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Zonal Master Plan
For
Eco – Sensitive Zone
of
Keoladeo National Park

GOVERNMENT OF RAJASTHAN
DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE

Forest, Environment and Climate Change Department
Government of Rajasthan

KEOLADEO NATIONAL PARK

ECO-SENSITIVE ZONE

ZONAL MASTER PLAN

Foreword

The primary aim of declaring any area as an eco-sensitive zone is to establish a buffer zone or transition zone in order to safeguard the wildlife sanctuary's ecosystem and to enhance both the biotic environment of the sanctuary and the buffer zone surrounding it. The Eco-Sensitive Zone around Keoladeo National Park Wild Life Sanctuary notified by Government of India notification mandates the State Government to prepare a Zonal Master Plan.

The Zonal Master Plan has been prepared with focus on the biological and environmental conservation of the Keoladeo National Park ESZ. The Zonal Master Plan also places a strong emphasis on the potential expansion of ecotourism and prescribes zoning and development control standards in accordance with the Gazette Notification for sustainable tourist activities and the notification of eco-sensitive zones.

Department of Environment and Climate Change has prepared the Zonal Master Plan with technical assistance of Malaviya National Institute of Technology, Jaipur, Forest Department. and finalized the plan after seeking public comments.

I sincerely hope that Zonal Master Plan would serve as a guiding light, not only for the enhancement of the wildlife sanctuary but also for the entire eco-sensitive zone. It will promote sustainable tourism and that all stakeholders will join hands to ensure the successful implementation of the Zonal Master Plan for the Eco-Sensitive Zone in the future.

Shikhar Agrawal

Additional Chief Secretary

PREFACE

The key objectives of this study are to create a Zonal Master Plan of Eco-Sensitive Zone of Keoladeo National Park, advise development regulations, and suggest proposals to mitigate negative environmental effects. The Zonal Master Plan of Eco-Sensitive Zone of Keoladeo National Park addresses all the key development issues, including land-use, infrastructure, and transportation, with a primary focus on ecology, environment, and wildlife. The Zonal Master Plan includes tourism plan including studies to analyse the current conditions of various significant tourist destinations, their current situation and infrastructure availability, tourism statistics, environmental issues, and identification of potential tourism sites, as well as the creation of facilities for overall improvement of tourism footfall and tourism sites. The records will make it easier to determine the historical significance and heritage value of potential tourist destinations.

The primary aim of declaring any area as an eco-sensitive zone is to establish a buffer zone or transition zone in order to safeguard the wildlife sanctuary's ecosystem and to enhance both the biotic environment of the sanctuary and the buffer zone surrounding it. As a result, it's important to identify the numerous factors that contribute to environmental deterioration and provide solutions.

The zonal master plan focuses on the biological and environmental issues of the Keoladeo National Park ESZ. In addition, it focuses on an analysis of the present situation in order to comprehend and implement the necessary action to protect and regulate the ecological environment and natural resources of the ESZ region.

The Zonal Master Plan also places a strong emphasis on the potential expansion of ecotourism and prescribes zoning and development control standards in accordance with the Gazetted Notification by government of India), for sustainable tourist activities and the notification of eco-sensitive zones.

ACKNOWLEDGEMENTS

In Process of planned development of Keoladeo National Park Eco-Sensitive Area, we would like to thank all the distinguished public representative, citizens, and departments concerned, who helped us with the formulation of the project and who dedicated their valuable time for providing information and guide in the preparation of this project report.

We express our special gratitude to Shri Shikhar Agrawal, Additional Chief Secretary (Department of Environment and Climate Change, Govt. of Rajasthan), Deputy Conservator of Forest (Wildlife), KNP and Dr. Nand Kumar, Associate Professor, Malaviya National Institute of Technology, Jaipur who supported us for preparation of Zonal Mater plan.

We thank all those officers who supported us directly or indirectly in formulation of this Zonal Master Plan report. The data received from primary surveys was gathered from citizens and we also thank them for the same. We hope that this document will act as a guide to improve the environment not only in wild life sanctuary but also of eco sensitive zone and help to promote sustainable tourism. At the end we hope that in future all the stakeholders will help in implementation of Zonal Master Plan of ESZ area.

Dr. Monali Sen
Director and Joint Secretary
Department of Environment
and Climate Change

Chapter 1

1.1 Background

Eco-Sensitive Zones (ESZs), sometimes also known as Ecologically Fragile Areas (EFAs), are areas notified by the Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India around protected areas, National Parks, and Wildlife Sanctuaries. MoEF&CC draws powers from the Environment (Protection) Act, 1986. The vision of declaring ESZs is to create some "shock absorbers" for the protected areas by regulating and managing the activities around such sites. They also act as a transition zone from areas of high protection to areas requiring lesser protection. The MoEF&CC came out with new guidelines for regulating such areas in 2011.

Regarding the statutory provisions about ESZs, the MoEF&CC functions under the Environment (Protection) Act, 1986, enacted in 1986 under Article 253 of the Indian constitution. The word ESZ exists nowhere there; nevertheless, Section 3(2)(v) of the Act says that Central Government can restrict areas in which any industries, operations or processes, or class of industries, operations, or processes shall not be carried out or shall be carried out subject to certain safeguards. Besides Rule 5(1) of the Environment (Protection) Rules, 1986, which expresses that the central government can prohibit or restrict the location of industries and carrying on certain operations or processes based on considerations like the biological diversity of an area, maximum allowable limits of concentration of pollutants for an area, environmentally compatible land use, and proximity to protected areas; these aforementioned two clauses have been effectively used by the government to declare ESZs of EFAs as well as areas to declare as “No Development Zone” viewing the aforesaid importance. The criteria set by the committee constituted by the MoEF&CC set the guidelines from time to time and revise them as per the need.

Currently, typical guidelines to declare an ESZ are such as species-based (endemism, rarity, etc.), ecosystem-based (sacred groves, frontier forests, etc.), and geo-morphologic feature-based (uninhabited islands,

origins of rivers, etc.). Major endeavors have been taken place so far concerning the imperatives parameters, which have been adopted by the MoEFCC to declare the ESZ as given below.

a. Wildlife Conservation Strategy was adopted in January 2002 in the meeting of the National Board for Wildlife, wherein it was envisaged that "lands falling within 10 kilometers (km) of the boundaries of National Parks and Sanctuaries should be notified as eco-fragile zones" under Section 3(v) of the Environment (Protection) Act, 1986 and Rule 5 of the Environment Protection Rules, 1986.
b. Request by the Additional Director General (ADG) of Forests (February 2002) to all the Chief Wildlife Wardens for listing such areas within 10 km of the boundaries of the National Parks and Sanctuaries and furnish detailed proposals for their notification as ESZ areas under the above-mentioned Act.
c. The National Wildlife Action Plan (2002-2016) indicates, "Areas outside the protected area network are often vital ecological corridor links and must be protected to prevent isolation of fragments of biodiversity which will not survive in the long run".
d. The intervention of the Supreme Court in December 2006 in favor of MoEFCC, thereafter, a committee was organized by MoEFCC for identifying parameters for designating ESZs in India.
e. The identified parameters were richness of flora and fauna, slope, rarity and endemism of species in the area, origins of rivers, etc.

It is also imperative to note that the Directive Principles of State Policy, Article 48 provisioned about the endeavor of every state to protect and improve the environment and to safeguard the forests and wildlife of the nation; moreover, Article 51-A states that "It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers, and wildlife and to have compassion for living creatures".

1.2 Extent & Boundaries of Keoladeo National Park, and ESZ

As stated earlier, Keoladeo ESZ is named after the prominent National Park of Keoladeo. The ESZ has been demarcated up to an extent of 0.5 to 1.5 kilometers around the boundary of Keoladeo National Park and the area of the ESZ is 25.61 sq. km. 0.5 Km. extents in the boundary are towards the sides with Bharatpur City. The extent of boundaries for the ESZ and National Park is presented in Figure 1.1 (see Gazette Notification of 19 July, 2019) which shows the Keoladeo National Park and ESZ as per Gazette Notification, 2019. Based on Fig. 1-1 from the respective Gazette Notification, Fig. 1-2 was prepared by the consultant, which shows the boundaries of Keoladeo National Park, and Keoladeo ESZ.

The Keoladeo National Park is the prominent feature of this ESZ, and the Park lies between latitudes 27°07'06"N and 27°12'02"N and longitudes 77°29'05"E and 77°33'09"E. The National Park was notified by the Government of Rajasthan in 1981 (vide notification No. RJ.2539 RAJASTHAN GAZETTE Extraordinary dated the 27nd August 1981), and it is a low-lying area in the floodplains of river Banganga and Gambhir which are the tributaries of river, Yamuna, It is situated about 180 kilometres from Delhi, along the Delhi – Jaipur Highway, 50 kilometres from Agra and 2 kilometres South East of Bharatpur; Bharatpur district of Rajasthan. The National Park is spread over an area of 28.73 sq. km, enclosing the famous Keoladeo Temple, on the Jaipur-Agra highway.

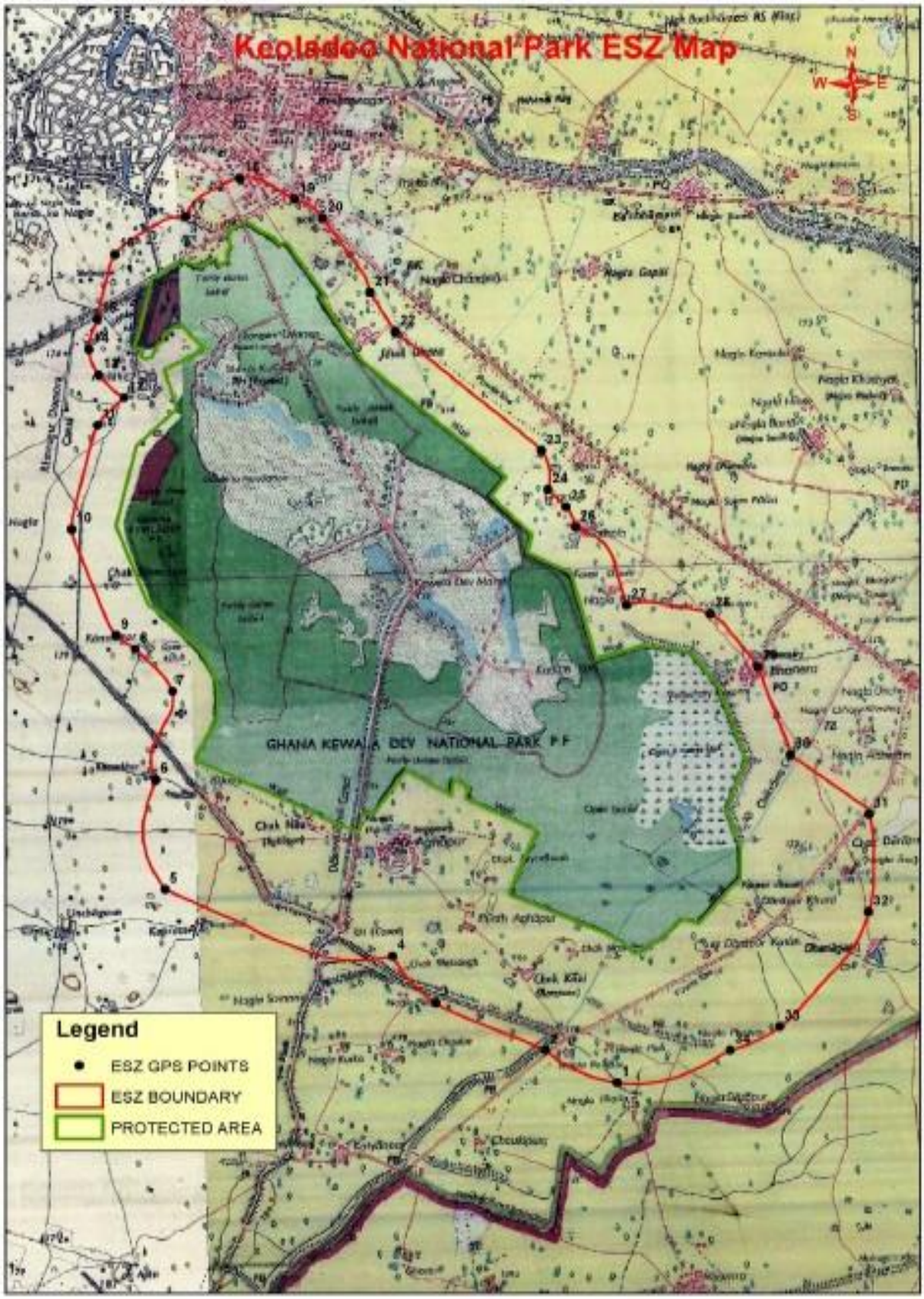


Figure No.: 0.1 Keoladeo National Park and ESZ as per Gazette Notification, 2019

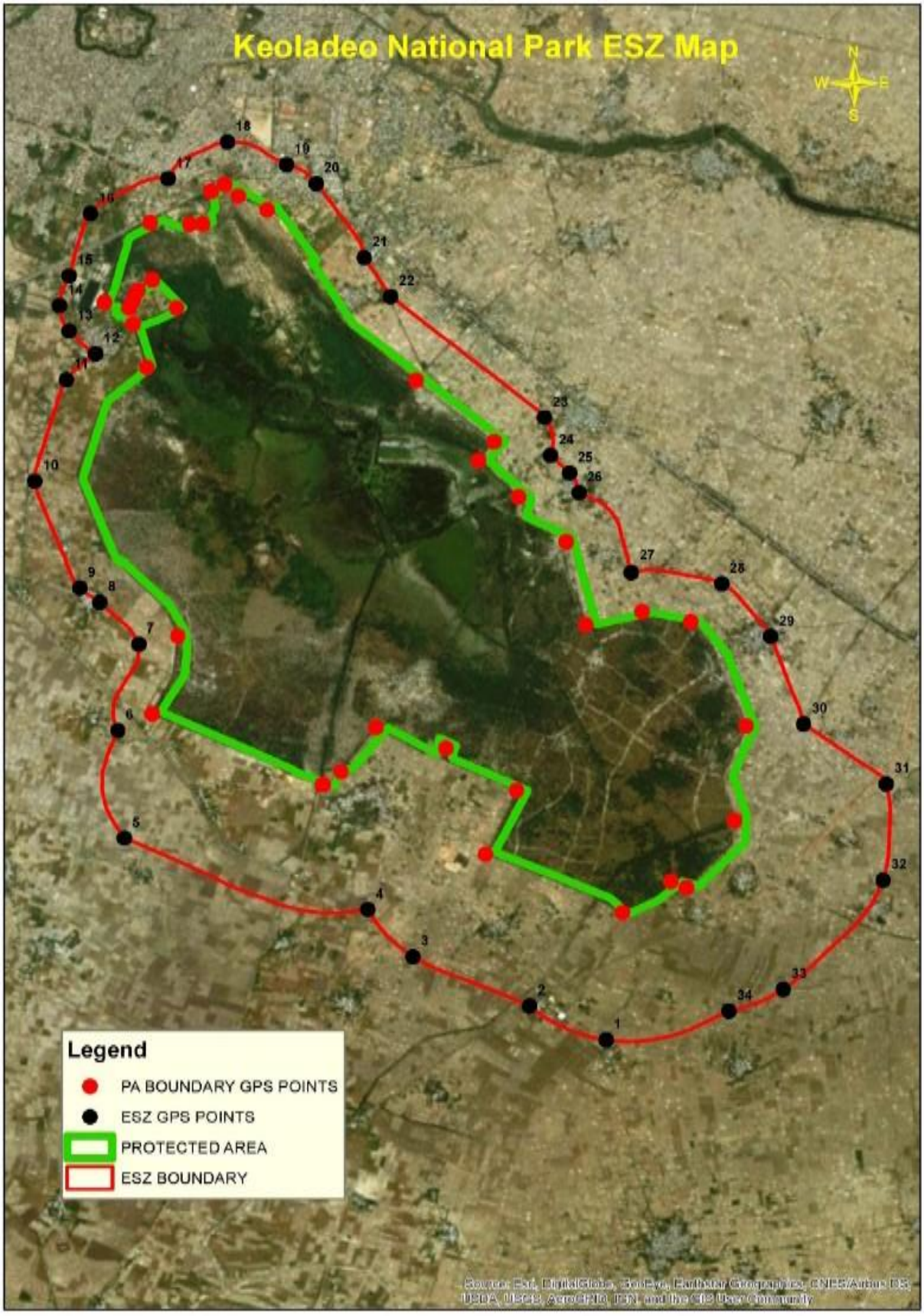


Figure No.: 0.2 Keoladeo National Park and ESZ Boundary

Source: Prepared based on Gazette Notification, 2019

Keoladeo National Park have a range, Keoladeo ranges. The boundary of Keoladeo National Park is described as under:

A. Northern Boundary

Forest area Bharatpur, village Shri Nagar up to Northern boundary of village Bharatpur Kasba Chak -1,

B. Eastern Boundary

Forest line adjoining revenue area of village Bharatpur, Jatoli Ghana, Barso, Bahanera, Jaipur-Agra road, revenue area of village.

C. Southern Boundary

Adjoining forest boundary Chak Bahanera, Chak Darapur.

D. Western Boundary

Revenue area of village Chak Shyorawali, Ramnagar, Malah'

The boundary of Wildlife and ESZ area map is as below (Figure 1.3).

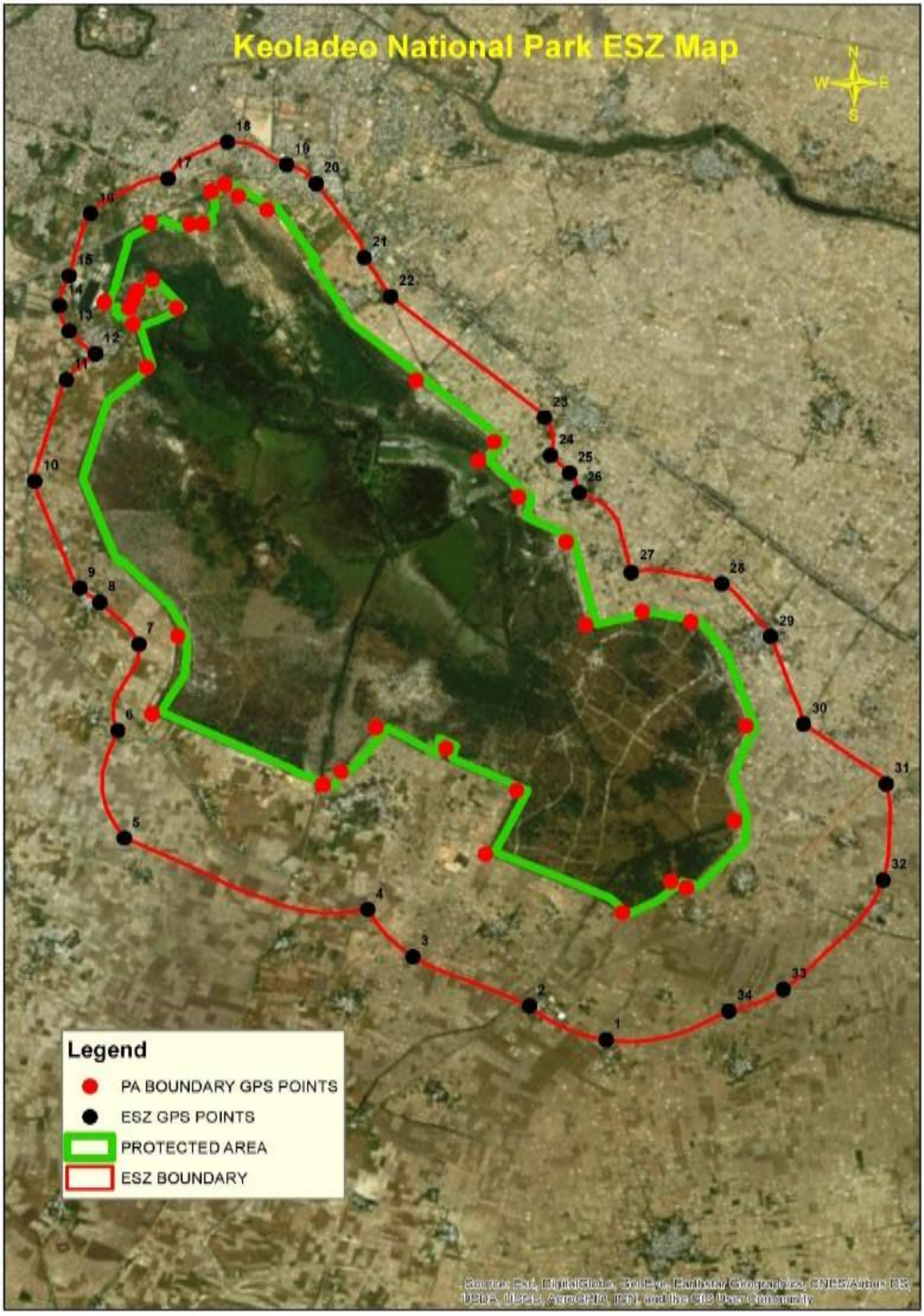


Figure No.: 0.3 Boundary of National Park and ESZ, Keoladeo

Keeping given the richness of flora and fauna, heritage importance, tourist perspectives, and environmental importance, MoEFCC uses the powers given under the Environmental Protection Act, 1986, in the exercise of Sub-section (1) and Clauses (v) and (xiv) of Sub-section (2) and Sub-section (3) of Section 3 (hereafter in this notification referred to as the Environment Act) read with Sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986, notified an area to an extent of 500 Meter to 1.5 kilometers around the boundary of Keoladeo Natioal Park, in Bharatpur district of Rajasthan as ESZ. Coming to the boundaries of the said ESZ is as below:

a. Northern boundary

The extent of ESZ from marked on Protected Forest block boundary Ghana Keoladeo and ESZ boundary including villages Srinagar, Bhagalpur City, 0.5 Meter up to 1.5 kilometers buffer. Above said Northern boundary of ESZ is co-terminus with the boundary of Protected Forest block Ghana Keoladeo and will include the whole Protected Forest in the ESZ.

b. Eastern boundary

The ESZ's perimeter starts at extends along National Highway No. 11 (now NH-21), 500 meters from the National Park Boundary.

c. Southern boundary

ESZ boundary will be co-terminus with the boundary of National Park along National Highway No. 123 Bharatpur to Dhaulpur 1.5 Km from the National Park Boundary.

d. Western boundary

In the West direction, the boundary will be co-terminus with the boundary of National Park, having a buffer of 0.5 to 1.5 km including ChakSheorawali, Aghapur Ramnagar Chak Ramnagar, and Mallah Areas.

BOUNDARY DESCRIPTION OF ECO-SENSITIVE ZONE OF KEOLADEO NATIONAL PARK

Direction	Extent
North	0.5
North- East	0.5
East	0.5

South-East	1.5
South	1.5
South-West	1.5
West	0.5
North-West	0.5

1.3 Area & Extent of Keoladeo National Park ESZ.

A map has been prepared based on Satellite imagery using prominent locations mentioned in ESZ Notification dated 19-07-2019.

1.4 Villages under ESZ, Keoladeo National Park

Keoladeo Eco-Sensitive Zone comprises various villages within its boundary. As per Gazette Notification of MoEF&CC dated 27th July 2019, there are total 22 villages falling in the limit of Keoladeo ESZ. Out of total 22 villages 2 villages fall under Keoladeo National Park whereas remaining 22 villages are in rest of the ESZ area. As per notification villages falling under ESZ are listed below:

Table: 0.1 List of Villages falling under ESZ (As per notification)

S. No.	Villages having their area within National Park Boundary		S. No.	Villages in Eco-Sensitive Zone	S. No	Villages in Eco-Sensitive Zone
1			1	Jawahar Nagar Colony	14	Chaksiyosingh
2	Bharatpur Kasba Chak -1		2	Jatoli	15	Nagla banjara
			3	Ghasola	16	Chakkazi
			4	KhohriNagla	17	khokhar
			5	Behnera	18	Chak choba
			6	Darapur Khurd	19	Naglaphatiyar
			7	Darapur Kalan	20	Dhanagarh
			8	Naswaria	21	Chak darapur
			9	ChakSheorawali	22	Sakatpur
			10	Aghapur		
			11	Ramnagar		
			12	Chak Ramnagar		
			13	Mallah		

As per the above table village is mentioned in Eco-Sensitive Zone

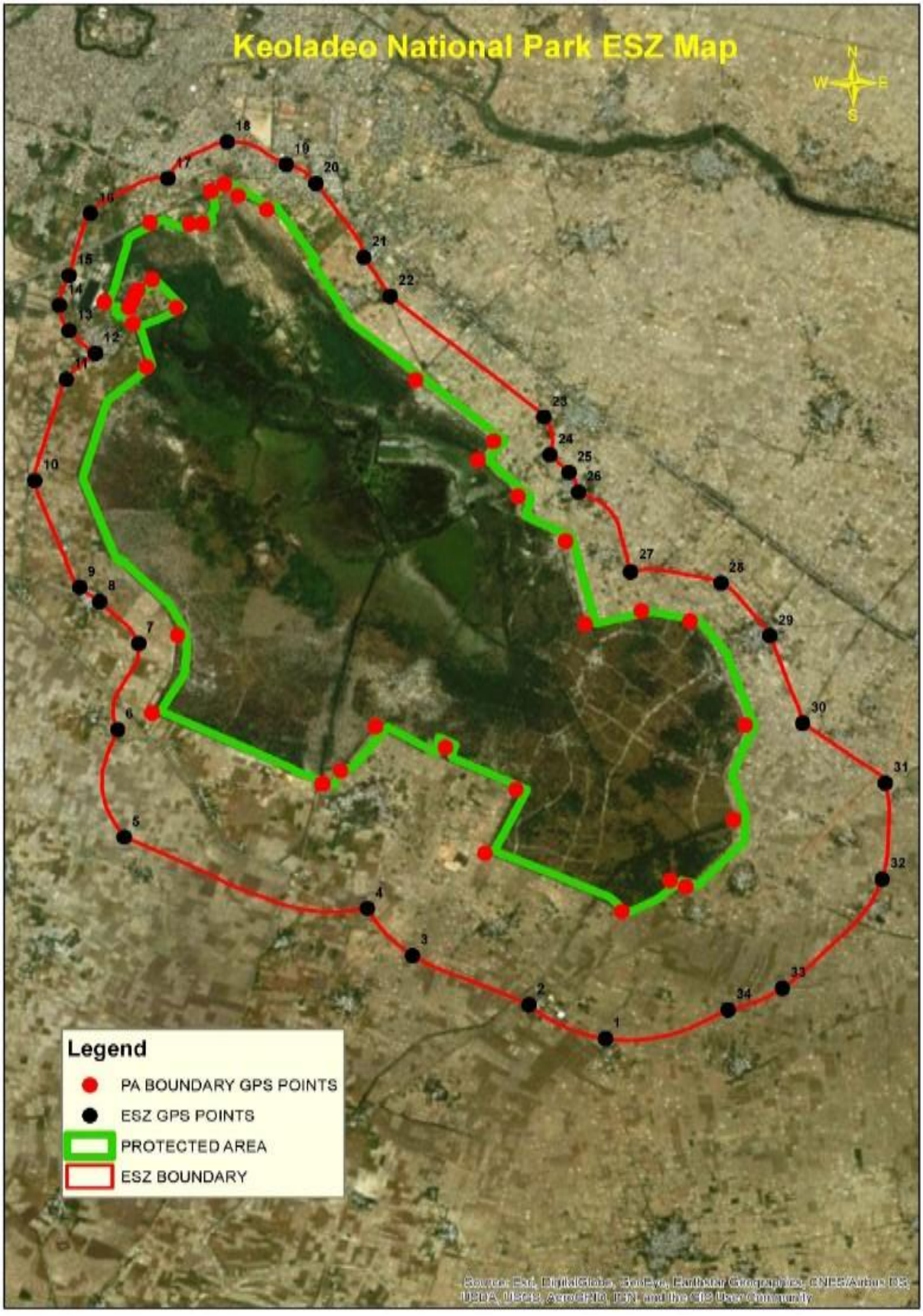


Figure No.: 0.4 Keoladeo Eco sensitive Zone and National Park area with village boundary

1.5 Vision and Objectives of ZMP for Keoladeo National Park ESZ

Vision of preparation of Zonal Master Plan for Keoladeo ESZ is to ensure sustainable development in considering the environment of the area. The ZMP document is framed to focus on the preservation of ecology and environment, and the conservation of biodiversity by restricting the unnecessary developments.

Objective of Eco-Sensitive Zone Master Plan of Keoladeo is as under:

A. To prevent the development activities those are detrimental to ecology within ESZ Area.
B. To conserve, preserve and protect the natural heritage and biodiversity of ESZ such as forest, wildlife, flora & fauna. Identify the vulnerable species in terms of flora and fauna, and suggest necessary actions to conserve the natural heritage.
C. To prepare detailed proposals to regulate, control, and promote the permissible activities only to maintain its ecological and environmental balance.
D. To identify heritage assets (natural & manmade heritage) such as monuments, historically important monuments and structures, water bodies, other natural features, etc.
E. To identify areas for promotion of eco-tourism, for upliftment of local communities.
F. To prepare a Tourism & Eco-Tourism Master Plan for the planning area.
G. Suggestions for Management & Governance of Eco-Sensitive Zone Area.

1.6 Study Methodology

The conservation of Keoladeo National Park, the buffer area around it including the notified ecological zone is of prime importance for the protection of flora and fauna and overall biotic environment. These aspects have been stressed in Eco-Sensitive Zone notifications and various guidelines issued in this regard by the Central Govt. from time to time. The stages of work and studies have been listed below to achieve the required objectives. The study would also give due emphasis to the relevant policy guidelines and Central Govt. laws including court judgements if any. Due to

importance of ecological and environmental concerns duly given in the Gazette Notification (19th July 2019) by the Ministry of Environment, Forest and Climate Change (MoEFCC) for the declaration and aspects of ZMP preparation for the Keoladeo ESZ, it is necessary to study the present status and identify various issues concerning degradation of environment. The methods of study would also give due emphasis to the relevant Central and State laws and the guidelines issued by the Central Government if any in this regard.

a. Preparation of Geo-Referenced Base Maps

Based upon the existing maps or revenue maps available with the government authorities, surveys were conducted and ground 12ermaphr was done. DCF, Wildlife, Bharatpur has prepared geo-referenced maps required for the preparation of ZMP for the Keoladeo ESZ. Base Map attached as Annexure-1.

b. Data Analysis and preparation of land use maps

Base map has been updated to prepare the existing land use map for the planning area. All the above-mentioned data collected from primary or secondary sources have been compiled and analyzed to identify trends, potentials, and problems in the planning area concerning the conservation and protection of ecology, and biodiversity. The analysis was followed by projections on aspects like demography, land uses, socio-economic conditions, basic traffic and transportation requirements, and community facilities.

1.7 Bharatpur

As of now, Rajasthan state has 50 districts, which have been divided into 10 divisions viz. Ajmer, Bharatpur, Bikaner, Jaipur, Jodhpur, Kota, Pali, Banswada, Sikar and Udaipur divisions. Each division consists of 4-7 districts. Keoladeo National Park and Keoladeo ESZ fall under the jurisdiction of Bharatpur districts and Bharatpur Tehsil. The district Bharatpur falls in the South-East direction in the state of Rajasthan. It is bordered on the West by Dausa district, on North by Haryana State, on East by Agra (Uttar Pradesh), and on the South by Dholpur district.

The district Bharatpur has a geographical area of 5,066 sq. km and population of 2,548,462 People (Census 2011). The district has population density of 500 person/sq. km. being a district headquarters, Bharatpur consists of 7 Tehsils. Moreover, the Keoladeo ESZ comprises of 22 revenue villages in which 2 villages are under Keoladeo National Park, and 22 are under Keoladeo ESZ (Gazette of 19th July 2019).

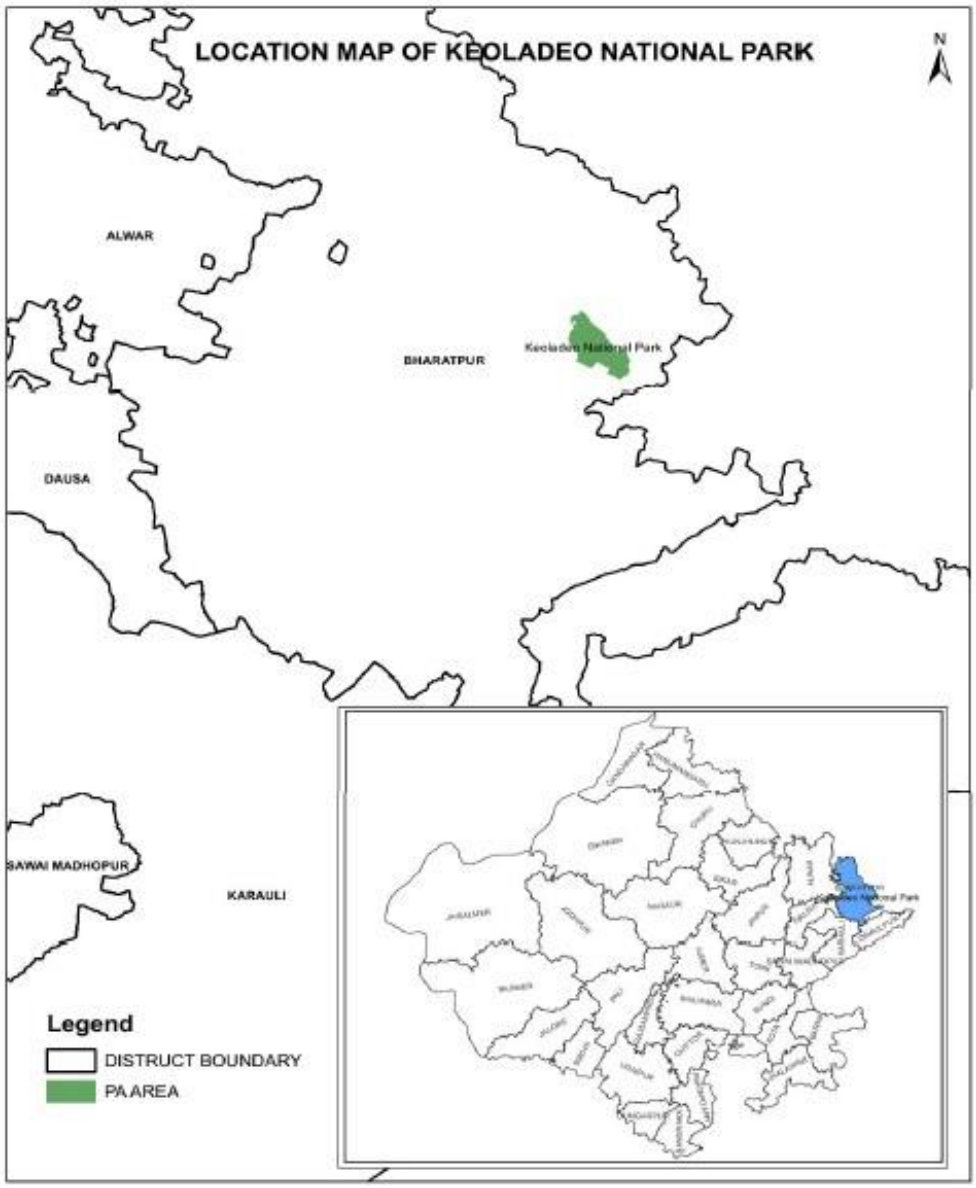


Figure No.: 0.5 Districts of Rajasthan-2022

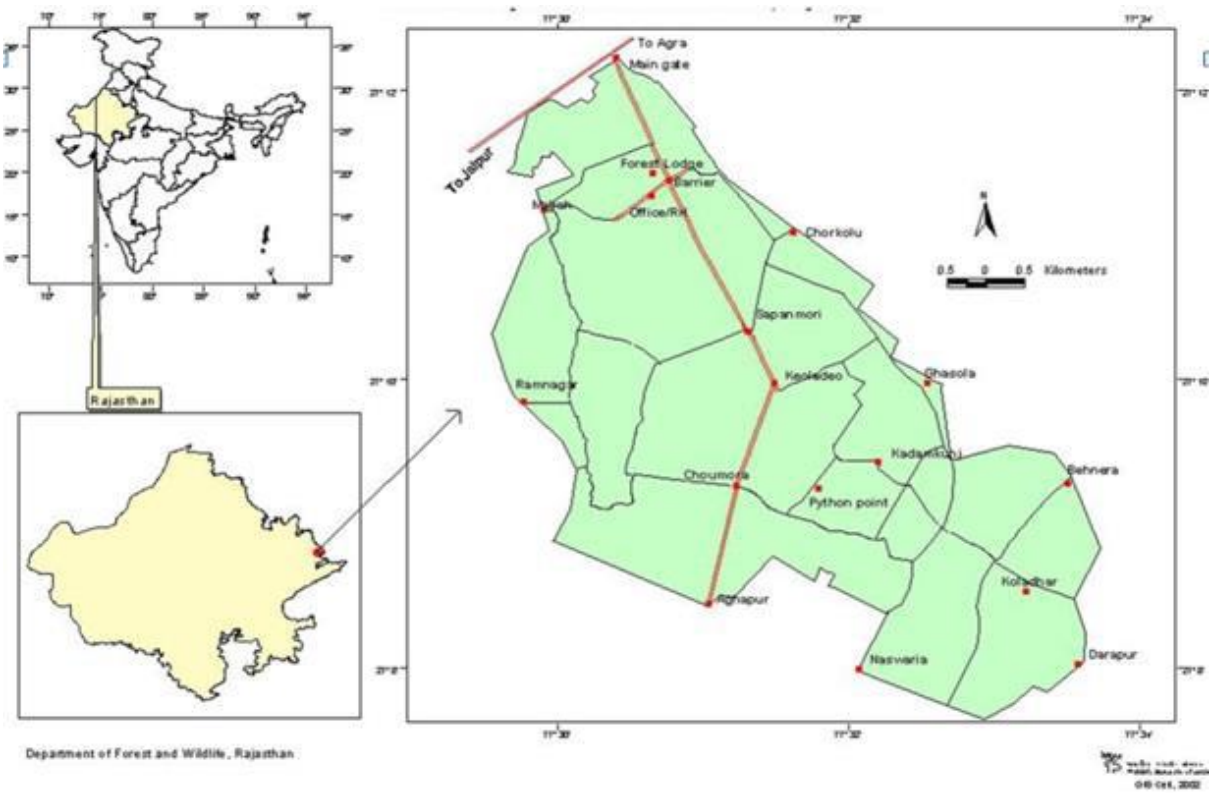


Figure No.: 0.6 Regional Setting of Keoladeo

1.8 Eco-Sensitive Zone Location and Area

As said earlier, Keoladeo ESZ is named after the prominent Keoladeo National Park. The Eco-Sensitive Zone has a total area of 25.61 sq. km. The Keoladeo National Park is the prominent feature of Keoladeo ESZ, and National Park lies between latitudes 27°07'06"N and 27°12'02"N and longitudes 77°29'05"E and 77°33'09"E. The National Park is spread over an area of 28.73 sq. km, enclosing the famous Keoladeo Temple, on the Jaipur-Agra highway (Vide 2.4).

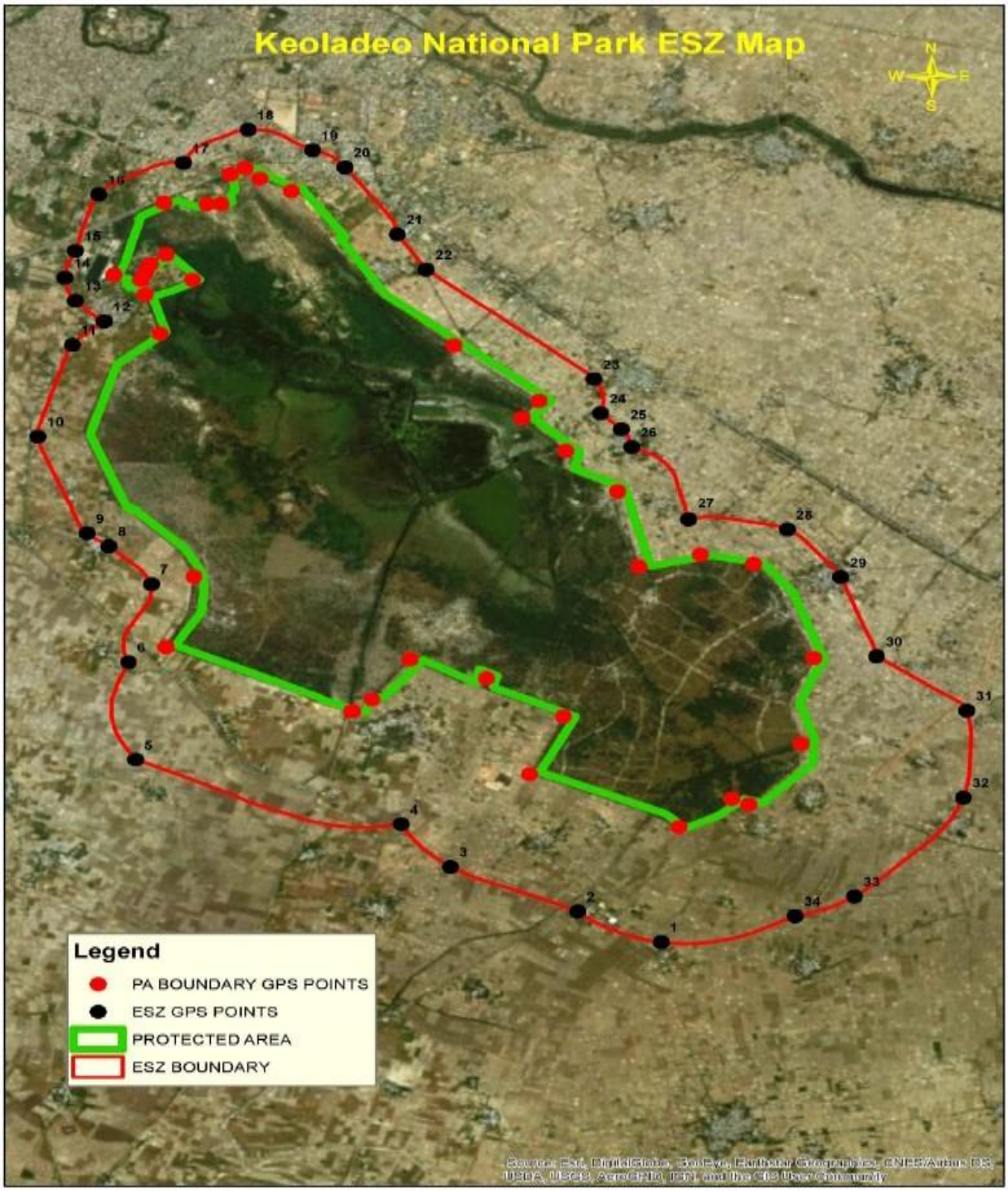


Figure No.: 0.7 Village Boundary on ESZ

1.8.1 Linkages

Keoladeo National Park is situated at the confluence of the Gambhir and Banganga rivers in Bharatpur district, Rajasthan (27°07'06" N – 27°12'02'N and 77°29'05'E – 77°33' 09"E) spread over an area of 28.73 square kilometre. It is a low-lying area in the floodplains of river Banganga and Gambhir which are the tributaries of river. Yamuna. It is situated about 180

kilometres from Delhi, along the Delhi – Jaipur Highway, 50 kilometers from Agra and 2 kilometers South East of Bharatpur;

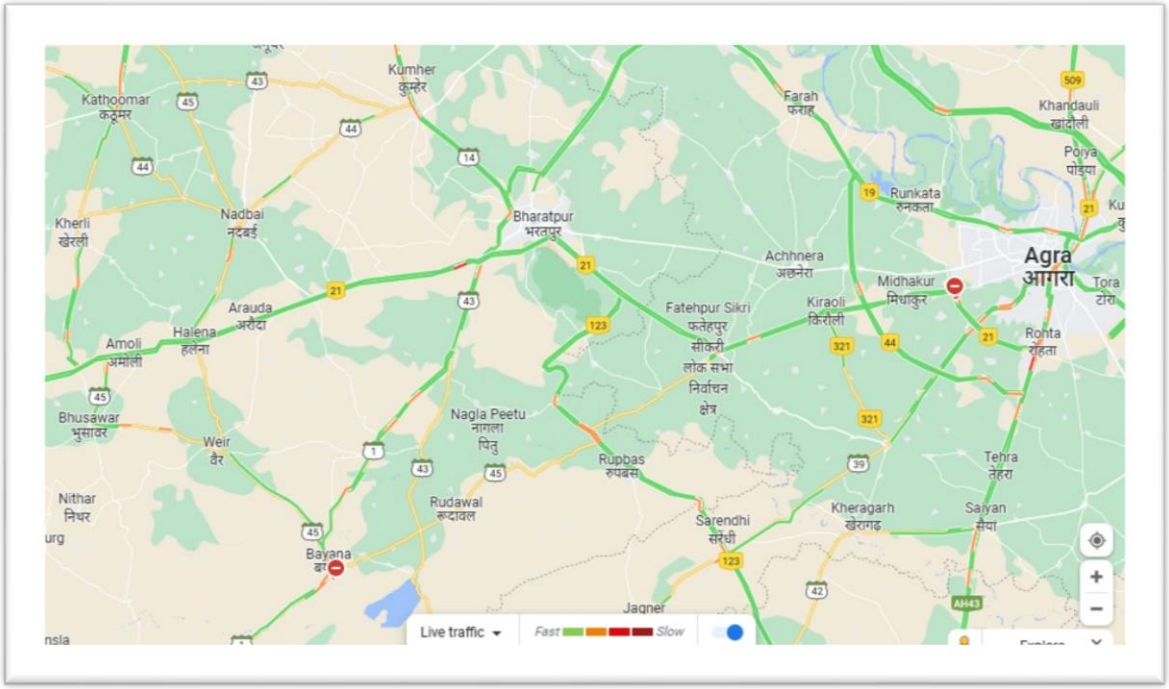


Figure No.: 0.8 Road Linkages

1.8.2 Location and Natural Setting

Keoladeo ESZ falls under the Biogeographic Zone-III of India. Keoladeo Nation Park is the prominent identity of the Keoladeo ESZ. Keoladeo National Park is located in Tehsil Bharatpur (Bharatpur), which comes under Keoladeo ESZ, and it is situated in Keoladeo National Park is situated at the confluence of the Gambhir and Banganga rivers in Bharatpur district, Rajasthan. It is situated about 180 kilometers from Delhi, along the Delhi – Jaipur Highway, 50 kilometers from Agra and 2 kilometers South East of Bharatpur;. this National Park, locally known as Ghana, is a mosaic of grasslands, woodlands, woodland swamps and wetlands. The National Park has significant international ecological importance and it has been declared as a Ramsar site in 1981 and a World Heritage site in 1985. The National Park is often referred to as Bird's Paradise and acts as a major wintering

area for migratory birds from Central Asia including for rare and endangered central population of

the Siberian Crane. The Keoladeo National Park has significant conservation values as it supports a vast array of flora andfauna which forms important tropic components in ecological pyramids. The wetland regulates the climate of the surrounding area and recharges the groundwater aquifer of the area. The wetland is a centre for ornithological recreation as it provides habitat for many migratory and native birds. It is a wetland of international and national importance;

The ESZ is Keoladeo National Park lies at the confluence of the Gambhir and Banganga rivers in Bharatpur district, Rajasthan (27°07"06"N – 27°12'02"N and 77°29'05"E – 77°33'09"E) It is a low lying area in the floodplains of river Banganga and Gambhir which are tributaries of river Yamuna covering an area of about 28.73 sq. km. It is situated 180 km from Delhi, along the Delhi – Jaipur Highway, 50 km. from Agra and 2 km. South East of Bharatpur.

Keoladeo National Park is situated on the extreme western edge of the Gangetic basin, a kilometre south east of the Bharatpur town; 55 km west of Agra and 187 km south of New Delhi.

1.9 Forest Overview

The 'land' declared as Keoladeo National Park by the law – National Highway No. 11 (Agra – Jaipur Expressway) towards the north and a masonry wall on all sides demarcates the physical boundary of the park. The park is surrounded by 14 villages and agricultural fields so there is ***no physical contiguity*** of the forested area.

In exercise of powers conferred by Section 64 of the Wildlife (Protection) Act, 1972, the Government of Rajasthan has made the Wildlife (Protection) (Rajasthan) Rules, 1977 as published in the Rajasthan Gazette of July 7, 1977. Animals were classified under five schedules to the Wildlife (Protection) Act, 1972. The list of schedules was first amended under No. J. 11012/31776 was notified on September 3, 1977, and October 5, 1977.

After that, various schedules to the Wildlife (Protection) Act, 1973, were further amended under Notification No. 1-28/78.

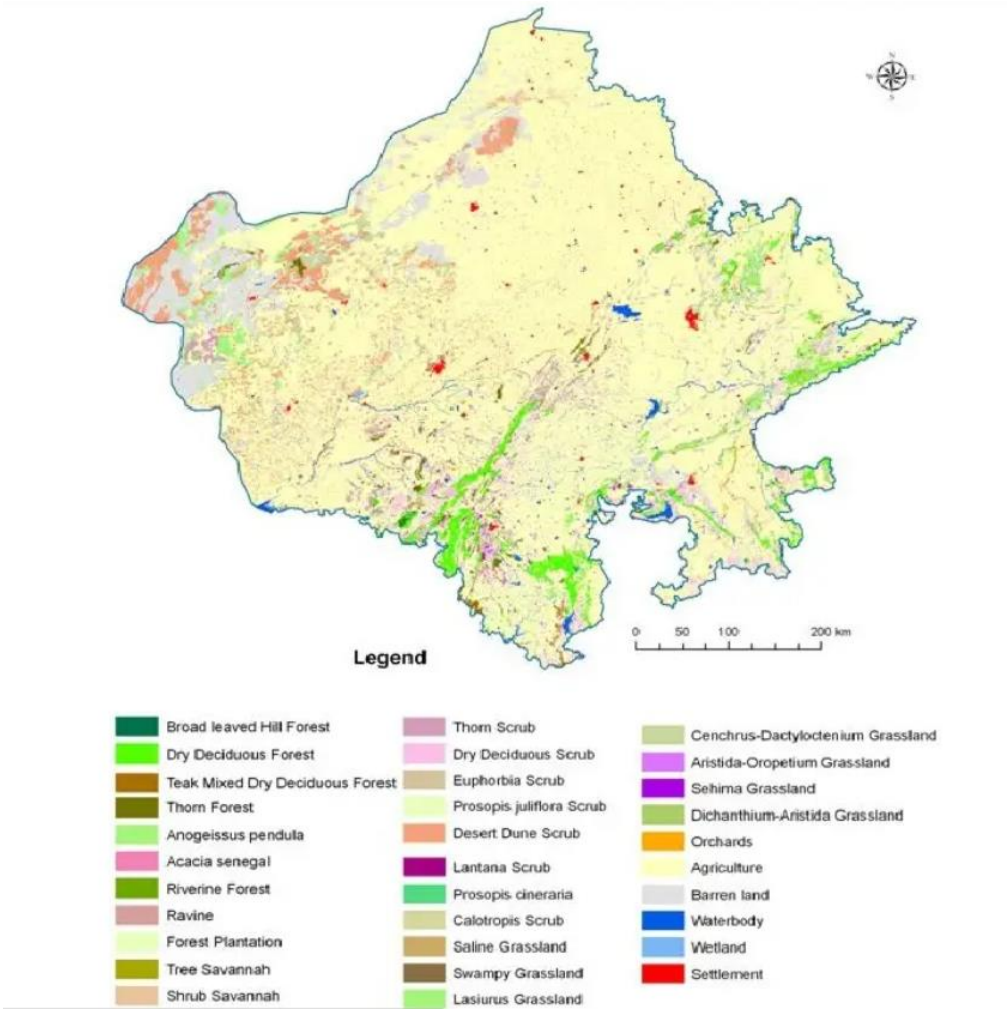


Figure No.: 0.9 Vegetation type and landuse map of Rajasthan

Source: Mapping the Vegetation Types of Rajasthan, India Using Remote Sensing Data by C. Sudhakar Reddy, P. Hari Krishna and A. Ravi Kiran*

1.9.1 Broad Classification of Forest in Rajasthan

The Forest of Rajasthan is classified into five types:

- Tropical Thorn Forest,
- Tropical Dry Deciduous Forest
- Bamboo- Forest
- Central India Sub-tropical hill forest.
- Mixed Miscellaneous Forest

1.9.2 Category of Forest

Rajasthan has two types of forests: Dry Deciduous Forest and Dry Tropical Forests. this National Park, locally known as Ghana, is a mosaic of grasslands, woodlands, woodland The Keoladeo National Park has significant conservation values as it supports a vast array of flora and fauna which forms important tropic components in ecological pyramids. The wetland regulates the climate of the surrounding area and recharges the groundwater aquifer of the area. The wetland is a centre for ornithological recreation as it provides habitat for many migratory and native birds. It is a wetland of international and national importance

Keoladeo National Park is rich in biodiversity consisting of diverse habitats for 375 avianspecies including 140 species of waterfowl, 372 species of plants, 34 species of mammals, 57 species of fish, 14 species ofsnakes, 5 species of lizards, 3 species of Geckos, 7 species of turtles, 8 species of amphibians, 71 species of butterflies,more than 16 species of dragonflies and 8 species of spiders. The Keoladeo National Park falls in the Punjab plains bioticprovince of semi-arid bio-geographical zone, which is a flat dry area of the Indus-Yamuna watershed. The vegetation of the National Park is a blend of xerophytes and semi–xerophytes consisting predominantly of desi babool (*Acacia nilotica),Capparis decidua, C. sepiaria,* kadam (*Mitragyna parviflora),* kejri *(Prosopis cineraria),* pilu *(Salvadora oleoides),* jamun (*Syzygium cumini)* and *Zizyphus* sp. The most widespread grasses in the National Park are *Paspalum distichum,Paspalidium punctatum, Cynodon dactylon, Desmostachya bipinnata, Dicanthium annulatum* and *Vetiveria zizanioides.*

Kadam *(Mitragyna parviflora*) trees, distributed in scattered pockets, dominate large sized trees and the woodland, while thorny *Acacia* sp. and *Prosopis juliflora* shrubs dominate shrub lands. The major plant species found in woodland are *Mitragyna parviflora, Syzygium cumini, Acacia nilotica, 19ermaphrodit., Capparis sp.* and *Zizyphus* sp. Altogether, the National Park supports 372 plant species which includes 96 aquatic plants Quality of Forest Cover

The characteristic of the seasonally flooded marsh of Keoladeo National Park is that the major portion of the marsh dries up with the advent of summer especially after April leaving puddles of water in deeper part of the marsh. These puddles are of significant value from the wildlife point of view. Apart from being a source of water, they provide fish for piscivorous birds and also serve as a refuge for turtles and also act as source of fish seeds.

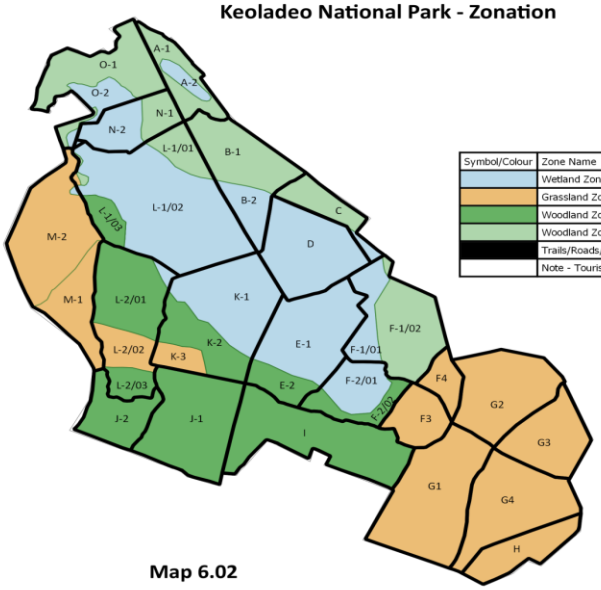
It is to be noted that birds segregate themselves both by habitat and food. The richness of avian diversity in Keoladeo National Park is not only due to rich biodiversity of flora and aquatic fauna here but also because of the existence of a mosaic of habitats. The strategy to preserve Keoladeo National Park must be to preserve more structurally varied habitats to have greatest species diversity. Accordingly, the habitat operations must aim to restore diverse habitats and maintain high degree of habitat heterogeneity in the Park where habitats have been degraded and destroyed due to factors such as *Prosopis juliflora* infestation, scarcity of water, degeneration of tree groves etc. 86

Special efforts for management of Paspalum distichum, Vetivera zizinoides, Lantana camara, Prosopis juliflora, daab and other flora need to be undertaken as these species restrict the heterogeneity of the Park habitat.

The proposed zonation in the Park has been based on a block structure with the aim of maintaining varied habitat structures. Accordingly, the entire area of Keoladeo National Park will be divided into four main management zones viz

Zone	**Area(Ha)**
Wetland Zone	835 (29.10%)
Grassland Zone	835 (29.10%)
Woodland Zone	1062 (37.33%)
Tourism Zone	47 (01.5 %)
Total	**28.73 sq km**

Keoladeo National Park - Zonation



N

Symbol/Colour	Zone Name	Area (in Ha.)
	Wetland Zone	835.13
	Grassland Zone	923.95
	Woodland Zone - Upstream	639.85
	Woodland Zone - Downstream	433.18
	Trails/Roads/Tourism Zone	40.89
	Note - Tourism Zone Buildings are shown in Tourism Map elsewhere.	

0 1 2 3 km

Map 6.02

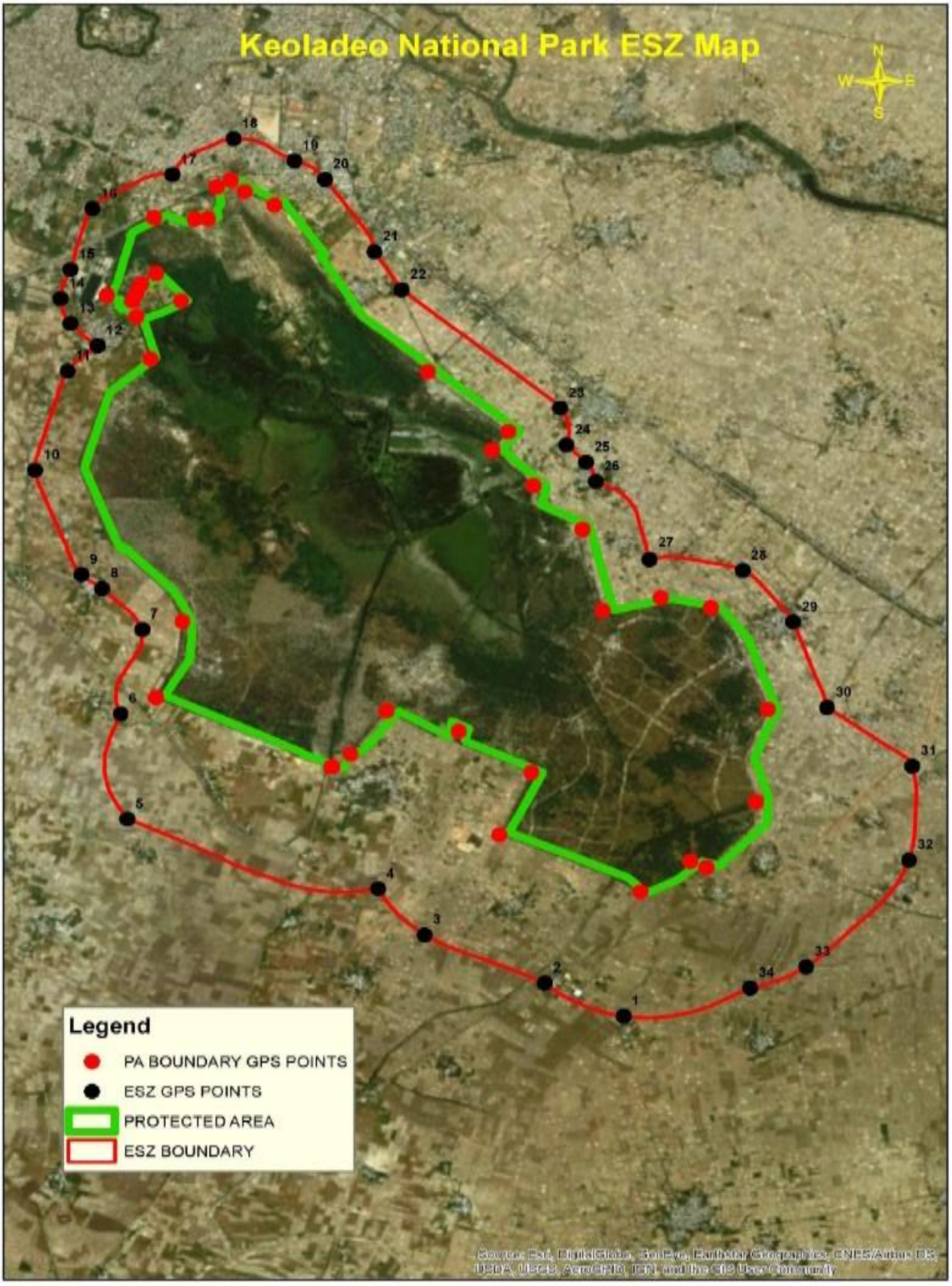


Figure No.: 1.50 Forest Classification Map of Keoladeo

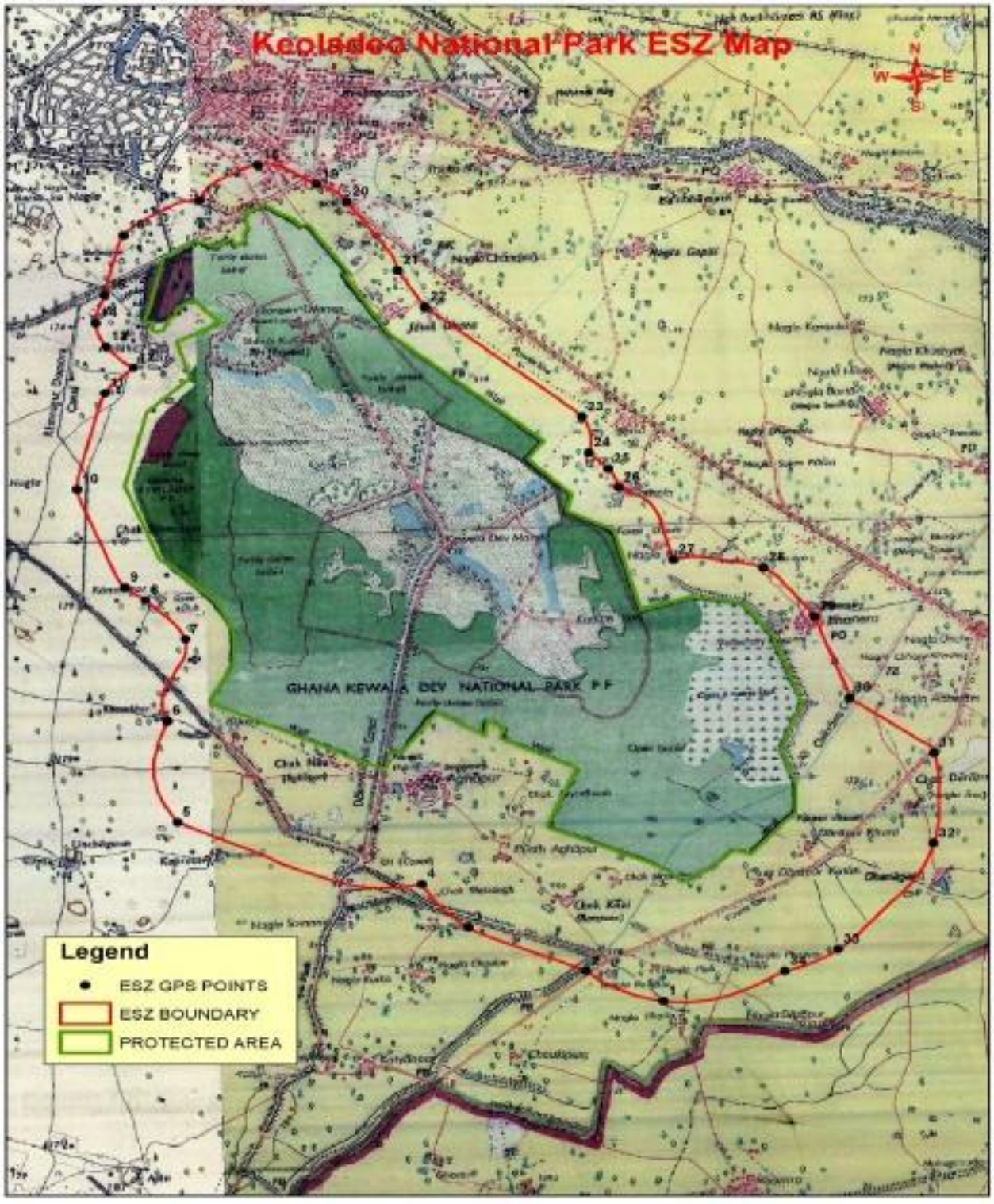


Figure No.: 0.1 Forest Classification Map Keoladeo

According to data obtained from the Forest Survey of India concerning forest quality, it is categorized into 3 segments i.e. Very Dense Forest, Moderate Dense Forest, Open Forest. Further two other classes have been shown namely Shrub & Non-Forest. Out of the total area of Keoladeo ESZ, only

9.32 % of the area comprises moderate forest while 47.91% is open forest. 9.70% area is categorized under shrubs and 32.59% area is under Non-Forest Category. The details are shown in Figure 2.1.

1.9.3 Ecological Classification of Vegetation Types

The Keoladeo National Park is rich in biodiversity consisting of diverse habitats for 375 avian species including 140 species of waterfowl, 372 species of plants, 34 species of mammals, 57 species of fish, 14 species of snakes, 5 species of lizards, 3 species of Geckos, 7 species of turtles, 8 species of amphibians, 71 species of butterflies, more than 16 species of dragonflies and 8 species of spiders. The Keoladeo National Park falls in the Punjab plains biotic province of semi-arid bio-geographical zone, which is a flat dry area of the Indus-Yamuna watershed. The vegetation of the National Park is a blend of xerophytes and semi–xerophytes consisting predominantly of desi babool (*Acacia nilotica), Capparis decidua, C. sepiaria,* kadam (*Mitragyna parviflora),* kejri *(Prosopis cineraria),* pilu *(Salvadora oleoides),* jamun (*Syzygium cumini)* and *Zizyphus* sp. The most widespread grasses in the National Park are *Paspalum distichum, Paspalidium punctatum, Cynodon dactylon, Desmostachya bipinnata, Dicanthium annulatum* and *Vetiveria zizanioides.* Kadam *(Mitragyna parviflora*) trees, distributed in scattered pockets, dominate large sized trees and the woodland, while thorny *Acacia* sp. and *Prosopis juliflora* shrubs dominate shrub lands. The major plant species found in woodland are *Mitragyna parviflora, Syzygium cumini, Acacia nilotica, 24ermaphrodit., Capparis sp.* and *Zizyphus* sp. Altogether, the National Park supports 372 plant species which includes 96 aquatic plants;

nilgai (*Boselaphus tragocamelus*), feral cattle (*Bos 24ermap*) and chital (*Cervus axis*) are abundant while sambar (*Cervus unicolor*) is rare species recorded from this protected area. Small Indian mongoose (*Herpestes javanicus*), small Indian civet (*Viverricula indica*), striped hyaena (*Hyaena hyaena*), Indian hedgehog (*Hemiechinus micropus*), Indian porcupine (*Hystrix indica*) and hog deer (*Axis porcinus*) are very rarely sighted. Two lesser cats the Jungle cat (*Felis chaos*) and fishing cat (*Prionailurus viverrinus*) and two

civets *viz.* common palm civet (*Paradoxurus 25ermaphrodites*) and small Indian civet (*Viverricula indica*) are found in the protected area; important bird species of the National Park are painted stork, open bill stork, grey heron, purple heron, night heron, large egret, intermediate egret, little egret, cattle egret, black headed ibis, little cormorant, Indian shag, large cormorant, Indian darter, Eurasian spoonbill. Numerous birds also breeds in the National Parks which includes white necked stork, black necked stork, little green heron, black bittern, chestnut bittern, yellow bittern, sarus crane, comb duck, spot billed duck, lesser whistling teal, cotton teal, pheasant tailed jacana, bronze winged jacana, purple moorhen, white breasted water hen, painted snip, black patridge, grey francolin, button bush quail, short toed eagle, lesser spotted eagle, greater spotted eagle, honey buzzard, sparrow hawk, dusky horned owl, collared spotted owlet, barn owl, mottled wood owl, coppersmith barbet, brown headed barbet, lesser flame back, yellow fronted pied wood pecker, brown crowned pigmy woodpecker, white cheeked bulbul, red vented bulbul, laughing dove, red turtle dove, ring dove, paradise flycatcher, common wood shrike, bay backed shrike, long tailed shrike, jungle babbler, large grey babbler, common babbler, yellow eyed babbler, streaked fan tailed babbler, purple sunbird, tailor bird, Indian prinia, ashy prinia, pied myna, brahmini myna, common myna, red munia, Indian silver bill, spotted munia, black drongo, jungle crow, house crow, house sparrow, yellow throated sparrow, indian grey hornbill, small minivet, golden oriole, white breasted kingfisher, common kingfisher, little green bee eater, wire tailed swallow, dusky crag marten, red wattled lapwing, yellow wattled lapwing, Indian courser, great thick knee, chestnut bellied nuthatch, Eurasian koel, common hawk cuckoo, chestnut bellied sand grouse, Egyptian vulture, king vulture, crested lark, paddy field pipit, magpie robin, Indian robin, brown rock chat, Indian roller, white browed wagtail, rose ringed parakeet, rock pigeon, yellow footed green pigeon, etc.;

1.10 Soil Type

Keoladeo National Park is situated in the alluvial plains of Bharatpur. Geomorphologically, Bharatpur district forms part of Eastern Rajasthan Plains lying east of Aravalli Hill Ranges. The area is drained by Banganga and Gambhiri rivers and comprises of vast alluvial plains with several depressions. Keoladeo National Park is a slight depression initially formed as a result of internal drainage of Banganga River, a fairly common feature in arid and semi-arid regions. The Banganga which arises in the Aravalli hill ranges in Bharatpur district drains east towards Bharatpur. It, however, has no direct outlet to the Yamuna and finds its way to depressions and small jheels. As a result of this a system of wetlands and lakes had formed.

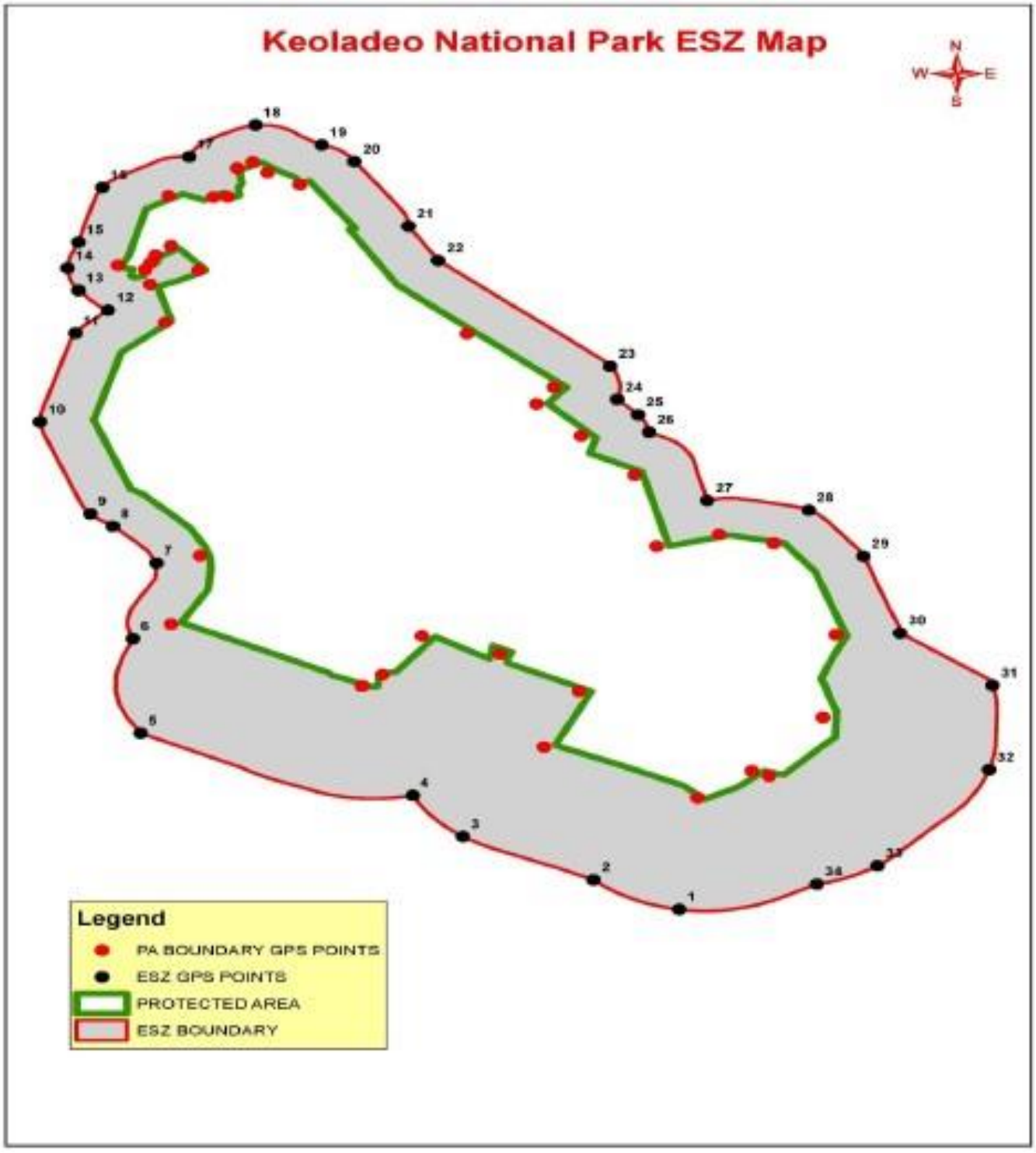
The Keoladeo swamp has an interesting geological history. Its 150m soil profile begins with a bed of silty sand, clay, sand and clay again, river gravel till the water bearing lime stone parent rock at the bottom. The strata of sand and river gravel establish that there was a river bed on which sand was continually deposited. The clay strata prove the presence of a swamp where water stayed and unloaded its silt. The change of strata from sand to clay and back again hints at the changing or shifting course of the river in geological time.

Clay loam in grassland and silty-clay loam in woodland. The soil texture showed a gradual variation along the profile with the surface layers being fine textured, while the subsurface layers were coarse textured. The wetland soil is fine textured, probably because of seasonal flooding and settled silt, while the terrestrial soil is coarse textured (Prusty and Azeez 2007). The geologic formation of the district includes different sedimentary and meta-sedimentary rocks of Bhilwara, Delhi and Vindhyan subgroup and Quaternary alluvial and falls under the Aravalli range. The major subsurface geology is Quaternary alluvium. The ground water reserves in this area are classified as those occurring in the unconsolidated formations of quaternary sediments consisting of clay, silt, canker and gravel and those in the unconsolidated formations (Bhushan and Sharma 1987). The reserves in the

unconsolidated formations are the major ones. Canker was found at the depth of 80-90 cm in certain locations of the terrestrial areas during the present investigation. The water in the phreatic aquifer in the area is predominantly saline (Bhushan and Sharma 1987). A saline tract with brine of resistivity 20-30 Ohms-1 and sodium chloride as major salt is also found underneath. The phreatic aquifer is in close contact with wetland water and contributes to the salinity and chlorinity (Azeez et al. 2000).Quaternary alluvium and windblown deposits cover around 85% of the Bharatpur district. The soil in Keoladeo National Park is thick alluvium and clay with scattered saline patches. Overall the texture of the Park soil was found to be clayey loam (CL) to silt-clay loam (SiCL) with clayey to heavy clay in wetland, At the north-western end of peninsular India, the great plains begin. Bharatpur is at the starting of these plains. The flood plains of Bharatpur, which owe their origin to the rising of the sea-bed due to tectonic movements of the land mass and the geological erosion of the peninsular mountains, the Vindhyas and the Aravallis. The topography of the plains is markedly flat, gently tilting towards the east. The slope is hardly perceptible except during the rains when water flows into the Banganga and the Gambhiri rivers, though these cease flowing and disappear in the flood plains of Bharatpur. Keoladeo swamp, situated in these plains near the present city of Bharatpur, is a large, shallow saucer like depression, extending over 30 sq km. The edges of the saucer rise about a meter and a half on the West and a meter on the East making the depth at its lowest point, almost in the center, about two meters; which is near Sapanmori. There are some bluffs near Aghapur, Ramnagar, Mallah, Main gate, Forest lodge, Forest nursery, Ghasola and Python point. These are even higher than the saucer edges above and therefore always dry.

The terrain is almost flat with elevations varying from 173 to 176 m, and a gentle slope towards a central depression. The submersible area of about 900 ha is divided into various compartments by earthen dykes in which sluice gates are built at strategic locations to regulate water supply. The wetland compartments are surrounded by terrestrial habitats of about

2000 ha except in a small area on the northwest, which is contiguous with



the agricultural fields of nearby villages.

1.11 Climate

Bharatpur has typical monsoonal type climate and receives bulk of its rains through the southwest monsoon i.e from the end of June to September with occasional slight showers in October. It rains mainly during July – August. The mean annual rainfall is about 650 mm over a period of 60 days. The average rainfall in the area during the past 100 years is 655 mm.

1.11.1 Temperature

Overall, the temperature of Bharatpur represents an extreme type of climate. Very hot – dry summers and cold – harsh winters usually occur here. The temperature ranges from a minimum of 0.5°C to 2°C in winter to a maximum of 48°C to 50°C in summer. A typical summer day has hot dry afternoons and typical winter day has cold dry nights.

1.11.2 Rainfall Pattern and Distribution

The average annual rainfall of Bharatpur is slightly less than 600 millimeters (mm). A 90 percent of the rainfall in Bharatpur occurs during the summer monsoon season, which lasts from June to September. Remaining 10 percent of the rainfall of Bharatpur is a result of winter cyclones. Overall, rainfall in Bharatpur is highly variable from year to year. It has been calculated that there is a 25% probability that annual rainfall of Bharatpur will exceed the average, and a 19.7% probability that Bharatpur will encounter a drought season. August is the rainiest month for Bharatpur as well as for the state of Rajasthan, with a relative humidity of 84% for Bharatpur. The higher rainfall, which occurs during July and August, occurs in downpours that cause excessive runoff and are not too useful in recharging groundwater aquifers. The South-East Monsoon, which occurs in July, August, and September, is mostly responsible for the precipitation. The Winter (January-February) rain showers are few. The average number of rainy days in a year is 30. Bharatpur received the heaviest rainfall of 1402.8 mm in 1892 while in 1905 it received minimum rainfall of 120 mm.

1.11.3 Rainfall Coefficient and Intensity in Keoladeo ESZ

Daily rainfall data for 41 years from 1980 to 2020 are taken from India Meteorological Department (IMD), Pune for analysis of the rainfall variation of various return periods. Rainfall frequency analysis is required for assessing the possible submergence and spread of lake areas.

The running chapter discusses on the area and time distribution of various rainfall of given duration, which finally decides the locations for water harvesting structure in area and time distribution curves of various rainfall.

1.11.4 Humidity

Humidity increases with the beginning of the monsoon making the climate muggy and remains high after the incidence of rain. Humidity is lowest in the summer months and highest in the middle of the monsoon season.

1.11.5 Wind Direction and Wind Speed

There was a severe wind storm in May 2018 in Bharatpur in which wind speeds reached upto 100 km per hour. Such intense storm as reported by locals hasn't taken place for at least 30 years. May be due to climate change and erratic monsoonal patterns, erratic winds and storms can be expected in coming future.

1.12 Waterbodies, Drainage, and Watersheds

This section deals with the waterbodies in and around the Keoladeo ESZ and –districts. Furthermore, the drainage and watersheds will also be discussed.

1.12.1 Ajan Bandh and Surroundings

The main source of water to the park is a temporary reservoir, namely Ajan bandh, situated 500 m southwest of the present boundary of the Park. Ajan bandh receives water from the Gambhiri and Banganga river systems, at the confluence of which the National Park is located. Water from the

Gambhiri is brought into the Ajan bandh through Pichuna canal. Of late, supply from the latter has become rare and from the former less in quantity. The watershed of Gambhiri river lies in the hilly areas of Karauli (Rajasthan), running through Bayana and Rupbas tehsils and other parts of Uttar Pradesh to re-enter Rajakhera tehsil, Dholpur district (Rajasthan) before flowing into river Yamuna. The Banganga River originating at Manoharpur in Bharatpur district (Rajasthan) runs through Jamva Ramgarh and Mekhpur settlements from where water is taken to Ajan bandh through the Uchain canal.

Water brought into Ajan bandh is retained there for a few days for the silt to deposit and then released to the surrounding villages and into the Park through Ghana Canal by the Irrigation department. Through this process, the particulate organic matter settles, which is highly nutritious for the crops and, at the same time, reduces siltation in the wetland.

Water from Ajan bandh is retained in Ajan bandh only for two months. Water is supplied in July – August for about a month, but very rarely during August – September. The bandh is emptied by September and put under cultivation of kharif crops, utilizing the available soil moisture. The time of release of water to the park is vital to the growth of aquatic plants, breeding of heronry species and the overall seasonality of ecological events. The quantum of water received is no doubt the most important factor in the survival of wetlands, and to some extent, that of the upland forests.

Chapter: 2

2.1 Overview

The Eco-Sensitive Zone is spread over an area 14.25 sq kms. around the boundary of Keoladeo National Park and the boundary description of such Zone is given in Figure 1.1 (see Gazette Notification of 13th October, 2015), which shows the Keoladeo National Park and ESZ as per Gazette Notification, 2015.

Development Promotion and Control Regulations (DPCR) are a set of guidelines and rules established by local government authorities to govern landuse and development within a specific jurisdiction. These regulations aim to promote orderly and sustainable development while ensuring that it aligns with the overall planning goals and objectives of the area.

The Eco-Sensitive Zone has an extent from a minimum of 500 meters to max of 1500 m all around the boundary of Keoladeo National Park.

2.2 Landuses and Allowed Activities in ESZ of Keoladeo National Park

As per Keoladeo ESZ Notification, the list of activities is categorized in three parts. All the development decisions shall be in conformity with the activities prohibited, regulated, promoted as per Keoladeo ESZ Notification. All activities in the Eco sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made there under, and be regulated in the manner specified in the Table

2.3 Prohibited Activities

As per the Keoladeo ESZ Notification the prohibited activities are given in Annexure 1A.

2.4 Regulated Activities

As per the Keoladeo ESZ Notification the regulated activities are given in Annexure 1B.

2.5 Promoted Activities

As per the Keoladeo ESZ Notification the promoted activities are given in Annexure 1C.

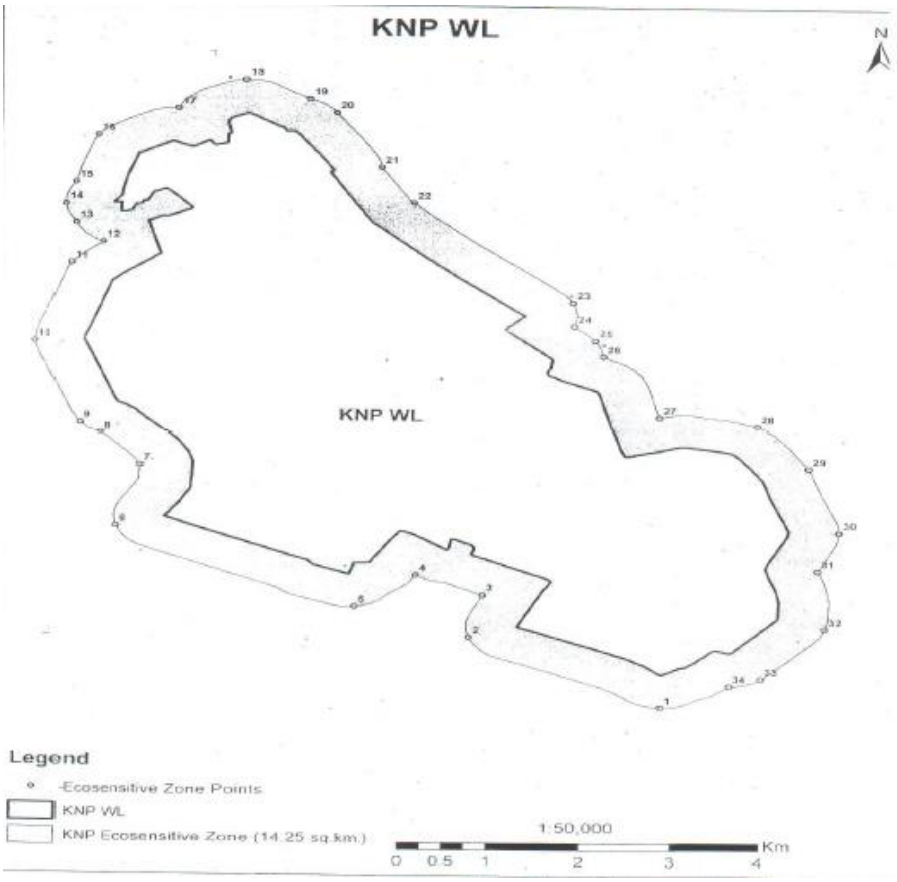


Figure Map of Eco-Sensitive Zone of Keoladeo National Park

2.6 Provisions of Keoladeo National Park Notification

ESZ Notification dated 13-10-2015 prescribes prohibited, promoted and regulated activities. Further, if any activity is prohibited under ESZ Notification dated 13-10-2015 and by any court orders, that prohibition would prevail over the activities allowed.

Existing Activity/Use

ESZ Notification dated 13-10-2015 prescribed regulations regarding new hotel, resort, commercial establishments, etc. This leads to the requirement of defining what is "existing."

For purpose of ZMP for the ESZ, hotels, resorts, commercial establishments, etc. shall be considered as existing if they have any of the

following issued prior to 13-10-2015 ESZ Notification of ESZ for Keoladeo National Park:

1. Electricity connection for non-agricultural use.
2. Approval by Tourism Department as tourism unit.
3. Conversion order/Patta for non-agricultural use.
4. Building Plan approval.
5. Order regarding change in landuse.
6. Proof of deposition of tax as hotel, resort, commercial establishment, etc.
7. CTE/CTO/Environmental Clearance.

Additionally, all the duly approved uses existing prior to issue of Keoladeo National Park ESZ Notification shall be honored.

2.7 Building Parameters for Grant of Approval

The general building parameters for permissions to be granted in ESZ shall be as under:

Maximum Height – 10.5 meters.

However, if the allowed height, as per building byelaws is less than 10.5 meters. Then, the lesser height would be applicable.

Maximum Ground Coverage – 20%

However, if the plot coverage allowed as per building byelaws is less than 20% then, the lesser ground coverage would be applicable.

Other building parameters will be as per prevailing Building Byelaws wherever applicable.

2.8 Environmental Clearance from State Environment Impact Assessment Committee or MOEF&CC

As per Sub-para 3 and Sub-para 4 of point no. 6 (Terms of Reference) of Keoladeo National Park Eco-Sensitive Zone Notification, the provision is as under:

The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forest number S.O. 1533 (E), dated the 14th September, 2006, and are falling in the Eco-Sensitive Zone, except for the prohibited

activities as specified in the table under Paragraph 4 thereof, shall be scrutinized by the monitoring committee based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearances under the provisions of the said notification.

ANNEXURE - 1A LIST OF ACTIVITIES PROHIBITED WITHIN ECO-SENSITIVE ZONE

S. No.	Activity	Description
(1)	(2)	(3)
A. Prohibited Activities		
1.	Commercial mining, stone quarrying and crushing units.	(a) New and existing mining (minor and major minerals), stone quarrying and crushing units shall be prohibited except for the domestic needs of bona fide local residents with reference to digging of earth for construction or repair of houses and for manufacture of country tiles or bricks for housing for personal consumption. (b) The mining operations shall strictly be in accordance with the interim order of the Hon'ble Supreme Court dated 04.08.2006 in the matter of T.N. Godavarman Thirumulpad Vs. UOI in W.P.(C) No.202 of 1995 and order of the Hon'ble Supreme Court dated 21.04.2014 in the matter of Goa Foundation Vs. UOI in W.P.(C) No.435 of 2012.

2.	Setting up of saw mills.	No new or expansion of existing saw mills shall be permitted within the Eco-sensitive Zone
3.	Setting up of industries causing water or air or soil or noise pollution.	No new or expansion of polluting industries in the Eco-sensitive Zone shall be permitted.
4.	Commercial use of firewood.	Prohibited (except as otherwise provided) as per the applicable laws.
5.	Establishment of new major hydroelectric projects and irrigation projects.	Prohibited (except as otherwise provided) as per the applicable laws.
6.	Use or production or processing of any hazardous substances.	Prohibited (except as otherwise provided) as per the applicable laws.
7.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise provided) as per the applicable laws.
8.	Undertaking activities related to tourism like over-flying the National Park	Prohibited (except as otherwise provided) as per the applicable laws.

	Area by aircraft, hot-air balloons.	
9.	New wood based industry.	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone: Provided the existing wood-based industry may continue as per law: Provided further that renewal of licenses of existing saw mills shall not be done on their expiry period.
10.	Noise Pollution.	Declaration of silence zone as per applicable laws.
11.	Solid waste disposal facility.	No solid waste disposal facility shall be established in the Eco-sensitive Zone.
12.	Use of polythene bags.	Prohibited (except as otherwise provided) as per applicable laws.

ANNEXURE - 1B LIST OF ACTIVITIES TO BE REGULATED WITHIN ECO-SENSITIVE ZONE

S.	**Activity**	**Description**
(1)	**(2)**	**(3)**
B. Regulated Activities		
13.	Establishment of hotels and resorts.	No new commercial hotels and resorts shall be permitted within one kilometer of the boundary of the Protected Area except for accommodation for temporary occupation of tourists related to Eco friendly tourism activities (this should also be not permitted for at least 500 m from the boundary of the National Park. This creates a lot of waste

		generation and noise pollution which affects the habitat of the birds)
14.	Construction activities.	(a) No new commercial construction of any kind shall be permitted within ESZ: Provided that, local people shall be permitted to undertake construction in their land for their residential use including the activities listed in sub paragraph (1) of paragraph 3.(Clear demarcation of the purpose should be defined and submitted before the concerned authorities/ESZ monitoring committee because any such construction if utilized for commercial activities will be detrimental for the National Park) (b) The construction activity related to small scale industries not causing pollution shall be regulated and kept at the minimum, with the prior permission from the Competent Authority.
15.	Felling of trees.	(a) There shall be no felling of trees in the forest or Government or revenue or private lands without prior permission of the Competent Authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder. (c) In case of Reserve Forests and Protected Forests the Working Plan prescriptions shall be followed.

16.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be permitted only for bona fide agricultural use and domestic consumption of the occupier of the land; (b) extraction of surface water and ground water for industrial or commercial use including the amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority; (c) no sale of surface water or ground water shall be permitted; (d) steps shall be taken to prevent contamination or pollution of water from any source including agriculture.(Clear check should be placed on commercial establishments near the National Park as entire ecosystem is dependent on water)
17.	Erection of electrical cables and telecommunication towers.	Promote underground cabling .
18.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws.
19.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
20.	Movement of vehicular traffic at	Regulated for commercial purpose, under applicable laws.

	night.	
21.	Introduction of exotic species.	Regulated under applicable laws.
22.	Protection of hill slopes and riverbanks.	Regulated under applicable laws. However, no activities that enhance erosion of the river banks should be allowed on the banks of Kukund river.
23.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
24.	Commercial sign boards and hoardings.	Regulated under applicable laws.
25.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agrobased industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment shall be permitted.
26.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws.
27.	Air and vehicular pollution.	Regulated under applicable laws.
28.	Drastic Change of Agriculture systems	Regulated under applicable laws.

ANNEXURE - 1C LIST OF ACTIVITIES TO BE PROMOTED WITHIN ECO-SENSITIVE ZONE

S. No.	Activity	Description
(1)	(2)	(3)
C. Promoted Activities		
29.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted under applicable laws.
30.	Rain water harvesting.	Shall be actively promoted.
31.	Organic farming.	Shall be actively promoted.
32.	Adoption of green technology for all activities.	Shall be actively promoted.
33.	Cottage industries including village artisans, etc.	Shall be actively promoted.
34.	Use of renewable energy and fuels	Bio-gas, solar light etc. shall be actively promoted.

Chapter 3

3.1 Tourism Strategy

Eco-tourism has emerged as one of the prospective sectors of industry. The future economic development will be greatly influenced by the economic opportunities arising out of tourism growth. The Tourism Development Strategy takes into consideration the economic, political, administrative and environmental aspects of the region that create either opportunities or constraints for the development of tourism and defines the macro-level policy.

The Tourism Development Strategy emphasizes on:

- Harnessing the tourism potential of the region through planned, growth-oriented and sustainable development of the Regional Circuits.
- Developing tourism to ensure the overall development of the region.

The proposed tourism development strategy is based on the following key activities:

- **Focus on quality tourism than mere numbers, especially in eco-sensitive regions:**

  Although Rajasthan receives a high number of visitors relative to India, quality tourism should be enhanced with a variety of considerations, like better stay facilities, better connectivity, preservation of heritage values, historical relevance, eco-cultural sensitivity, etc.

- **Holistic & Unified Tourism Policy & incentives:**

  Rather than conforming to a single method, tourism development should be given special consideration.

- **A Priority road map that will focus on creating:**
  - Critical infrastructure development- particularly connectivity & accommodation key to tourism development.
  - Conducive environment & safety of tourist.
  - Community involvement in sustainable tourism.

- Capacity building to be taken up as first priority- as there are severe capacity building needs
- Holistic and Unified Policy with incentives

3.2 Development Proposals

3.2.1 Infrastructure/facility area development

Survey has been conducted to find out the gaps in infrastructure and facilities available at various tourist sites. Hence the necessary infrastructure from a tourism point of view is planned to facilitate the visitors.

Eco-Tourism Infrastructure recommendations including:

1. Afforestation activities with vision of developing nature walks around the KNP where tourist can also learn about the interaction of local villages with KNP. This would also help to boost village visits of many foreign tourists coming to the National Park.

2. Existing marriage halls, hotels should adopt Eco-friendly methods of tourist facilitation in which Proper Waste Disposal Certification should be made mandatory to all the hotels in the ESZ in consultation with the forest department and urban local bodies.

3. Existing stay facilities for the tourists like hotels, paying guests, marriage gardens etc should have minimum mandatory guidelines for plantation within their facilities to ensure greener environment which would also act sound barriers enhancing better habitat for birds inside the park as well.

4. Any new eco-tourism activity/facility should only be of non-permanent nature with focus on more and more land of such facilities having green cover. (Minimum area to have trees/plantation in such facilities should be decided in consonance with local bodies and forest department)

5. Near by local ponds should also be developed with the help of forest department, local bodies. Major focus should be on their de siltation, plantation around them and non-permanent eco friendly sitting facilities.

3.2.2 Tourism Support Programs/ Plans

Several tourism support programs are planned, as these will really decide transformation of local community, local economy and ensure tourism growth in a sustainable manner. If ESZ is developed in a manner which is proposed above, it would also attract more tourists and will give more employment opportunities for local nature guides, e-rickshaw drivers. This would require proper coordination with tourism department and district administration to ensure comprehensive ecofriendly development which is healthy for the entire ecosystem.

3.2.3 Community Participation Programs

Community participation is key to sustainability of tourism projects. Projects are planned with community in center and as partners of the development. This in addition to making the projects economically contributing will also make it sustainable and reduce possible cultural conflicts. An effective way to improve the economy is to enable communities to improve the quality of life through social mobilization of the people. The key plan components include.

Handicrafts promotion and product development catering to tourists. One of the major support programs proposed, Rajasthan is famous for its cultural diversity, historic value, handicraft and handloom attractions, however product reorientation, development, trainings and marketing is required for economic benefit.

3.2.4 Private Sector Participation Strategy & Facilitation

It is very important to have more private sector participation with various schemes. Hotels, marriage halls, industries can participate through voluntary contributions, creating carbon credits within their facilities, CSR activities, afforestation activities etc.

3.2.5 Felling of Trees

The maximum consumption of wood occurs during winters. Nearby villages are heavily depended on forest for firewood. In this regard, EDCs (Eco Development Committees) can play a very important role in eradicating

invasive species and making them available for local needs. However, a strict vigil would be required as in guise of invasive species removal, illegal felling of indigenous species can not be permitted at any cost.

3.3. Soil Conservation, Water Harvesting and Combating with Drought Conditions

Situation along with soil erosion becomes very challenging for the local ecosystem of ESZ. The water reservoirs like ponds in nearby areas are suffering from issues polluted water, siltation, no proper management etc. Bharatpur has issues of water logging which can be utilized in the favor of the city with proper management of these water bodies which can also act as satellite points for birds and attract tourists as well.

3.4 Proposals for Eco Tourism

3.4.1 Criteria for Selection of Eco-Tourism Areas within ESZ boundary

1. The potential Eco-Tourism Sites should be chosen from the villages within Eco-Sensitive Zone Area but outside the Wildlife Sanctuary Boundary.
2. All such villages should have a good natural setting & proper accessibility.
3. No new permanent structure should be made. Focus should be on non-permanent structures made from locally available natural materials.
4. Natural trails can be developed; however, no expansion of existing road network should be permitted in such a unique habitat which might affect the habitat of birds.

3.4.2 Type of Eco Tourism Proposed for Keoladeo National Park ESZ

Eco-tourism is a powerful tool for the conservation of forests, biodiversity/ wildlife, and scenic landscapes by creating sustainable alternative livelihoods for forest-dependent communities and by generating conservation awareness among mass and the decision-makers. Village based eco-tourism is also good for upliftment of village community. The village-based tourism can have following aspects:

1. Participatory organic farming for tourists.

2. Various participatory activities like community plantation, water harvesting etc.
3. Use of new technology like hydroponics, aeroponics for sustaining exotic plants and can also be used as a demonstrative tool for farmers as well as visiting tourist.
4. Demonstration of traditional village life/culture for tourists.
   Traditional arts and crafts can be developed to showcase and market them for tourism. In view of this, development of villagers can be supported by proposing a skill development center whereas tourists can experience the rich art with having a hands-on experience of the practices.
5. Meeting local farmers - Allows tourists to experience the authentic rural lifestyle. It offers an opportunity to learn about the local farming practices, traditional cultivation techniques, and the significance of agriculture in the local culture and provides valuable educational insights into agricultural processes, sustainable farming methods, and the importance of biodiversity in farming systems.
6. Tasting a variety of fresh foods and produce - Involves farm-to-table experiences where visitors can taste locally grown and freshly harvested foods. By tasting and purchasing local foods, tourists directly support local farmers and the local economy.
7. Learning about rural art - Incorporating rural art into village based eco-tourism diversifies the tourism offerings of a destination, attracting visitors with a specific interest in arts and cultural experiences. This diversification contributes to the sustainable development of tourism by reducing dependency on a single tourism segment, extending tourist stays, and enhancing the overall visitor experience.

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