(72)(Vol.IV)(M)
dated 04/10/2010**

Sr. No.	Animal Species	Opening stock as on 01-10-2016			
		M	F	U	T
Reptiles					
1	Cobra Indian (<i>Naja naja</i>)	2	0	1	3
2	Crocodile Marsh (Mugger) (<i>Crocodylus palustris</i>)	1	2	33	36
3	Keelback Checkered (<i>Henochropis piscator</i>)	0	0	0	0
4	Krait - Common Indian (<i>Bungarus caeruleus</i>)	0	0	2	2
5	Python Indian - Rock (<i>Python molurus molurus</i>)	2	0	1	3
6	Sand Boa (<i>Eryx johini</i>)	0	0	2	2
7	Sand Boa -red (<i>Eryx conicus</i>)	0	0	2	2
8	Snake Rat / Dhaman (<i>Pryas mucosus</i>)	0	0	3	3
9	Snake Trinket (<i>Elaphe helena</i>)	0	0	0	0
10	Viper Russel's (<i>Vipera ruselli</i>)	0	0	2	2
11	Viper Saw Scaled	0	0	0	0
12	Tortoise Indian Star (<i>Geochelone elegans</i>)	3	4	23	30
13	Ganges Soft-shell Turtle	1	0	0	1
	Total Reptiles	9	6	69	84

Annexure-3.4
Indroda Nature Park - Zoo
COLLECTION PLAN

Existing Collection and proposed collection of the Indroda Nature Park Zoo, Gandhinagar

Sr. No.	Species	Existing Stock as on 1 st October 2016				Animals as per Sanctioned Collection Plan by CZA vide letter No. F. No. 19-33/92-CZA (72) (Vol. V) (M)/2754 dated on 7th May 2013.				Animals to be acquired (+) or removed (-)				Total animals after acquisition and removal				Remarks (Reasons)
		M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	
1	Asiatic Lion (<i>Panthera leo persica</i>)	0	0	0	0	1	2	0	3	+1	+2	0	+3	1	2	0	3	
2	Tiger (<i>Panthera tigris</i>)	0	0	0	0	2	1	0	3	+1	+1	0	+2	1	1	0	2	
3	Leopard (<i>Panthera pardus</i>)	2	1	0	3	3	2	0	5	0	1	0	1	2	2	0	4	
4	Sloth Bear (<i>Ursus ursinus</i>)	0	0	0	0	1	1	0	2	+1	+1	0	+2	1	1	0	2	
5	Black Buck (<i>Antelope cervicapra</i>)	94	83	0	177	46	49	25	120	-48	-23	+1	-57	46	60	14	120	
6	Black Buck (white) (<i>Antelope cervicapra</i>)	11	20	0	31	2	6	3	11	-7	-8	+3	-12	4	12	3	19	

Sr. No.	Species	Existing Stock as on 1 st October 2016				Animals as per Sanctioned Collection Plan by CZA vide letter No. F. No. 19-33/92-CZA (72) (Vol. V) (M)/2754 dated on 7th May 2013.				Animals to be acquired (+) or removed (-)				Total animals after acquisition and removal				Remarks (Reasons)
		M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	
7	Chinkara (Indian Gazelle) (<i>Gazellabennettii</i>)	3	3	0	6	3	5	1	9	0	+2	+1	+3	3	5	1	9	
8	Sambhar (<i>Rusa unicorn</i>)	11	22	0	33	9	13	0	22	-2	-9	0	-11	9	13	0	22	
9	Spotted Deer (<i>Axis axis</i>)	39	68	0	107	19	40	16	75	-17	-24	+9	-32	22	44	9	75	
10	Choushinga (<i>Tetracerus quadricornis</i>)	0	0	0	0	1	2	0	3	+1	+2	0	+3	1	2	0	3	
11	Barking Deer (<i>Muntiacus muntjak</i>)	0	0	0	0	1	2	0	3	+1	+2	0	+3	1	2	0	3	
12	Indian Wild Ass (<i>Equus hemionus khur</i>)	0	0	0	0	1	2	0	3	+1	+2	0	+3	1	2	0	3	
13	Indian Wolf (<i>Canis lupus</i>)	0	0	0	0	1	1	0	2	+1	+1	0	+2	1	1	0	2	

Sr. No.	Species	Existing Stock as on 1 st October 2016				Animals as per Sanctioned Collection Plan by CZA vide letter No. F. No. 19-33/92-CZA (72) (Vol. V) (M)/2754 dated on 7th May 2013.				Animals to be acquired (+) or removed (-)				Total animals after acquisition and removal				Remarks (Reasons)
		M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	
14	Striped Hyena (<i>Hyaena hyaena</i>)	0	0	0	0	1	1	0	2	+1	+1	0	+2	1	1	0	2	
15	Indian Jackal (<i>Canis aureus</i>)	1	1	0	2	1	1	0	2	0	0	0	0	1	1	0	2	
16	Indian Fox (<i>Vulpes bengalensis</i>)	0	0	0	0	1	1	0	2	+1	+1	0	+2	1	1	0	2	
17	Indian Porcupine (<i>Hystrixindica</i>)	0	0	2	2	0	0	2	2	0	0	0	0	0	0	2	2	
18	Little Cormorant (<i>Phalacrocorax niger</i>)	0	0	1	1	0	0	2	2	0	0	+1	+1	0	0	2	2	For pairing
19	Great White Pelican (<i>Pelecanus onocrotalus</i>)	0	0	6	6	0	0	5	5	0	0	0	0	0	0	6	6	
20	Black-Crowned Night Heron (<i>Nycticorax nycticorax</i>)	0	0	20	20	0	0	20	20	0	0	0	0	0	0	20	20	

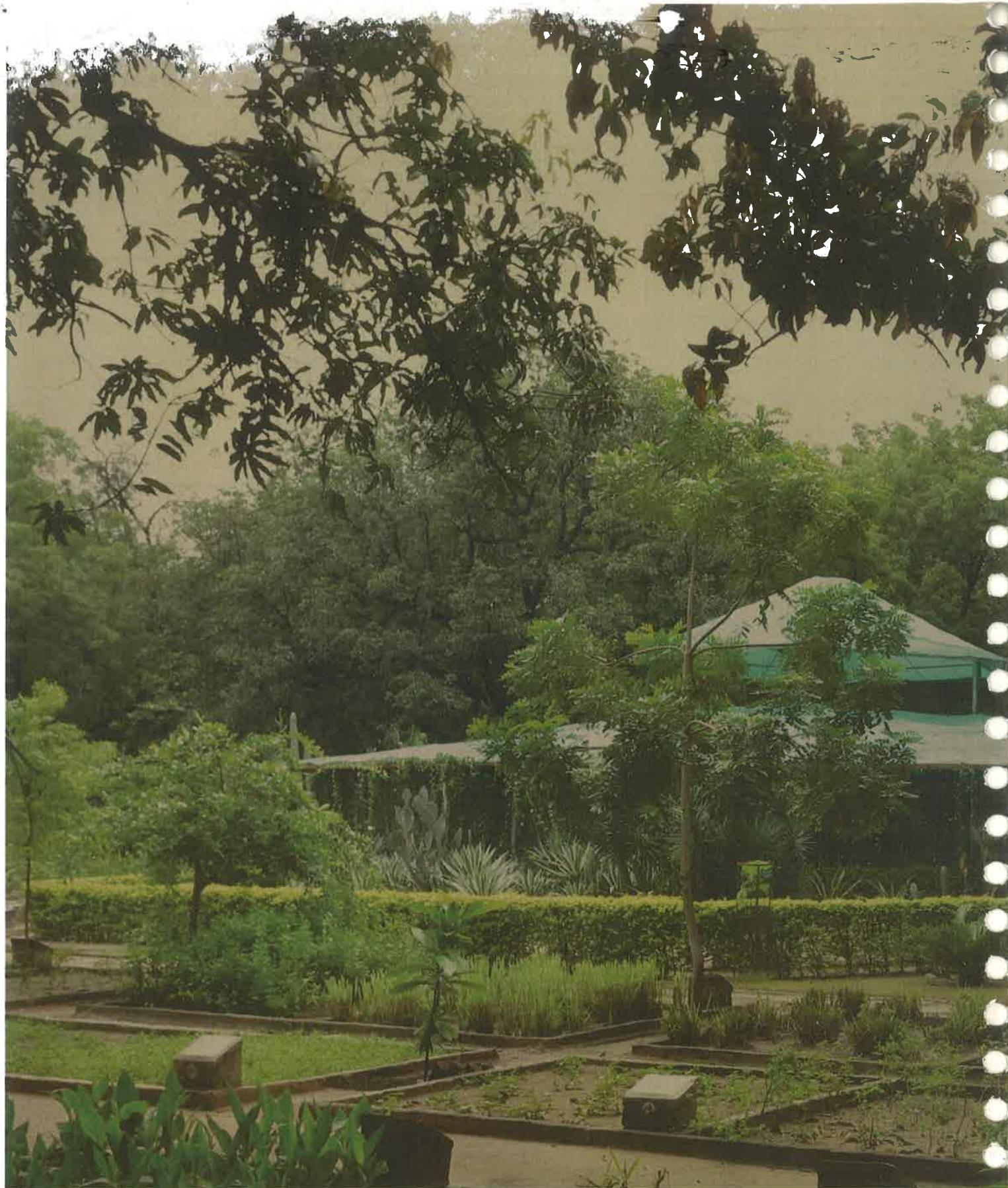
Sr. No.	Species	Existing Stock as on 1 st October 2016				Animals as per Sanctioned Collection Plan by CZA vide letter No. F. No. 19-33/92-CZA (72) (Vol. V) (M)/2754 dated on 7th May 2013.				Animals to be acquired (+) or removed (-)				Total animals after acquisition and removal				Remarks (Reasons)
		M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	
21	Eurasian Spoonbill (<i>Platalea leucorodia</i>)	1	1	0	2	1	1	0	2	0	0	0	0	1	1	0	2	
22	Oriental White Ibis (<i>Threskiornis melanocephalus</i>)	2	2	0	4	2	2	0	4	0	0	0	0	2	2	0	4	
23	Painted Stork (<i>Mycteria leucocephala</i>)	2	2	5	9	2	2	4	8	0	0	0	0	2	2	5	9	
24	Common Crane (<i>Grus grus</i>)	0	0	2	2	0	0	2	2	0	0	0	0	0	0	2	2	
25	Demoiselle Crane (<i>Grus virgo</i>)	0	0	0	0	0	0	2	2	0	0	+2	+2	0	0	2	2	
26	Sarus Crane (<i>Grus antigone</i>)	1	1	0	2	1	0	1	2	0	0	0	0	1	1	0	2	
27	Greater Flamingo (<i>Phoenicopterus ruber</i>)	0	0	0	0	0	0	2	2	0	0	+2	+2	0	0	2	2	

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		M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	
28	Northern Pintail (<i>Anas acuta</i>)	1	1	0	2	1	1	0	2	0	0	0	0	1	1	0	2	
29	Bar headed Goose (<i>Anser indicus</i>)	0	0	3	3	0	0	3	3	0	0	0	0	0	0	3	3	
30	Gray-lag Goose (<i>Anser anser</i>)	0	0	6	6	0	0	2	2	0	0	-4	-4	0	0	2	2	
31	Comb Duck (<i>Sarkidiornis melanotos</i>)	3	2	18	23	3	2	15	20	0	0	-3	-3	3	2	15	20	
32	Lesser Whistling Teal (<i>Dendrocygna javanica</i>)	0	0	0	0	1	1	0	2	+1	+1	0	+2	1	1	0	2	
33	Tawny Eagle (<i>Aquila rapax</i>)	0	0	1	1	0	0	2	2	0	0	+1	+1	0	0	2	2	
34	Steppe Eagle (<i>Aquila nipalensis</i>)	0	0	2	2	2	1	0	2	0	0	0	0	0	0	2	2	
35	Brahminy Kite (<i>Haliastur indus</i>)	0	0	1	1	0	0	2	2	0	0	+1	+1	0	0	2	2	For pairing

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		M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	
36	Owl Indian Greater Horned /Eurasian Eagle Owl (<i>Bubo bubo</i>)	0	0	0	0	1	1	0	2	+1	+1	0	+2	1	1	0	2	
37	Barn Owl (<i>Tyto alba</i>)	1	0	0	1	1	1	0	2	0	+1	0	+1	1	1	0	2	For pairing
38	Indian Peafowl (White) (<i>Pavo cristatus</i>)	3	0	0	3	3	1	0	4	0	+1	0	+1	3	1	0	4	
39	Silver Pheasant (<i>Lophura nycthemera</i>)	0	0	0	0	3	3	0	6	+3	+3	0	+6	3	3	0	6	
40	Alexandrine Parakeet (<i>Psittaculae upatria</i>)	1	3	0	4	1	3	0	4	0	0	0	0	1	3	0	4	
41	Marsh Crocodile (<i>Crocodylus palustris</i>)	1	2	33	36	1	2	43	46	0	0	0	0	1	2	33	36	

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		M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	
42	Indian Cobra (<i>Naja naja</i>)	2	0	1	3	0	0	2	2	0	0	0	0	2	0	1	3	
43	Indian-Rock Python (<i>Python molurus</i>)	2	0	11	13	2	0	1	3	0	0	0	0	2	0	11	13	
44	Rat Snake (<i>Pyasumusosus</i>)	0	0	3	3	0	0	3	3	0	0	0	0	0	0	3	3	
45	Russell's viper (<i>Viper russelii</i>)	0	0	2	2	0	0	1	1	0	0	0	0	0	0	2	2	
46	Common Indian Krait (<i>Bungarus caeruleus</i>)	0	0	2	2	0	0	2	2	0	0	0	0	0	0	2	2	
47	Common Sand Boa (<i>Eryx conicus</i>)	0	0	2	2	0	0	2	2	0	0	0	0	0	0	2	2	
48	Red Sand Boa (<i>Eryx johnii</i>)	0	0	2	2	0	0	2	2	0	0	0	0	0	0	2	2	
49	Indian Star Tortoise (<i>Geochelone elegans</i>)	3	4	23	30	3	4	0	7	0	0	-23	-23	3	4	0	7	

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		M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total	
50	Ganges Soft-shell Turtle (<i>Aspiderates gangeticus</i>)	1	0	0	1	1	1	0	2	0	+1	0	+1	1	1	0	2	For Pairing
51	Fresh Water/ Indian Soft-shelled Turtle (<i>Lissemys punctata</i>)	0	0	0	0	1	1	0	2	+1	+1	0	+2	1	1	0	2	



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