सत्यमेव जयते

Zonal Master Plan
For
Eco – Sensitive Zone
of
Sajjangarh
Wild Life Sanctuary

GOVERNMENT OF RAJASTHAN
DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE

Forest, Environment and Climate Change Department
Government of Rajasthan

SAJJANGARH WILDLIFE SANCTUARY

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 Sajjangarh Wild Life Sanctuary notified by Government of India notification dated 13.02.2017 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 Sajjangarh Wild Life Sanctuary 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 in consultation with Deputy Conservator of Forests (Wildlife), Sajjangarh WLS, Urban Improvement Trust (UIT), Udaipur and other stakeholders departments 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.

Mrs. Aparna Arora, IAS
Additional Chief Secretary

PREFACE

The key objectives of this study are to create a Zonal Master Plan of Eco -Sensitive Zone of Sajjangarh Wild Life Sanctuary, advise development regulations, and suggest proposals to mitigate negative environmental effects. The Zonal Master Plan of Eco -Sensitive Zone of Sajjangarh Wild Life Sanctuary 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 Sajjangarh Wild Life Sanctuary. 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 Sajjangarh Wild Life Sanctuary 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 Smt. Aparna Arora, Additional Chief Secretary (Department of Environment and Climate Change, Govt. of Rajasthan), Deputy Conservator of Forests (Wildlife), Sajjangarh WLS, Urban Improvement Trust (UIT), Udaipur and other stakeholders 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.

Mr. Bijo Joy, IFS
Special Secretary

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1. INTRODUCTION

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 (MoEFCC), Government of India around protected areas, National Parks, and Wildlife Sanctuaries. MoEFCC 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 or EFA 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 MoEF&CC 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 MoEF&CC, thereafter, a committee was organized by MoEF&CC 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.

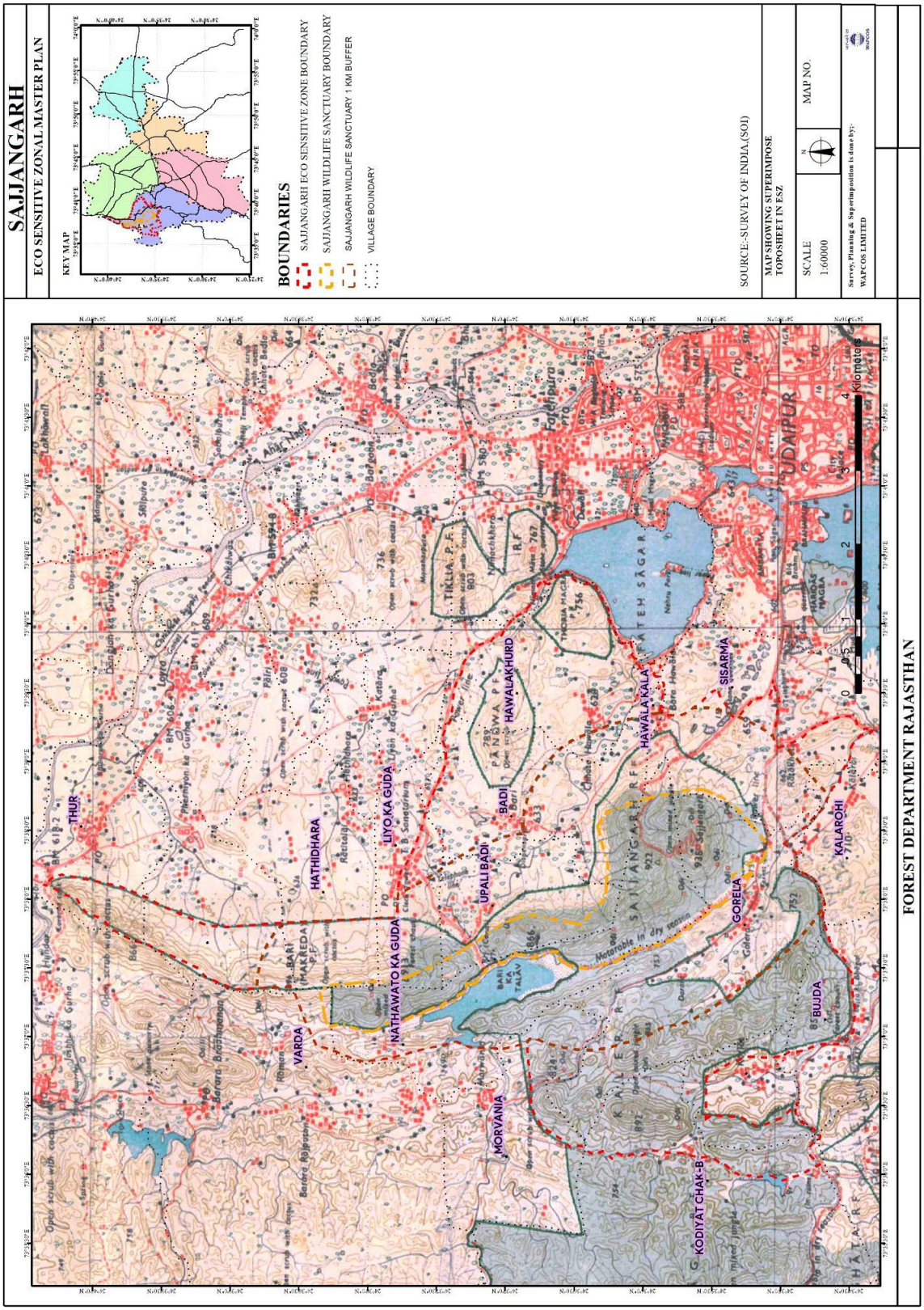
It is also imperative to note that the Directive Principles of State Policy, Article 48 provisioned about the endeavor of every state to protect and improve the environment and to safeguard the forests and wildlife of the nation; moreover, Article 51-A states that "It shall be the duty of every citizen 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 and Boundaries of Sajjangarh-ESZ

As stated earlier, Sajjangarh ESZ is named after the prominent sanctuary of Sajjangarh. The ESZ has been demarcated up to an extent of 250 meters to 5 kilometers around the boundary of Sajjangarh Wildlife Sanctuary and the area of the ESZ is 29.8 sq. km. The extent of boundaries for the ESZ and Wildlife Sanctuary is presented in Map 6 (see Gazette Notification of 6th January, 2020) which shows the Sajjangarh Wildlife Sanctuary and ESZ as per Gazette Notification, 2020. Based on Map 6 from the respective Gazette

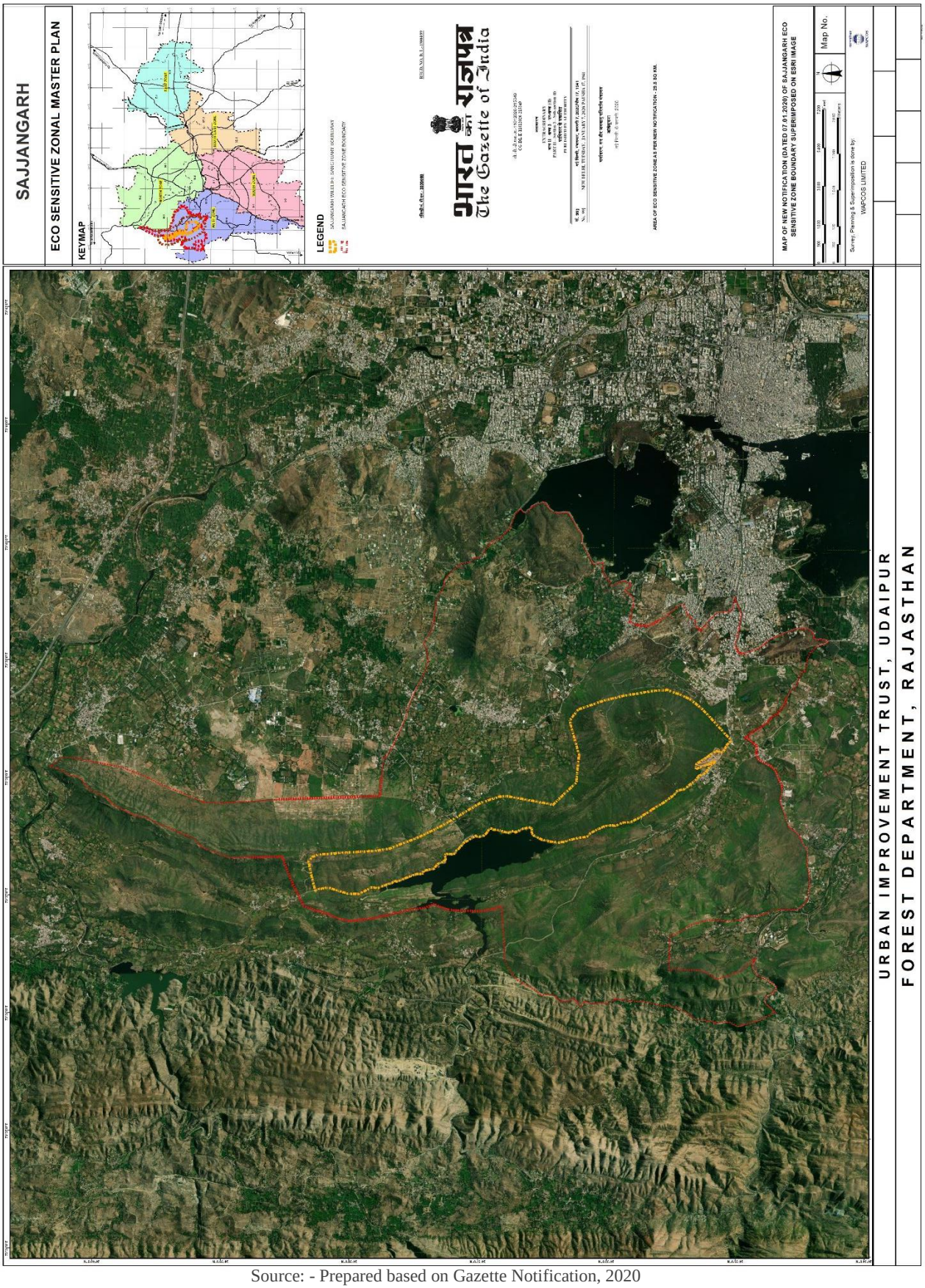
Notification, Map 1 was prepared by the consultant, which shows the boundaries of Sajjangarh Wildlife Sanctuary, and Sajjangarh ESZ.

The Sajjangarh Wildlife Sanctuary is the prominent feature of this ESZ, and the Sanctuary lies between 24°35’ N to 24°39’ N Latitudes and 73°37’ E to 73°40’ E Longitudes. The Sanctuary was notified by the Government of Rajasthan in 1987 (vide notification No. F11 (64)/Raj 8/86 dated 17.02.1987), and it is situated in the southern part of Aravalli series at Udaipur district of Rajasthan. The sanctuary is spread over an area of 5.19 square kilometers, enclosing the famous Sajjangarh fort.



Source: - Prepared based on Gazette Notification, 2020

Map 1: -Superimposition of ESZ boundary on GT Sheet Udaipur



Source: - Prepared based on Gazette Notification, 2020

Map 2: -Sajjangarh Wildlife Sanctuary and ESZ Boundary

As per the notification dated January 6th, 2020 by the Government of India in the Ministry of Environment, Forest and Climate Change; there are 22 governing GPS coordinates of the proposed Eco-sensitive zone around Sajjangarh Wildlife Sanctuary which are illustrated and listed as under: -

GPS coordinates of proposed Eco-sensitive Zone around Sajjangarh Wildlife Sanctuary			
Sl_No.	GPS	Longitude	Latitude
1	E01	73°38.185’ E	24°40.357’ N
2	E02	73°37.399’ E	24°38.527’ N
3	E03	73°36.853’ E	24°37.936’ N
4	E04	73°37.026’ E	24°37.365’ N
5	E05	73°36.955’ E	24°36.861’ N
6	E06	73°36.173’ E	24°36.240’ N
7	E07	73°36.153’ E	24°35.452’ N
8	E08	73°36.087’ E	24°34.713’ N
9	E09	73°36.549’ E	24°34.871’ N
10	E10	73°36.483’ E	24°35.534’ N
11	E11	73°36.778’ E	24°35.328’ N
12	E12	73°37.080’ E	24°34.483’ N
13	E13	73°38.443’ E	24°34.923’ N
14	E14	73°39.244’ E	24°34.301’ N
15	E15	73°39.213’ E	24°35.025’ N
16	E16	73°39.614’ E	24°35.042’ N
17	E16/1	73°39.534’ E	24°35.449’ N
18	E16/2	73°39.341’ E	24°35.812’ N
19	E17	73°39.757’ E	24°36.038’ N
20	E18	73° 40.366’ E	24°36.684’ N
21	E19	73°39.071’ E	24°37.430’ N
22	E20	73°37.927’ E	24° 37.794’ N

Source: - Notification: January 6th, 2020, GOI (Ministry of Environment, Forest and Climate Change)

Table 1: GPS coordinates of proposed Eco-Sensitive Zone around Sajjangarh Wildlife Sanctuary

The boundary of Sajjangarh Wildlife Sanctuary is described as under:

A. Northern Boundary

Revenue area of village Varda

B. Eastern Boundary

Revenue area of village Nathwato ka Guda and Upali Badi

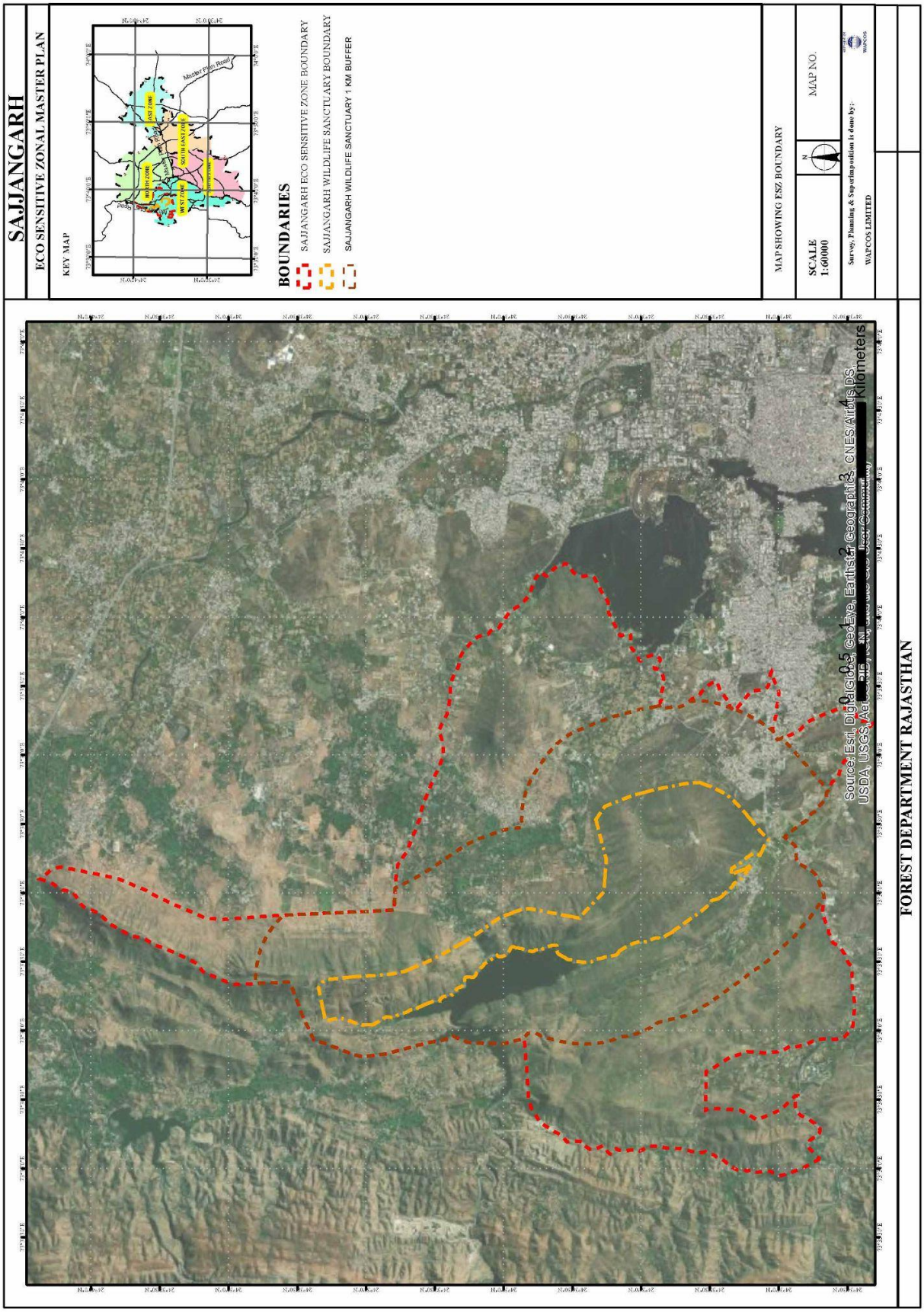
C. Southern Boundary

Revenue area of village Gorela and Kodiyat Chak-A

D. Western Boundary

Revenue area of village Morvania and Kodiyat Chak-B

The boundary of Wildlife and ESZ area map is as below



Source:- Prepared based on Gazette Notificcation, 2020

Map 3:-Boundary of Wildlife Sanctuary and ESZ Boundary, Sajjangarh

Keeping given the richness of flora and fauna, heritage importance, tourist perspectives, and environmental importance, MoEF&CC 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 250 meters to 5 kilometers around the boundary of Sajjangarh Wildlife Sanctuary, in Udaipur district of Rajasthan as ESZ. Coming to the boundaries of the said ESZ is as below:

a. Northern boundary

Starting from Shilpgram tiraha (tri-junction of roads; on Rani road at bank of Fateh Sagar), moving along road reaching Rajiv Gandhi Park, further moving along the park boundary towards village Hawala reaching Muslim graveyard keeping the graveyard outside– moving ahead along the western boundary of graveyard reaching north-east corner of Hawala closure (Sajjangarh Wildlife Sanctuary)- further moving along the eastern wall of the closure towards south direction, reaching south-east corner of Hawala closure– moving further along the tar road towards Udaipur city, reaching power house tri-junction road – further moving from this point along the tar road, reaching Rampura choraha – moving along the tar road, reaching Sisarma river bridge near Sisarma village taking a turn towards village Kalaroi (keeping the village outside), reaching Kodiat road – moving further along the southern boundary of Kaler forest block reaching Amarjok nadi near Bujra Ki Bhagal.

b. Eastern boundary

Starting from Amarjok river near Bujra Ki Bhagal, further following boundary of Kaler block (keeping Kodiat village outside), reaching Morwania village on Ubeshwar road (keeping Morwania village outside) – moving further from the point, reaching Morwania river.

c. Southern boundary

Starting from Morwania river, further moving towards north, reaching west of Varda road on a small hillock, parallel to road – moving further along the edge of the hillock, reaching Nathawaton Ka Gudafala (keeping Nathawaton Ka Gudafala inside) – moving ahead, between two small hillocks, taking a turn towards Makreda block, reaching to the

896m. high peak of this block –further moving along the ridgeline of Makreda block towards northern site and reaching Thur road.

d. Western boundary

Starting from Thur road, taking a "U" turn, moving along the eastern boundary of Makreda forest block, reaching TB sanatorium Badi – moving from this point along Udaipur road, reaching Rani road tri-junction close to Wildlife Division – further moving on Rani road keeping Thur magra forest block inside, reaching Shilpgram tiraha to close the circuit.

1.3 Villages within the Sajjangarh Eco-Sensitive Zone Boundary

As per the notification dated February 14th, 2017 by the Government of India in the Ministry of Environment, Forest and Climate Change; there are 9 villages falling within the eco-sensitive zone. The GPS coordinates of the same are illustrated and listed below:-

GPS coordinates of villages falling within the SJ-ESZ			
Sl_No.	Settlement	Longitude	Latitude
1	Bari	73°38.620' E	24°36.944' N
2	Sanatortum	73°38.222' E	24°37.734' N
3	Chhota Hawala	73°39.374' E	24°36.355' N
4	Bara Hawala	73°39.370' E	24°35.845' N
5	Sajjangarh	73°38.408' E	24°35.580' N
6	Golera	73°37.833' E	24°35.237' N
7	Darara	73°37.466' E	24°35.693' N
8	Ratakhet	73°39.144' E	24°34.935' N
9	Odi	73°36.218' E	24°35.632' N

Source:- Notification: February 14th, 2017, GOI (Ministry of Environment, Forest and Climate Change)

Table 2: List of villages falling under SJ-ESZ (as per notification)

With the superimposition of ESZ boundary as per geo coordinates on revenue village boundary, additional 9 villages are found falling completely or partially under ESZ area. Hence a total of 18 villages fall under SJ-ESZ as listed below.

S.No.	Village Name	Eco-Sensitive Boundary	Population	LAT	LONG
1	Thur	Partially	2496	24.666793	73.64895
2	Ferniyo ka Guda	Partially	951	24.656087	73.641637
3	Hathidhara	Partially	1048	24.634262	73.631599
4	Liyo ka Guda	Partially	767	24.624646	73.630349
5	Upali Badi	Fully	903	24.614513	73.633276
6	Badi	Partially	2712	24.618803	73.644438
7	HawalaKhurd	Partially	1144	24.61995	73.673394
8	HawalaKala	Fully	1159	24.606816	73.661684
9	Nathawato ka Guda	Fully & Partially Outside Zone	654	24.595505	73.62407
10	Sisarma	Partially	4243	24.581434	73.657342
11	Kalarohi	Partially	563	24.574814	73.644924
12	Gorela	Fully & Partially Outside Zone	1702	24.584434	73.646702
13	Kodiyat-A	Partially	663	24.591739	73.611233
14	Kodiyat-B	Partially	499	24.588712	73.594696
15	Morvania	Partially	521	24.61774	73.609309
16	Varda	Partially	2271	24.635453	73.608339
17	Bujda	Partially	2397	24.576501	73.616925

Table 3:- List of villages falling under SJ-ESZ (as per superimposition on village boundaries)
Source:- WAPCOS Survey, Forest Department, Rajasthan, UIT

The whole eco-sensitive area including the Sajjangarh wildlife sanctuary is divided into three zones to enforce control and regulate development. The three zones are:-

a). SA : Sajjangarh Wildlife Sanctuary Area

b). 1BA : 1 Km Buffer Area

c). BA : Rest of Eco-Sensitive Zone Area

SA: Sajjangarh Wildlife Sanctuary Area

'SA' comprises the reserved forest block of Sajjangarh which was declared as Wildlife Sanctuary vide Government of Rajasthan Notification No. F11 (64)/Raj 8/86 dated 17.02.1987 under the provision of Section 18 of Wildlife Protection Act. 1972 (Central Act. No. 53).

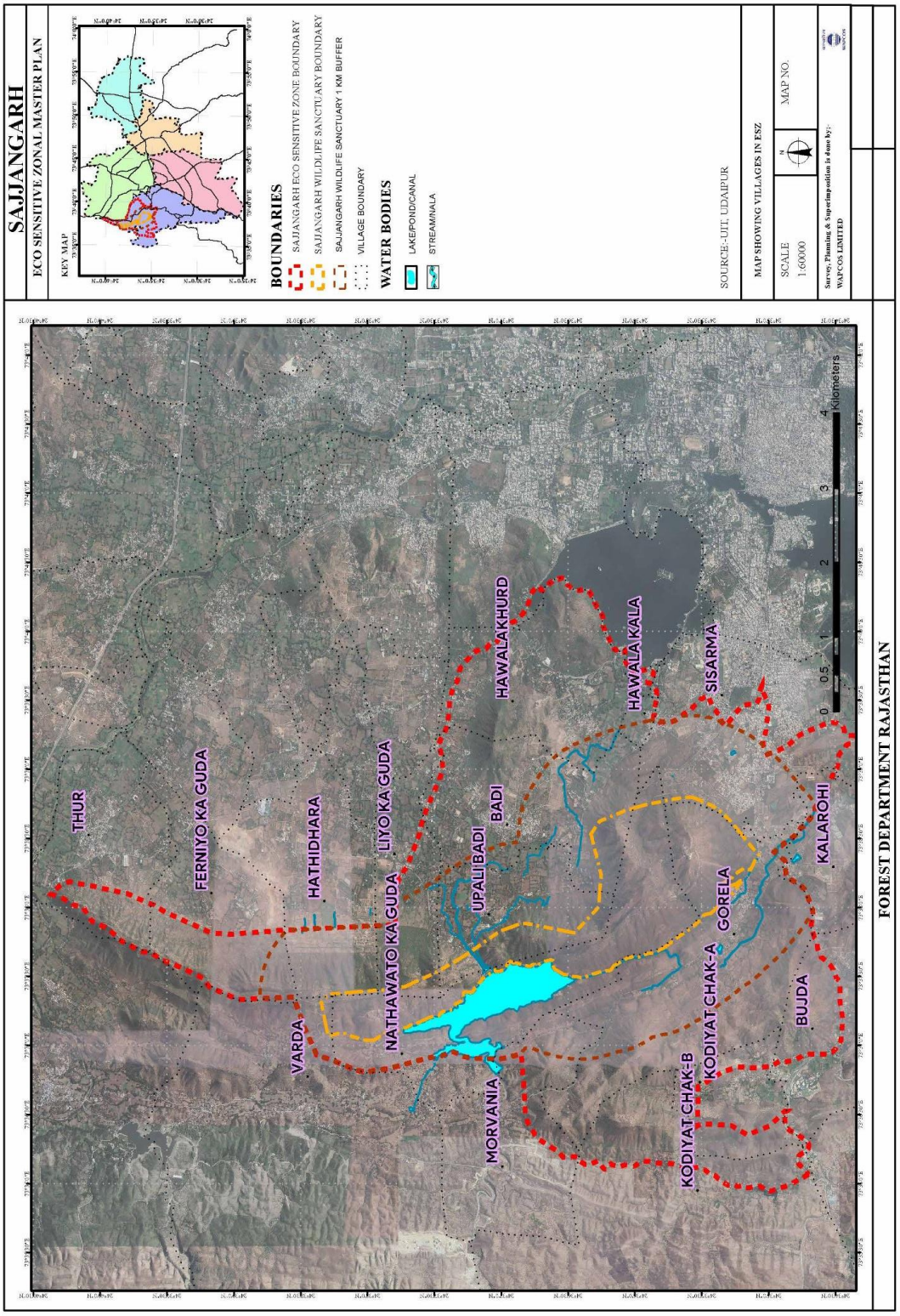
1BA: 1 Km Buffer Area

'1BA' refers to 1km of the surrounding area around the reserved forest block and within the Eco-Sensitive zone boundary, as prescribed in the notification. This zone is considered very sensitive towards development. As per guidelines three types of activities will be identified under the category of prohibited, regulated and permitted for this zone. The management activities will be performed as per Honorable SC guidelines and the management committee constituted for the purpose. Several development activities are

restricted. This is proposed in order to minimize the impact of disturbance caused due to development activities to the flora, fauna and biodiversity of the reserved forest block.

BA: Rest of Eco-Sensitive Zone Area

'BA' consists of the remaining notified eco-sensitive zone. This zone will be subjected to urbanization as specified in development control regulations of the Master Plan for Sajjangarh Eco-Sensitive Zone.



Source:- Google Earth Imagery, Forest Department, Rajasthan, UIT, Udaipur, WAPCOS Survey

Map 4:- Sajjangarh Eco Sensitive Zone and Wildlife Sanctuary with village boundary

1.4 Vision and Objective

Vision of preparation of Zonal Master Plan for Sajjangarh 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 Sajjangarh 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 up-liftment 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.

1.5 Study Methodology

The conservation of Sajjangarh Wildlife Sanctuary, 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 (6th January 2020) by the Ministry of Environment, Forest and Climate Change (MoEFCC) for the declaration and aspects of ZMP preparation for theSajjangarh ESZ, it is necessary to study the present status and identify various issues concerning degradation of environment.

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 truthing was done. WAPCOS has prepared geo-referenced maps required for the preparation of ZMP for the Sajjangarh ESZ.

b. Field Surveys and Data Collection

Field surveys have been conducted to collect necessary data for assessing issues and problems as well as understand the resource potentials for the development of the ZMP for Sajjangarh ESZ. The surveys particularly focus on aspects like heritage, tourism, ecology, urban activities in the vicinity, and environmental concerns. All the existing worshiping places, villages, types, and kinds of forests, soil types, agricultural areas, horticultural areas, orchards, lakes, and other water bodies have been marked on the map.

The existing and proposed landuse features have been analyzed. Field surveys have been conducted to understand major transportation and communication networks, infrastructure facilities, heritage and tourism, and environmental impacts.

Detailed secondary data collection and field surveys have been conducted on the following aspects to identify present issues, condition assessment, and growth trends in the area.

I. Existing landuse survey for the ESZ area.
II. Natural water bodies and water pollution
III. Tourism and Eco-tourism
IV. Natural heritage sites
V. Man-made heritage sites (Buildings, structures, and precincts of historical, architectural, aesthetic, and cultural significance
VI. Surveys for physical infrastructure including water, power, sewerage system, other sanitation issues, etc.
VII. Study of a disposal system for solid waste management (SWM) including medical wastes, etc.
VIII. Transportation issues and suggesting plans for strengthening of Transportation network, Parking, Public transport, etc.
IX. Industries in the immediate vicinity that may cause pollution, mining activities (if any)

X. Collection of secondary information from the Census of India, G.T. Sheets, and other line departments

c. Data Analysis and preparation of landuse maps

Base map has been updated to prepare the existing landuse 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, landuses, socio-economic conditions, basic traffic and transportation requirements, and community facilities.

d. Physical development proposals

It enshrines the below-given aspects of developments:

i. A plan has been made for indicating planned uses as per the Master Development Plan 2031 of UIT and uses permitted hereafter to comply with the ESZ guidelines. (Sajjangarh ESZ notification dated February 14th, 2017 by MoEFCC).

ii. Plans for balanced development with specific emphasis on tourism, heritage, and ecology have been prepared. The promotion of biodiversity was the focal point and to achieve this, proposals have been prepared and given for improvement of conditions of water bodies, forest areas, retention of water, and soil conservation, in the Sajjangarh ESZ.

e. Submission of Draft Zonal Master Plan for Sajjangarh ESZ

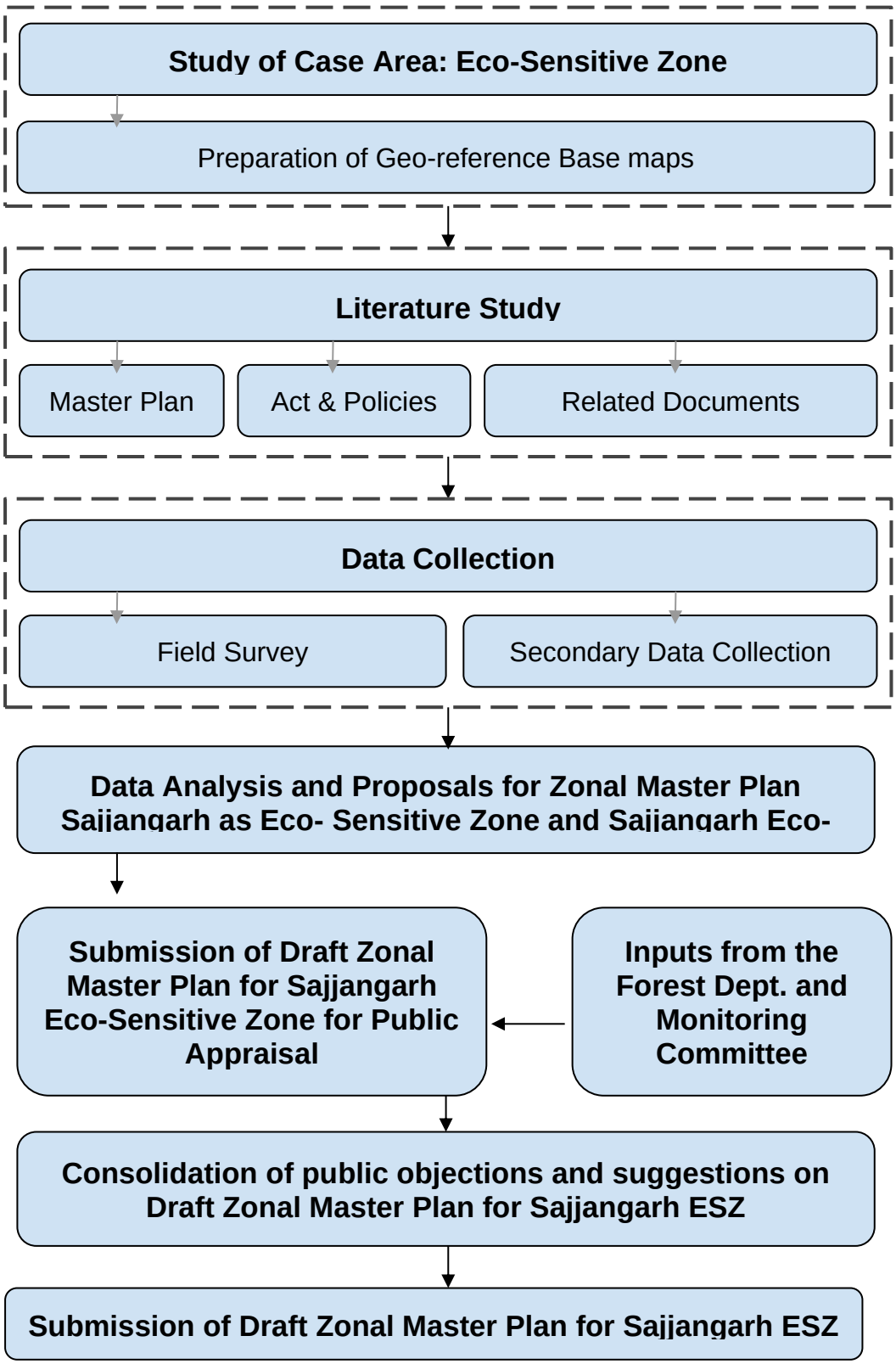
The draft ZMP for Sajjangarh has been prepared. This would be submitted to the Deputy Conservator of Forest (DCF-WL), Jaipur that in turn may be sent to various line departments for their comments. In addition to this, public objections and suggestions would be invited for a stipulated period once the draft plan is approved by the concerned departments. A brief report shall be prepared to describe suggestions received in brief and comments thereon.

f. Submission of Final Zonal Master Plan for Sajjangarh ESZ

The Final said Plan should be prepared and submitted to the client after incorporating suggestions received from the public and line departments.

g. Methodology:

The study methodology has been prepared which clearly spelt out the steps required for preparation of Zonal Master Plan for Sajjangarh ESZ which is given below:



1.5.1 Udaipur District

As of now, Rajasthan state has 33 districts, which have been divided into 7 divisions viz. Ajmer, Bharatpur, Bikaner, Jaipur, Jodhpur, Kota and Udaipur divisions. Each division consists of 4-6 districts. Sajjangarh Wildlife Sanctuary and Sajjangarh ESZ fall under the jurisdiction of Udaipur districts and Girwa Tehsil. The district Udaipur falls in the Southern direction in the state of Rajasthan. It shares district boundaries with Sirohi, Pali, Chittorgarh, Pratapgarh and Dungarpur.

Udaipur being one of the main seven divisional headquarters, the following districts share divisional jurisdictions that fall under the same.

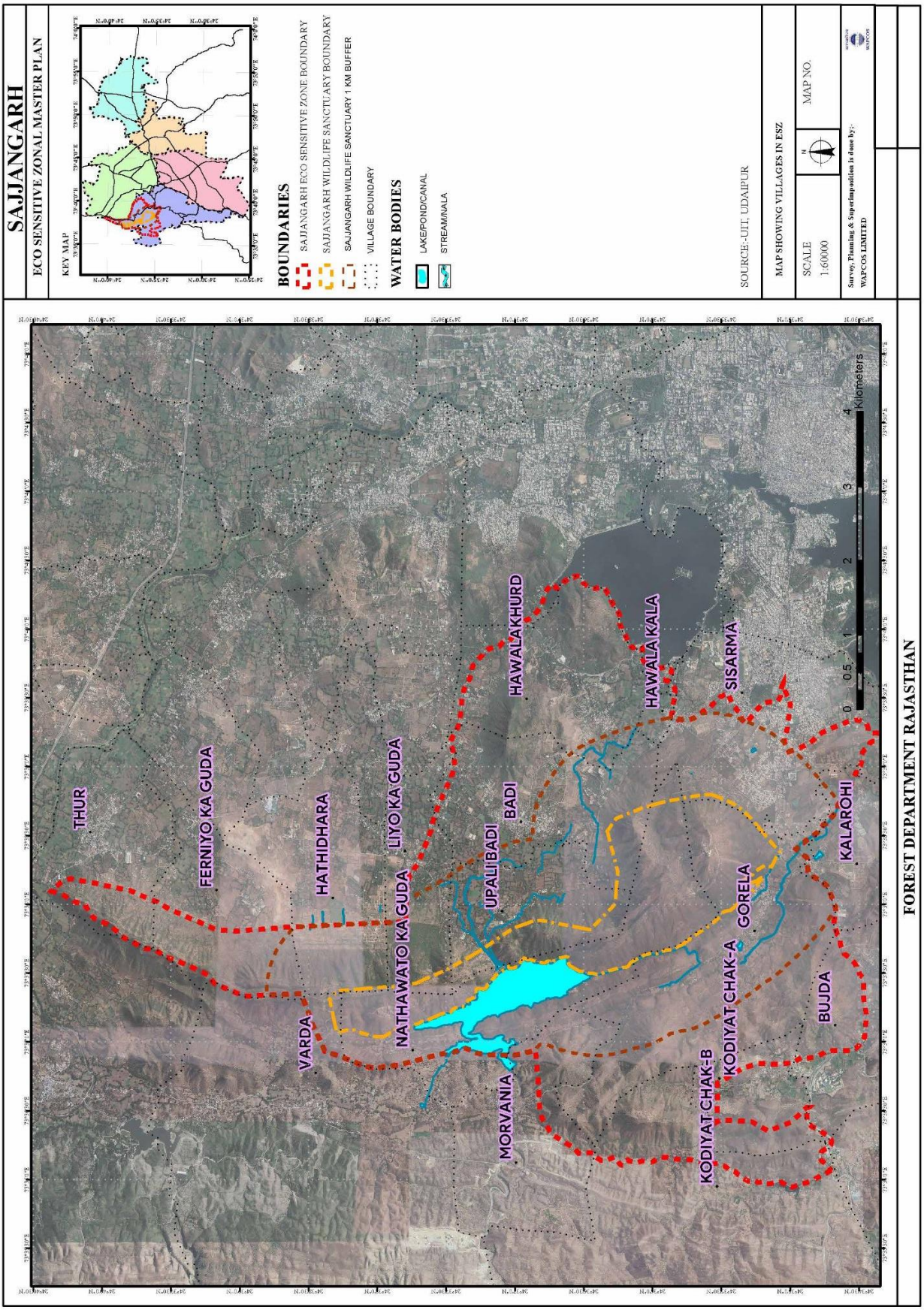
1. Banswara
2. Chittorgarh
3. Dungarpur
4. Rajsamand
5. Pratapgarh.

The district Udaipur has a geographical area of 37 sq kms and population of 3068420 People (Census 2011). The district has a population density of 262 person/sq. km. being a district headquarters, Udaipur consists of 18 Tehsils. As per the notification dated February 14th, 2017 by the Government of India in the Ministry of Environment, Forest and Climate Change; there are 9 villages falling within the eco-sensitive zone.

Map 5:- Map of District Boundary of Rajasthan

1.5.2 Eco-Sensitive Zone Location and Area

As said earlier, Sajjangarh Wildlife Sanctuary is the prominent feature of this ESZ, and the Sanctuary lies between 24°35’ N to 24°39’ N Latitudes and 73°37’ E to 73°40’ E Longitudes. The Sanctuary was notified by the Government of Rajasthan in 1987 (vide notification No. F11 (64)/Raj 8/86 dated 17.02.1987), and it is situated in the southern part of Aravalli series at Udaipur district of Rajasthan. The sanctuary is spread over an area of 5.19 square kilometers, enclosing the famous Sajjangarh fort.



Source:- Google Earth Imagery, Forest Department, Rajasthan, UIT, Udaipur, WAPCOS Survey

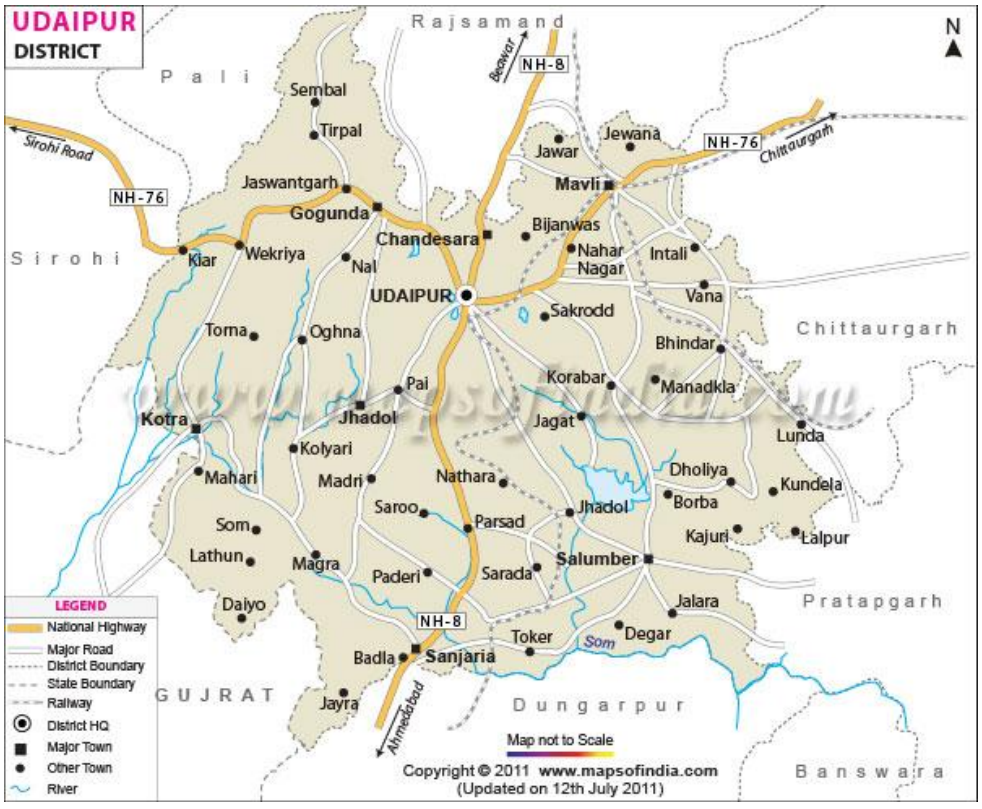
Map 6:- Super-Imposition of Village Boundary on ESZ

1.5.3 Udaipur District and Linkages

1.6 Sajjangarh Wildlife Sanctuary is situated 5 kms away from. the heart of tourist city Udaipur. Railway & Bus Stations are at a distance of 7 kms. whereas the nearest Maharana Pratap (Dabok) Airport, Udaipur is at a distance of 25 kms from the Sanctuary. From these places frequent service of auto-rickshaw. and taxi-cars are available to reach the Sanctuary.

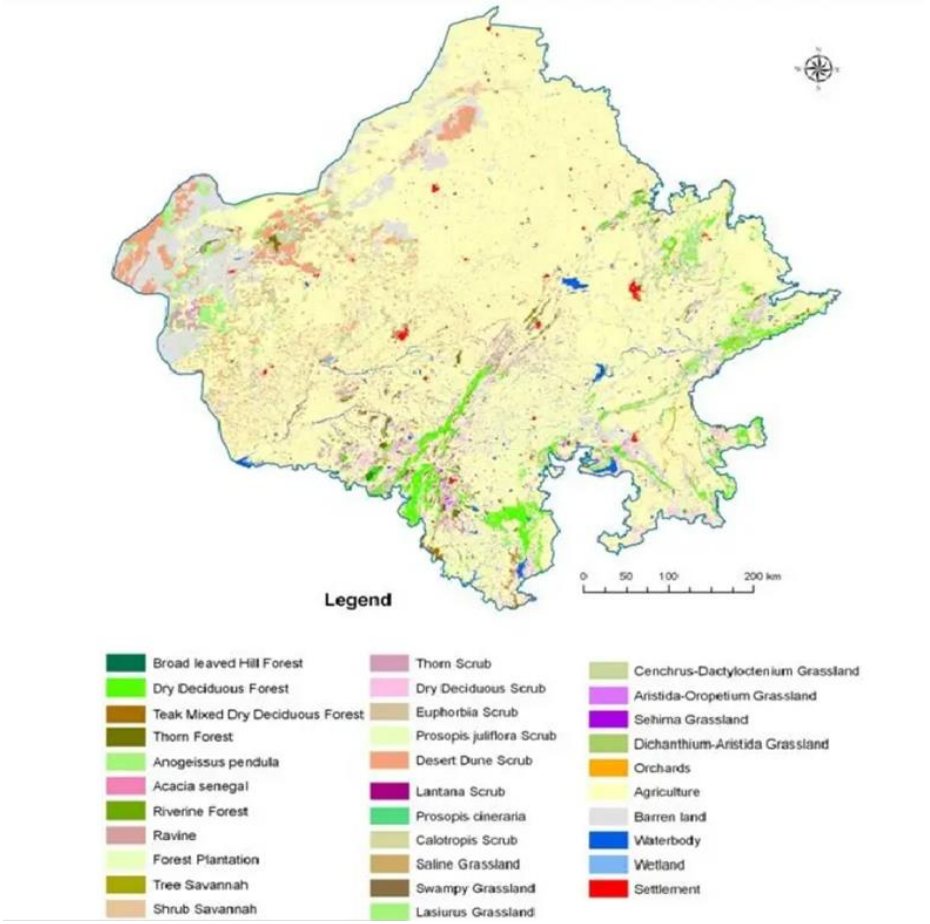
1.6 Location and Natural Setting

Sajjangarh ESZ falls under the Biogeographic Zone-4 of India. Sajjangarh Wildlife Sanctuary is the prominent identity of the Sajjangarh ESZ. Sajjangarh Wildlife Sanctuary is located in Tehsil Girwa, which comes under Sajjangarh ESZ, and it is situated in the Southern part of Aravalli Hills and West of Udaipur city (Rajasthan). The Sanctuary is at a distance of 5 km from Udaipur city. Deciduous Forest covering hills is a home for wild life of this sanctuary. A part of this sanctuary was developed as a Biological Park in 2015, which is known as Sajjangarh Biological Park with the sole objectives of Wild Life Conservation, Wildlife Education and Research. The ESZ is situated approximately 630-936 meters above from msl. The Eco-Sensitive Zone is spread over an area of 28.7 square



Map 7:- Map of District Boundary of Udaipur

kilometers with an extent varying from 250 meters to 5 kilometers around the boundary of Sajjangarh Wildlife Sanctuary. Coming to the geographical location of the Sanctuary, it is confined between 240 35 ' N to 24 0 39’ N Latitudes and 73 °37’ E to 73° 40’E Longitudes. The sanctuary lies in one of the oldest geological formations of the world – the Aravallis.



Map 8- 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

1.7. NATURAL FEATURES/ NATURAL SETTINGS

1.7.1. Introduction

Natural features refer to physical elements or characteristics that are formed by natural processes and exist in the environment. They can include various landforms, bodies of water, vegetation types, and other geological or ecological elements. Natural features in an Ecologically Sensitive Zone can include various elements that are important for the

preservation and functioning of the ecosystem. Here are some examples of natural features commonly found in Sajjangarh Eco-Sensitive Zones.

1.8. Forest & Environment

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.

1.8.1 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

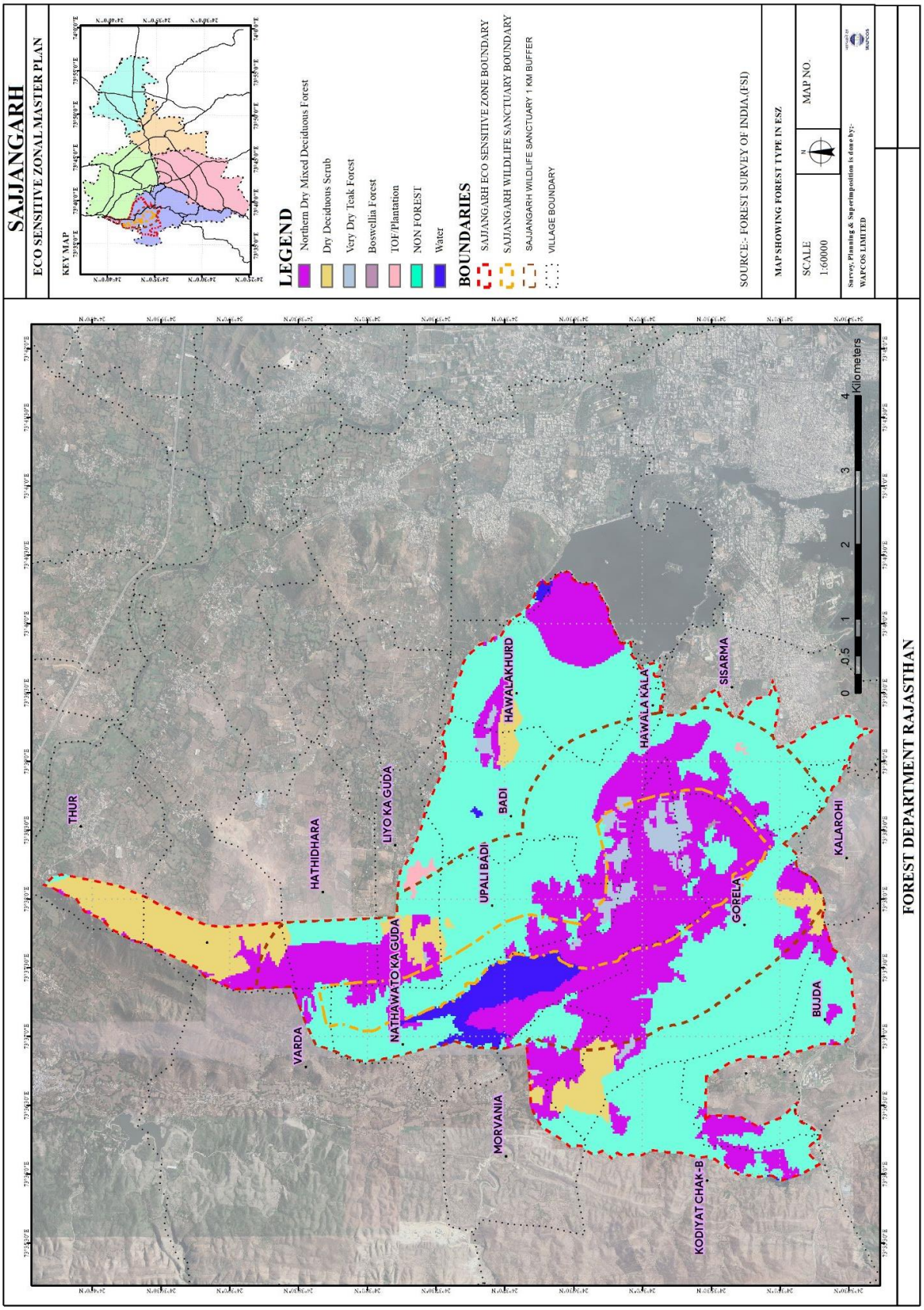
1.8.2 Category of Forest

Rajasthan has two types of forests: Dry Deciduous Forest and Dry Tropical Forests. The Eastern region of Rajasthan has a "Tropical Dry Deciduous Forest", whereas the Western region has a “Tropical Thorn Forest.". Under the broad category, the Sajjangarh Forest Range has forests which are "Dry Deciduous Forests".

1.8.3 Type and Quality of Forest in Sajjangarh ESZ

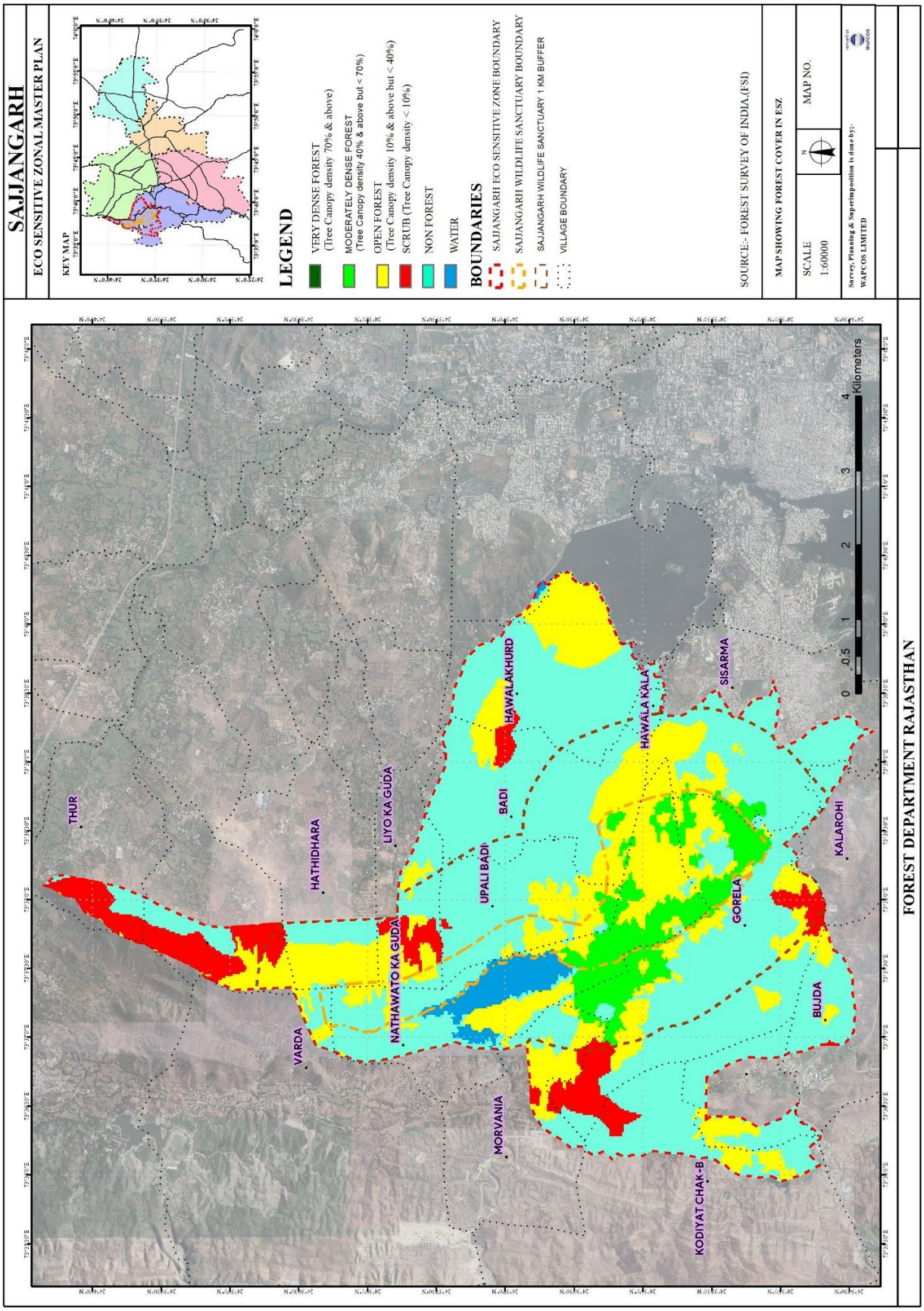
This sanctuary falls under the Semi-arid Biogeographic Zone of India. The floral constituents of the Sajjangarh Wildlife sanctuary are mostly edapho-climate climax type forests. As per the Champion & Seth’s classification the forests of this sanctuary fall under the II category of Tropical Dry Deciduous forests, which can be sub-classified as:

- 5 A Southern Tropical Dry deciduous 2C1, 2C2 types,
- 5 B Northern Tropical Dry deciduous 2C2, Tropical Dry mixed deciduous (DS-1, DS-3) and Dry Edaphic types E-1, E/Ds-1 types.



Source:- BHUVAN NRSC-LISS_3, SJ-ESZ Satellite Image@2023, Google Earth Pro

Map 9:-Map of Forest Type in SJ-ESZ



Source:- Forest Survey of India, 1972

Map 10:-Forest Cover Map of SJ-ESZ as per FSI

Forest Cover Map of the SJ-ESZ sourced from Forest Survey of India, 1972 indicates the maximum land type is non-forest in nature followed by forest open in character, moderately dense forest and shrubs respectively. Most of the area of forest cover lies inside 1BA, rest of the land can be employed for development in an regulated manner. It is interesting to note that the forest map extracted from the Survey of India and Satellite image (BHUVAN NRSC-LISS_3) are the same.

1.8.3.1 Ecological Classification of Vegetation Types

The southern section of Rajasthan is lush green, which supports a high level of bird variety, and the current research area is located in this region of the state.

Sanctuary has a rich floral and faunal diversity, true representative of the oldest mountain ranges "Aravallis". Floral cover is representative of Tropical Dry, Deciduous Forest, dominated by Anogeissus pendula, Boswellia serrata, Acacia senegal and Acacia leucophloea. Rare and endangered plant species Commifera whightii, locally known as "Gugal " is found in abundance. Santalum album and Dicleptera species are also found. 79 species of flowering plants, 4 species of non-flowering plants have been listed apart from many species of grasses & ferns. Among carnivorous animals, Panther is the topmost predator besides Hyena, Jackal, Jungle Cat, Rusty Spotted Cat & Common Fox. Herbivorous fauna of Sanctuary includes a variety of Deer, Wild Boar, Common Langur. Civets Mongoose etc. Number of reptiles including Cobra & Pythan and birds like Babblers, Quails, Parakeets, Barbets, Shrikes, Mynas etc. are visible while walking through established nature trails. A glimpse of biodiversity of the Sanctuary is as under:

1.9 Soil

Sajjangarh Sanctuary lies in the Aravalli hill ranges, which is one of the oldest formations in the world. The sanctuary area lies in Archean formations. The underlying rocks are mainly quartzite, granite, limestone, marble and schist.

1.9.1 Soil type

The soil depth is fairly good in plains, mainly sandy loam with poor moisture retention capacity.

Physiography affects the soils of a region. The whole of the Aravalli Range in Rajasthan, and hill tracts can be subdivided into the following physiographic units:

1. The North-Eastern Hill tracts or the Alwar Hills
2. The Central Aravalli Range

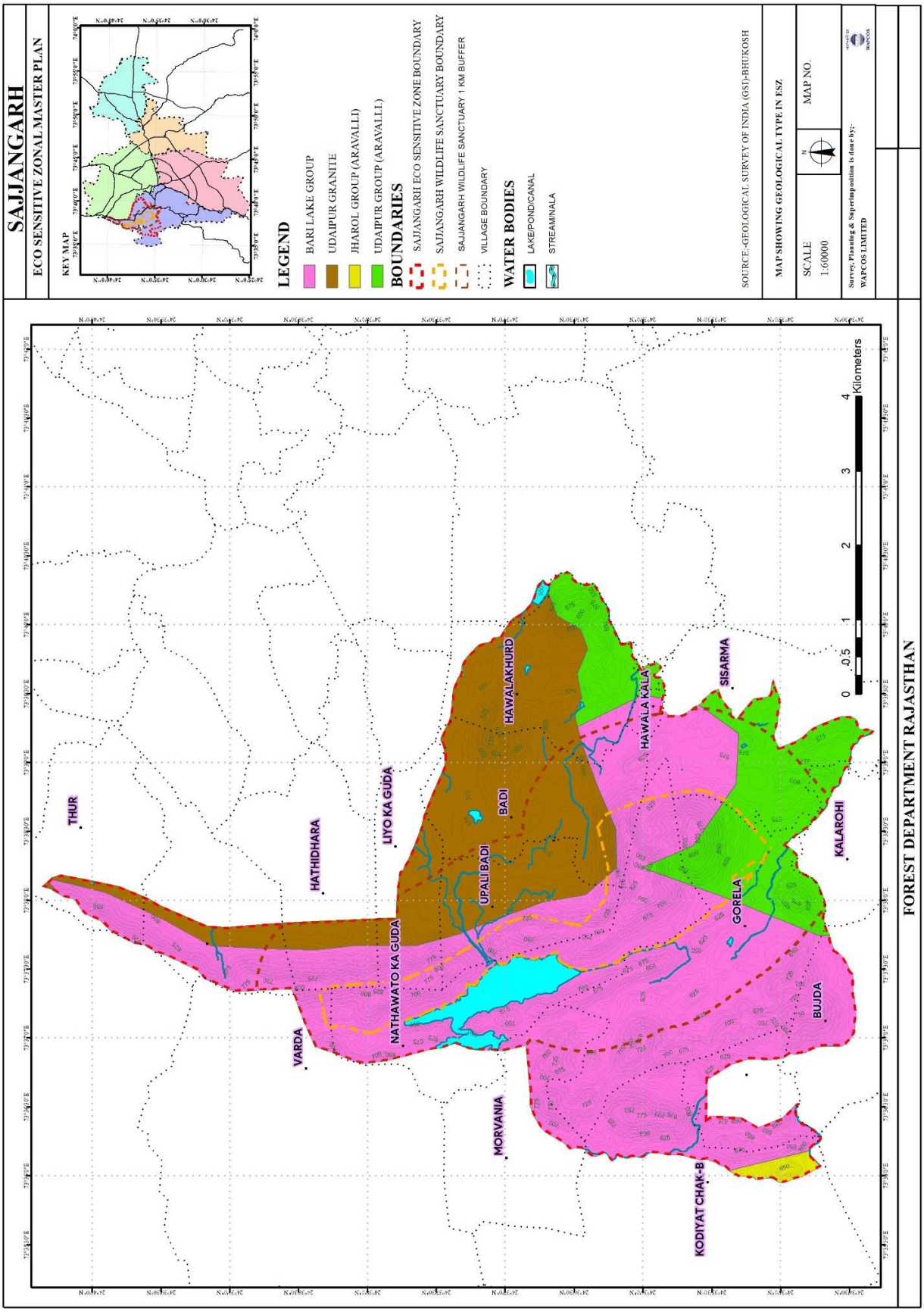
a) The Sambar basin or Shekhawati low hills

b) The Merwara Hills

3. The Mewar Hill and Bhorat Plateau
4. Abu Block
5. The Vindhyan Scarps

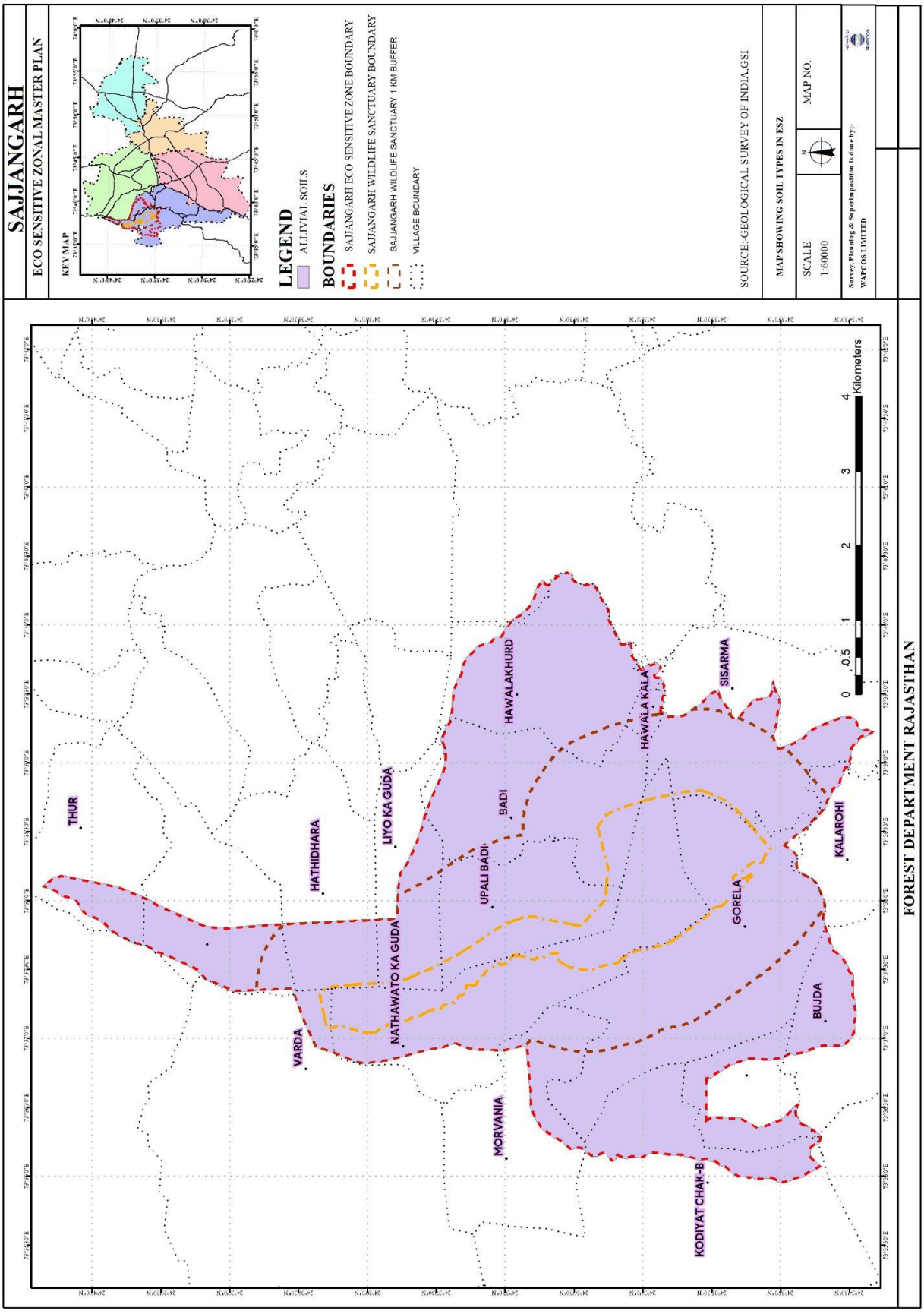
Udaipur is located in the Southern side of Rajasthan, and is surrounded by Aravalli ranges from North to East. The North part of the district consists generally of elevated plateaus while the eastern part has vast stretches of fertile plains. The southern part is covered with rocks, Hills and dense Forest.

The soil type present within the eco-sensitive zone is Alluvial soil. Lithological and mineral map of the study area generated from the Geological Survey of India (GSI)-Bhukosh@2022 indicates that the region holds a variable nature of lithological pastures which are indicated in the map above. Geological map generated from the Geological Survey of India (GSI)- Bhukosh@2022 indicates four categories within the eco-sensitive zone, i.e. Bari Lake group, Udaipur granite, Udaipur group and Jharol group (Aravali).



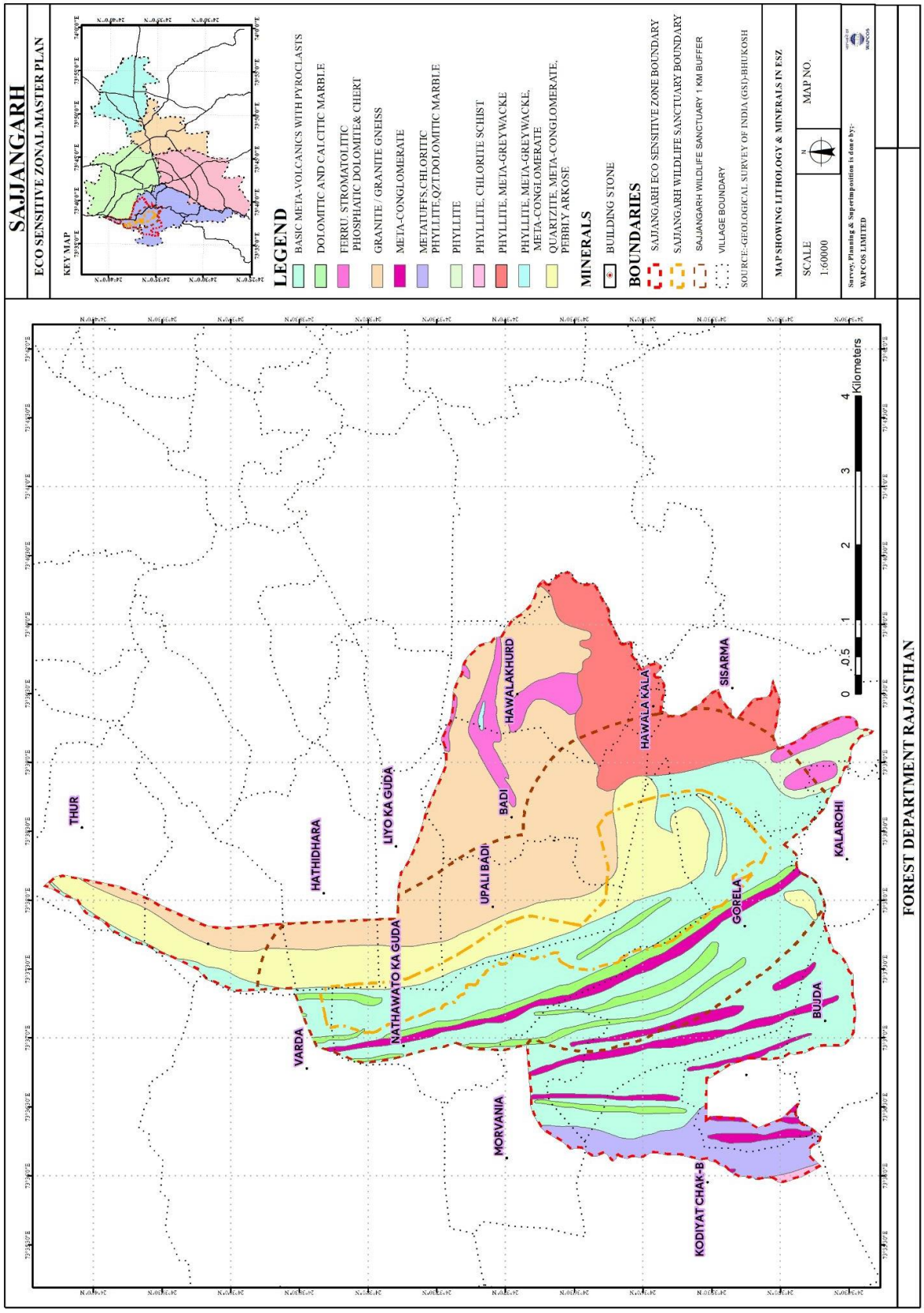
Source:- Geological Survey of India (GSI) - Bhukosh, 2022

Map 11:- Geological Map of the Study Area



Source:- Geological Survey of India (GSI) - Bhukosh, 2022

Map12:- Soil map of the study area



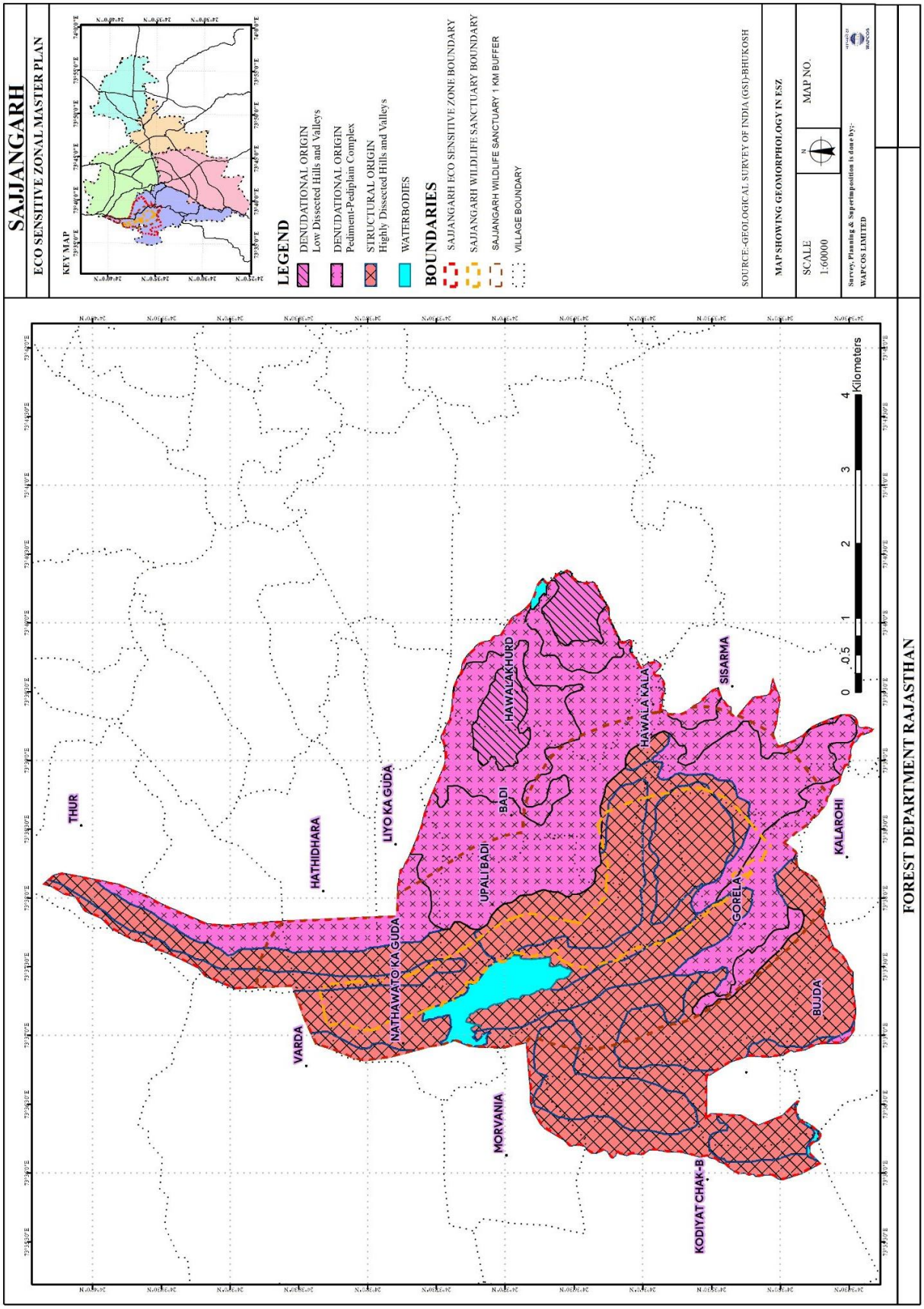
Source:- Geological Survey of India (GSI) - Bhukosh, 2022

Map13:- Lithological and Mineral map of the study area

1.9.2 Soil Erosion in ESZ

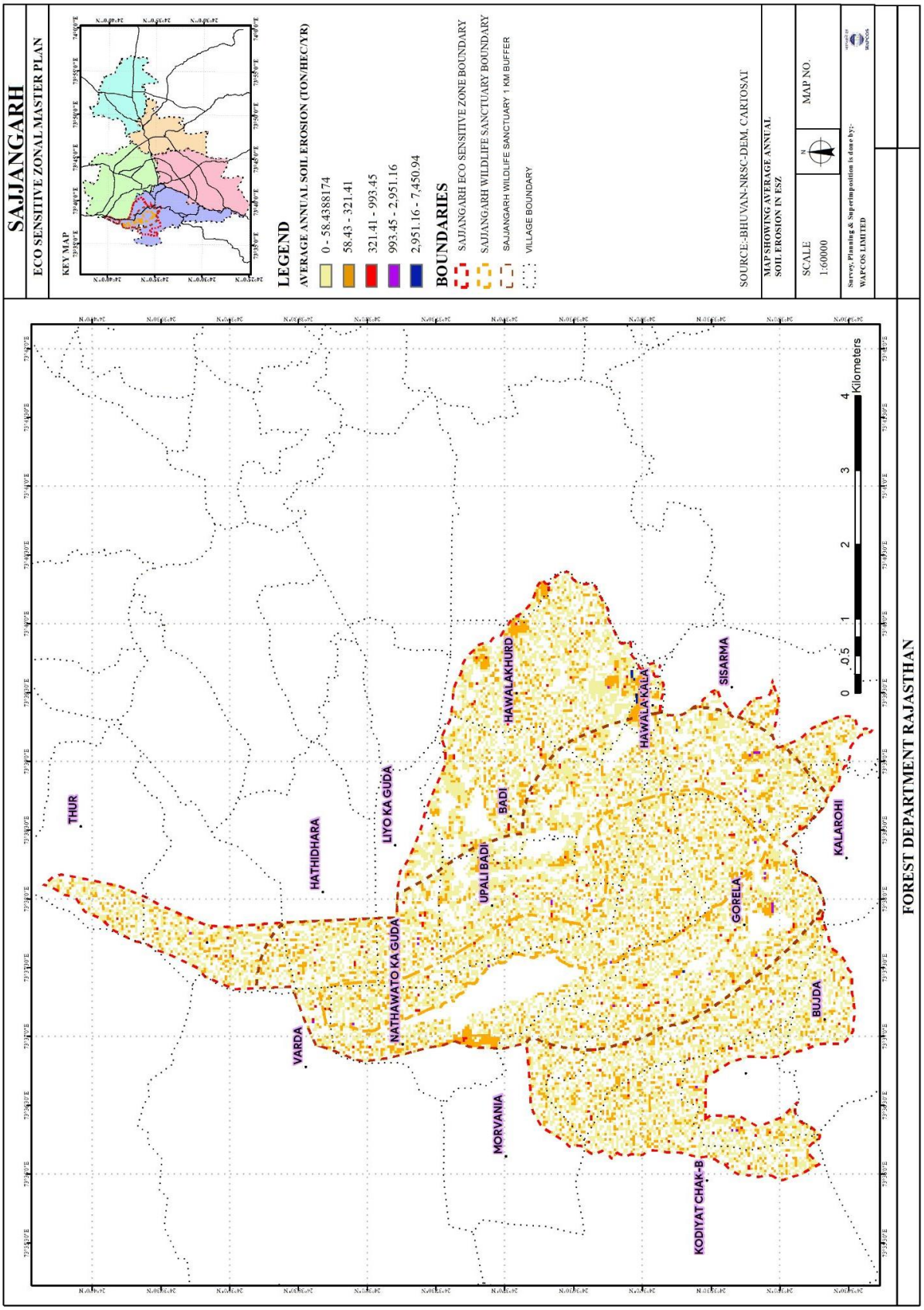
Denuded areas refer to areas on which the plants are destroyed. Denudation is the name for the processes of erosion, leaching, stripping, and reduction of the mainland due to removal of material from higher to lower areas like valleys, river valleys, lakes and seas with a permanent filling of low lands.

Semi-denuded areas refer to the areas which are currently undergoing some kind of destruction process or are partially destroyed. There could be several factors which result in destruction to natural vegetation such as due to some illegal construction activity, landsliding, disruption in the existing flow of water etc.



Source:- Geological Survey of India (GSI) - Bhukosh, 2022

Map 14:- Geomorphological Map of the Study Area



Source:- BHUVAN-NRSC-DEM-CARTOSAT_3

Map15:- Soil Erosion

However, the geomorphological map generated from the Geological Survey of India (GSI)- Bhukosh@2022 indicates that most of the region holds structural origin of highly dissected hills and valleys followed by denudational origin pediment- pediplain complex. Geomorphology maps of the study are generated through the geological survey of India form Bhukosh, 2022 indicates that the majority type is of structural origin, highly dissected hills and valleys followed by denudation origin pediment-pediplain complexes. However, the average annual soil erosion in (TON/ HEC/ YR) ranged from 58.43 to 321.41.

1.10. Climate

The climate is subtropical with extremely hot summers and relatively moderate winters. The variation in seasons are given in following table:

Season	Duration	Peak months
Summers	Mid March to Mid June	April - May
Rains	Mid June to September	July - August
Winters	October to mid March	December - January

Source:- 2013- 22 Management Plan of Sajjangarh Wildlife Sanctuary, Forest Department Rajasthan

Table 6:- General information about Seasonal variation in SJ-ESZ

- Winds blow from Southwest to Northeast during summer and the direction is reversed during winter season. Winds generally blow with moderate speed and rarely blow at a speed of 40-60 kms per hour. During summer, dust storms are sometimes observed.

1.10.1 Temperature

A wide variation to temperature is observed round the year. Summer is generally very hot. The temperature increases rapidly after mid March. May and June are the hottest months when temperature reaches up to 45 degree centigrade. Temperature starts declining in the month of October after the withdrawal of monsoon. January is the coldest month with a mean daily minimum temperature of around 6 degree centigrade.

1.10.2 Rainfall Pattern and Distribution

Rainfall in the area is very erratic and unevenly distributed. Rains generally start in the last week of June and intermittently continue up to September end. Highest intensity of

rain is generally observed in the month of August. The average annual rainfall is about 650 mm. The number of rainy days is 15 to 20 on an average.

Periodic and frequent droughts are observed in the area. Generally good rains are received once in three years. Rains are quite irregular and temporary drought conditions prevail even during the rainy season.

1.10.3. Rainfall Coefficient and Intensity in Sajjangarh 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.

1.10.4. Humidity

Humidity in the air is generally low and rarely exceeds 30-35 percent except in the rainy season when it ranges between 50-60 percent.

1.10.5. Wind direction and Wind Speed

This section discusses the wide-area hourly average wind vector (speed and direction) at 10 meters above the ground. The wind experienced at any given location is highly dependent on local topography and other factors, and instantaneous wind speed and direction vary more widely than hourly averages.

The average hourly wind speed in Udaipur experiences significant seasonal variation over the course of the year. The windier part of the year lasts for 5.6 months, from March 13 to August 31, with average wind speeds of more than 5.3 miles per hour. The windiest month of the year in Udaipur is July, with an average hourly wind speed of 6.9 miles per hour. The calmer time of year lasts for 6.4 months, from August 31 to March 13. The calmest month of the year in Udaipur is November, with an average hourly wind speed of 3.4 miles per hour.

1.11 Waterbodies, Drainage & Watersheds

This section deals with the waterbodies in and around the Sajjangarh ESZ and Amer sub-districts. Furthermore, the drainage and watersheds will also be discussed.

1.11.1 Badi Lake

Sanctuary is supported by a peripheral lake ecosystem named Lake Bari which lies in close proximity on the western boundary. This area is the catchment of Fateh sagar and Pichola lake system. The lake has an area of 1.25 sq. miles with a storage capacity of 400 million cub. ft. of water. The lake provides an ideal habitat to aquatic fauna and flora. The area of this sanctuary which is 5.19 square kilometers, is a part of the catchment of lakes of Udaipur, which in turn acts as a lifeline for the city. They are the only source of drinking water to inhabitants of the city apart from their aesthetic beauty.

Badi Lake near Sajjangarh Wildlife sanctuary

1.11.2 Watersheds & Catchment Area

The main source of natural water supply is rainwater. The sanctuary area mainly falls in the Aravalli hill ranges. Because of the shallow soil and its geo morphological conditions, percolation of the rainwater is considerably low. There are no rivers or big Nallahas in the sanctuary. The Badi Lake in proximity with respect to the sanctuary, is the

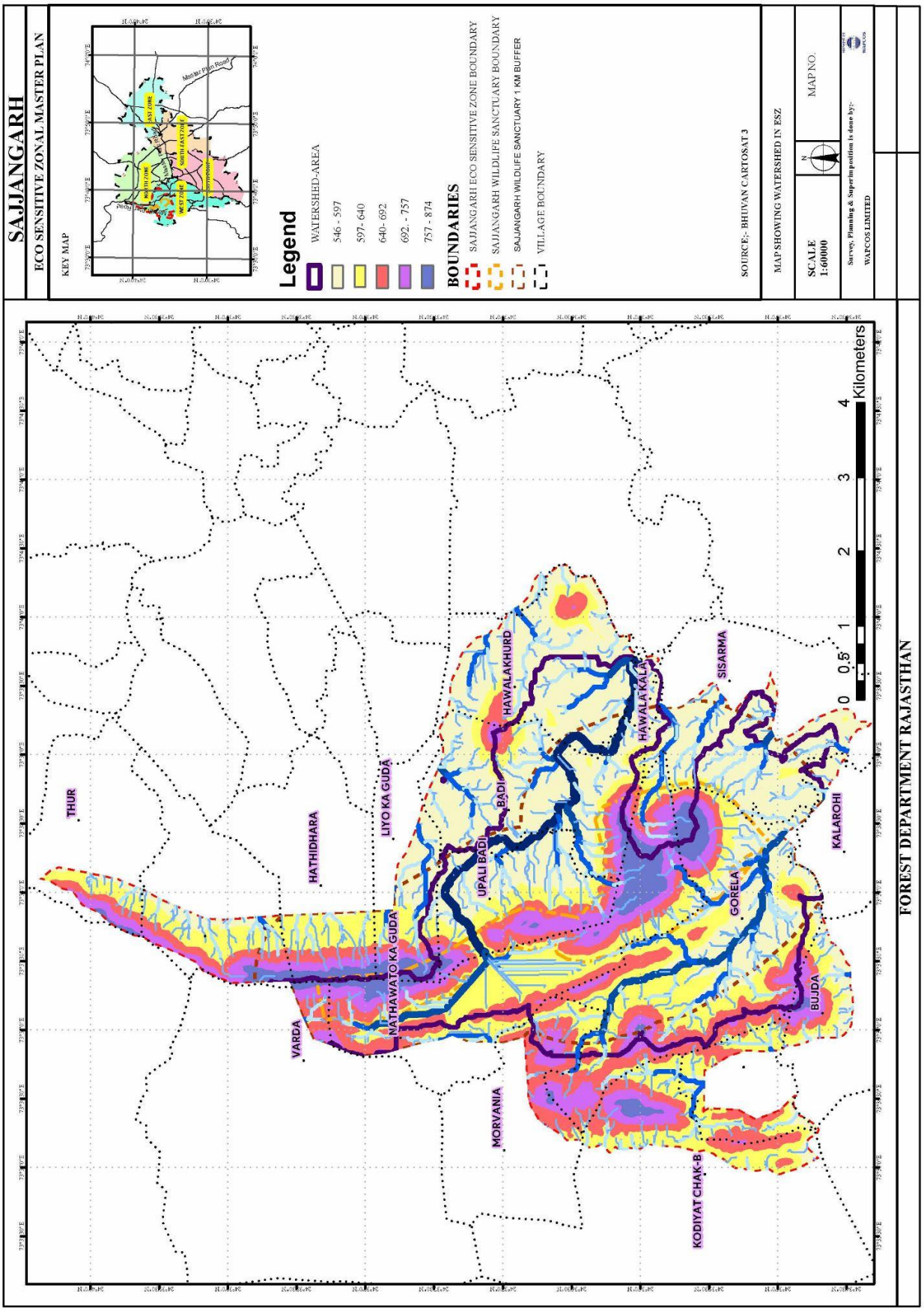
biggest water body present in the area. There is one open well in the sanctuary, which is one of the major sources of water supply for the wild animals. Hand pumps were installed at Gorella and IPC. As the underground water table has gone down and the well has dried up in 1999-2000, a tubewell was installed near village Hawala for supply of drinking water to wild animals.

Most of the nallahas dry up during the pinch period and water is available only at one point i.e. at "Jhar Mahadev" in the nalla due to ground water seepage depending upon recharge during the rains. Moreover, frequent droughts in the region still worsen the conditions for wildlife and local population.

S. No.	Name of Range	Name of Water Hole	Category Artificial / Natural	Block in which Water Hole is Situated	Compartment No.
1	**2**	**3**	**4**	**5**	**6**
1	Sajjangarh	Jhar	Natural	Sajjangarh	1
2	Sajjangarh	Badi Talab	Artificial	Sajjangarh	-
3	Sajjangarh	Earthen Dam Safari Park	Artificial	Sajjangarh	2
4	Sajjangarh	Anicut Safari Park	Artificial	Sajjangarh	2
5	Sajjangarh	Open Well Safari Park	Artificial	Sajjangarh	2
6	Sajjangarh	Water Hole Radaji	Artificial	Sajjangarh	2
7	Sajjangarh	Water Hole Safari Gate	Artificial	Sajjangarh	2
8	Sajjangarh	Water Hole Near Mosque	Artificial	Sajjangarh	2
9	Sajjangarh	Valli Talai	Artificial	Sajjangarh	2
10	Sajjangarh	Anicut Hawala	Artificial	Sajjangarh	1
11	Sajjangarh	Water Hole Gorella	Artificial	Sajjangarh	1
12	Sajjangarh	Anicut Kherdi	Artificial	Sajjangarh	1
13	Sajjangarh	Anicut Gorella I	Artificial	Sajjangarh	1
14	Sajjangarh	Anicut Gorella II	Artificial	Sajjangarh	1
15	Sajjangarh	Water Point Gorella II	Artificial	Sajjangarh	1
16	Sajjangarh	Talai close to way to fire watch tower	Artificial	Sajjangarh	2
17	Sajjangarh	Talai near Gorella naka	Artificial	Sajjangarh	1
18	Sajjangarh	Talai near western foothills	Artificial	Sajjangarh	1
19	Sajjangarh	Fish pond	Artificial	Sajjangarh	2

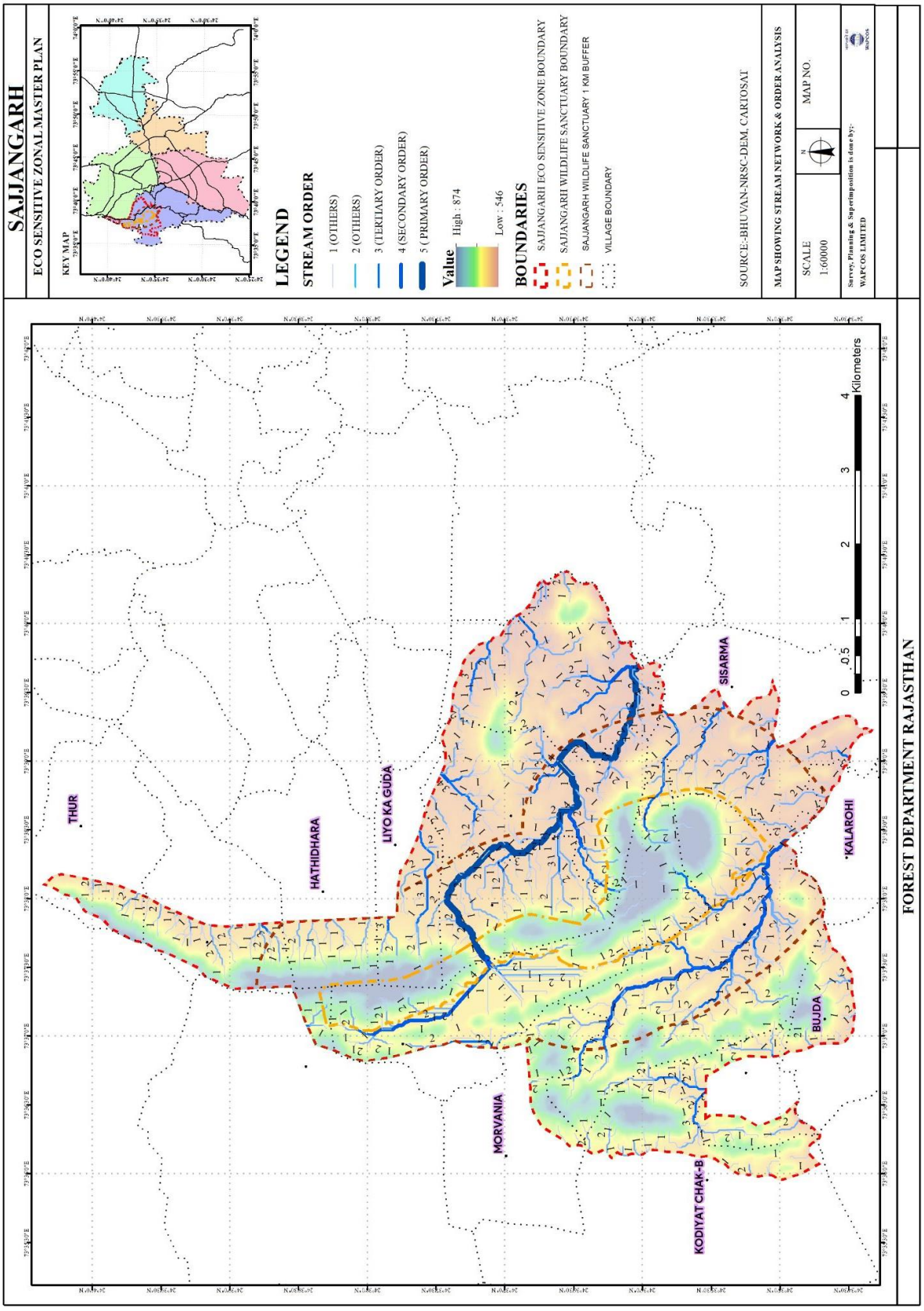
Source:- 2013- 22 Management Plan of Sajjangarh Wildlife Sanctuary, Forest Department Rajasthan

Table 7:- Category-Wise list of Natural & Artificial Water Sources



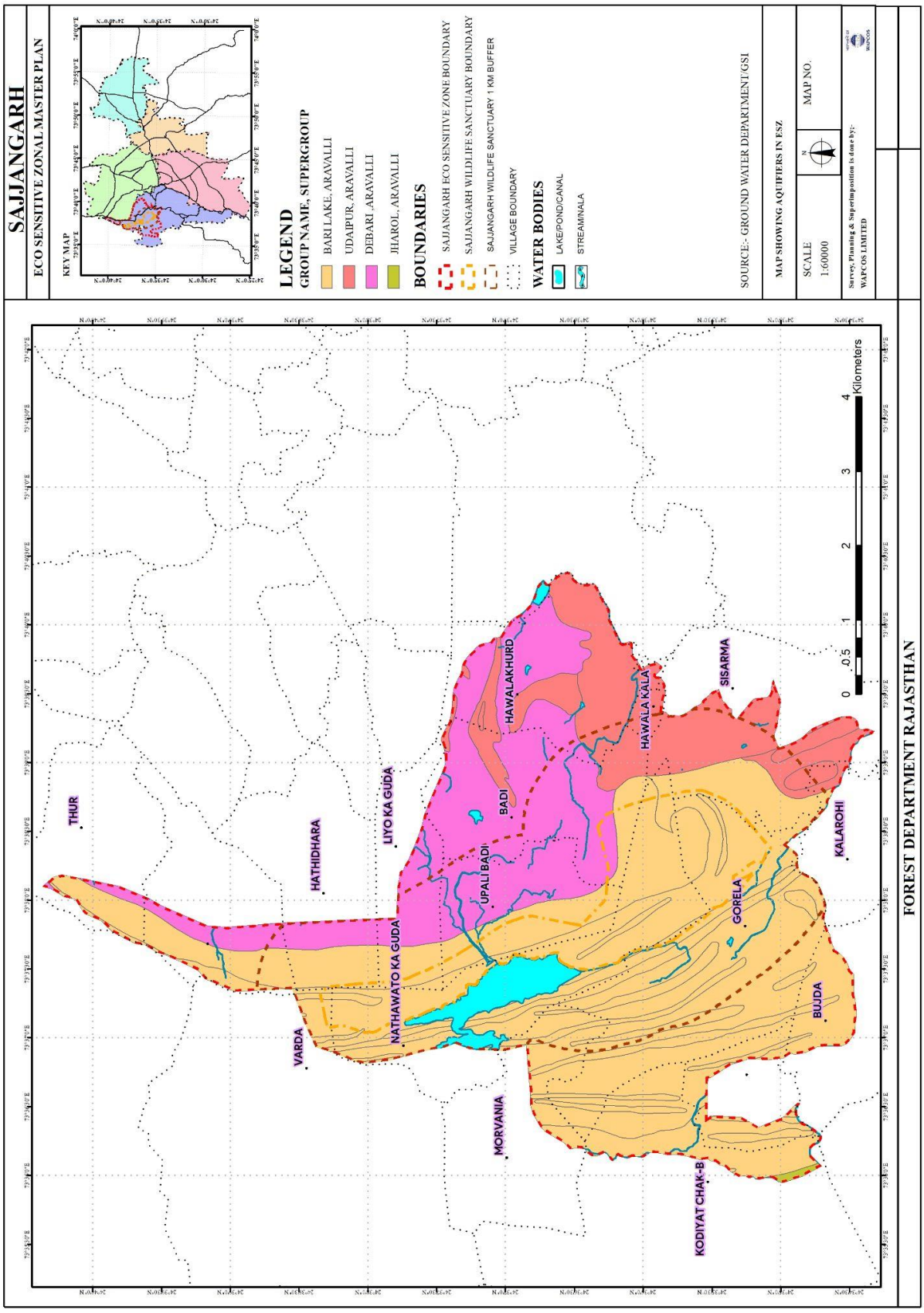
Source:- BHUVAN NRSC- DEM CARTOSAT_3

Map 16:- Watershed map of Sajjangarh ESZ



Source:- BHUVAN NRSC- DEM CARTOSAT_3

Map 17:- Stream Network Flow in the Study Area



Source:- Geology Survey of INDIA-BHUKOSH

Map 18:- Aquifer Map of Sajjangarh ESZ

Chapter 2

2.1 Overview

The Eco-Sensitive Zone is spread over an area of 29.8 square kilometres with an extent varying from 250 meters to 5 kilometers around the boundary of Sajjangarh Wildlife Sanctuary. The location map and of boundaries for the ESZ and Wildlife Sanctuary is as per Gazette Notification of 13th February, 2017 and its subsequent amendments.

Development Promotion and Control Regulations (DPCR) are a set of guidelines and rules established by local government authorities to govern land use 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.

2.2 Landuses and Allowed Activities in Sajjangarh Wild Life Sanctuary ESZ

As per Sajjangarh WLS ESZ Notification, the list of activities is categorized in three parts. All the development decisions shall be in conformity with the activities prohibited, regulated and, promoted.

2.2.1 Prohibited Activities

As per the Sajjangarh Wild Life Sanctuary ESZ Notification the prohibited activities are given in Annexure 1A.

2.2.2 Regulated Activities

As per the Sajjangarh Wild Life Sanctuary ESZ Notification the regulated activities are given in Annexure 1B.

2.2.3 Promoted Activities

As per the Sajjangarh Wild Life Sanctuary ESZ Notification the promoted activities are given in Annexure 1C

2.3 Provision of Sajjangarh Wild Life Sanctuary ESZ Notification

ESZ Notification 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 ESZ Notification of Sajjangarh WLS:

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 land use.
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 Sajjangarh Wild Life Sanctuary ESZ Notification shall be honoured.

2.4. 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 metres.

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.

2.5 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) Sajjangarh Wild Life Sanctuary ESZ Notification, the provision is as under:

The activities that are 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 scrutinised

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	Remarks
(1)	(2)	(3)
	Prohibited Activities	
.	Commercial mining, stone quarrying and crushing units.	New and existing mining (minor and major minerals), stone quarrying and crushing units shall be prohibited except for the domesticneeds of *bona fide* local residents with reference to digging of earth for construction or repair of houses and for manufacture of country tiles orbricks for housing for personal consumption: Provided no mining quarrying, quarrying ofdigging of earth shall be carried out on steep hill slopes. Explanation. - "steep hill slope" means hill slopewith a gradient of more than 20º. The mining operations shall strictly be in accordance with the interim order of the Hon'ble Supreme Court dated the 4th August, 2006 in the matter of T.N. Godavarman Thirumulpad Vs. Union of India in Writ Petition (Civil) No.202 of 1995 and order of the Hon'ble Supreme Court dated the 21st April, 2014 in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.435of 2012.
	Setting up of saw mills.	No new or expansion of existing saw mills

.		shall be permitted within the Eco-sensitive Zone.
.	Setting up of industries causing water or air or soil or noise pollution.	No new or expansion of polluting industries inthe Eco-sensitive Zone shall be permitted.
.	Commercial use of firewood.	Prohibited as per applicable laws.
.	Establishment of new major hydroelectric projects and irrigation projects.	Prohibited (except as otherwise provided) as perapplicable laws.
.	Use or production of any hazardous substances.	Prohibited (except as otherwise provided) as per applicable laws.
.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise provided) as per applicable laws.
.	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.

Annexure: 1A List of Activities Regulated within Eco-Sensitive Zone

S. N.	Activity	Remarks
(1)	(2)	(3)
Regulated Activities		
9.	Establishment of hotels and resorts.	No new commercial hotels and resorts shall be permitted within one kilometer of the boundary of the protected area or up to the boundary of the Eco-sensitive Zone whichever is nearer except for accommodation for temporary occupation of tourists related to eco-friendly tourism activities: Provided that, beyond one kilometer or up to the extent of the Eco-sensitive Zone, all new tourism activities or expansion of existing activities shall be in conformity with the Tourism Master Plan. Commercial eco-tourism establishments shall be regulated strictly in accordance with "the guidelines for taking non forestry activities in Wild life habitats" issued vide F.No.610/2011 WL dated the 15th March, 2011 by the Ministry of Environment and Forests (WL Division), New Delhi and National Tiger Conservation Authority guidelines (if applicable).

10.	Construction activities.	No new commercial construction of any kind shall be permitted within one kilometer from the boundary of protected area or up to the boundary of the Eco-sensitive Zone whichever is nearer: 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: Provided further that 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 as per the applicable rules and regulations, if any. Beyond one kilometer up to the extent of Eco-sensitive Zone, construction for bone fide local needs shall be allowed and other construction activities and construction and augmentation of civic amenities shall be regulated as per the Zonal Master Plan.
11.	Felling of trees.	There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the Competent Authority in the State Government. The felling of trees shall be regulated in accordance with the provisions of the concernedCentral or State Act and the rules

		madethereunder. In case of Reserve Forests and Protected Forests, the Working Plan prescriptions shall befollowed.
12.	Commercial water resources including ground water harvesting.	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. Extraction of surface water and ground water for industrial or commercial use includingthe amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority. No sale of surface water or ground water shall be permitted; Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
13.	Erection of electrical and telecommunication towers.	Underground cabling shall be promoted
14.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws.
15.	Construction of new roads, widening and strengthening of existing roads including civic amenities.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
16.	Undertaking activities related to tourism like over-flying the Eco- sensitive Zone area by aircraft,hot-air balloons.	Regulated as per applicable laws.
17.	Movement of vehicular traffic atnight.	Regulated for commercial, purpose, under applicable laws.
18.	Introduction of exotic species.	Regulated under applicable laws.
19.	Protection of hill slopes and riverbanks.	Regulated under applicable laws.

20.	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.
21.	Commercial sign boards and hoardings.	Regulated under applicable laws.
22.	Small scale industries not causing pollution.	Non-polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco- sensitive Zone, and which do not cause any adverse impact on environment shall be permitted.
23.	Collection of forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws.
24	Air and vehicular pollution.	Regulated under applicable laws.
25	Use of polythene bags in Eco-sensitive Zone area.	Regulated under applicable laws.
26	Drastic change of agriculture systems.	Regulated under applicable laws.
27.	Solid waste management.	Regulated under applicable laws.
28.	Eco-tourism.	Regulated under applicable laws.

Annexure: 1A List of Activities Promoted within Eco-Sensitive Zone

29.	Ongoing agriculture and horticulture practices by local communities along with 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 sources.	Bio gas, solar light, etc. to be promoted.
35.	Argo forestry.	Shall be actively promoted.
36.	Environmental awareness.	Shall be actively promoted.
37.	Skill development.	Shall be actively promoted.
38.	Restoration of degraded land or forests or habitat.	Shall be actively promoted.

3. TOURISM PROPOSAL OF ESZ

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 tourists.
  - 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 Proposals and Recommendations- Important Tourist Sites of Eco-Sensitive Zone (Other than Wildlife Sanctuary)

3.2.1 Sajjangarh Palace

- E-ticket facility can be an addition to facilitate hassle free visit to the place.
- Digital platform for more queries regarding the place including the timing, tickets and many more can be provided.
- Use of road safety convex mirror to avoid accidents
- As for the movement within the Sajjangarh Sanctuary, a sustainable mode of transportation such as eco-friendly vehicles are proposed.

3.2.2 Bahubali Hills

- Pathway to be develop maintaining the natural gradient for better and safe reach
- Soil erosion strategies to be developed to preserve landscape of the area
- Restricting the public access till certain level to maintain the nature of the space
- Need to incorporate facilities and shaded sitting spaces for the visitors
- Disciplinary and garbage management policies with regulatory supervision to be developed
- Plantation to be planned along the pathways and gathering areas maintaining the existing flora.
- No public access to the bottom edge of the hill along the water to keep the landscape intact.

3.2.3 Jiyan Sagar- Badi Lake

- Speed limit along the lake and pal to be set with road safety convex mirrors and signages at Badi lake and pal junction to avoid accidents.
- Public restrooms and drinking points to be introduced and maintained at pal as well as near the lake premises.
- Public places and seating to be developed in the pockets along the Badi lake road.

- The lake boundary needs to be repaired and maintained.
- Dustbins to be installed at certain intervals to cater the garbage produced by visitors.

3.2.4 Shilpgram

- A proper activity chart to be made for the entire year and should be published for visitors to overview and plan their visit accordingly.
- Drinking water facilities should be maintained in the area
- Proper signage with a map should be placed at regular intervals for tourists to easily cover and explore the place.
- Public transport to Shilpgram will make the approach easy for tourists
- A few more activities should be added during the off season to enhance the tourist attractions of the area.
- For more queries from visitors, a tourist help desk should be proposed in the premises.
- In the off season, village modes of transportation such as camel carts can be used.

3.2.5 Rani Road

- A proper maintenance and surveillance is needed for cycle track
- To reduce waste in the area, dust bins should be placed at regular intervals and clean environment signage should be posted.
- A policy to limit religious rituals affecting water and public hygiene is required.
- The addition of public sanitation and drinking water points is an important aspect in making it a better tourist destination.
- e cycle or e-bikes recharge points could be provided

3.2.6 Gyaneshwar Mahadev Temple

- To form a temple committee which looks after the temple facilities and management and maintains the character of the place.

3.3 Development Proposal

3.3.1 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.

Tourism Infrastructure recommendations including:

- Dispersal of tourist by developing new tourist destinations in BA and other areas outside of ESZ area
- Eco-tourism: tribal villages with scenic beauty and different cultures will be identified and promoted.
- Local tribal festivals or festivals by villagers can be highlighted
- Environmental tax collection as a source of revenue generation for maintenance and management.
- To create guidelines for controlling traffic and encouraging eco-friendly modes of transport.
- Improving the locations of scenic beauty, tourist accommodations, environmental management and conducting awareness programs to promote the places.
- Specification of provision of vending zones.
- Public participation in conservation of Eco-sensitive zone
- 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)

3.3.2 Tourism support Programs/ Plans

Several tourism support programs are planned, as these will really decide the transformation of the 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 the tourism department and district administration to ensure comprehensive eco-friendly development which is healthy for the entire ecosystem.

3.3.3 Community Participation Programs

Community participation is key to sustainability of tourism projects. Projects are planned with the 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, training and marketing is required for economic benefit.

3.3.4 **Private Sector Participation Strategy & Facilitation**

It is very important to have more private sector participation with various schemes launched by the Government of Rajasthan.

3.4 Management and Governance Issues

3.4.1 Grazing in Sajjangarh ESZ

Very large number of cattle, sheep, goat and camel graze inside the protected area. The months from July to October are the most problematic since most of the cattle of nearby villages move into the protected areas. The grazing by cattle has adversely affected the regeneration. The quality of grasses has also deteriorated in the area. Grazing has following adverse impacts in the ESZ area;

i) The area is being degraded.

ii) There is every possibility of the spread of communicable diseases in the wild animals.

iii) Illegal wood cutting/lopping goes on with the illegal grazing.

3.4.2 Felling of Trees

The maximum consumption of wood occurs during winters. Nearby villages are heavily dependent on forest for firewood. Because of this severe pressure on the forest, falling in the vicinity of the sanctuary area has become prone to illegal felling. 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.

3.4.3 Soil conservation, Water Harvesting and Combating with Drought Conditions

Situation along with soil erosion becomes very challenging for the local ecosystem of ESZ.. During the summers, rainfall is negligible and evaporation is high, and result the low-lying areas turn to dry areas easily, which results in frequent droughts which make the water situation still worse. Shortage of water, results in the wild animals to come out of the Sanctuary area in search of water and are killed in accidents, hurt villagers, or harmed by them.

3.5 Proposals for Eco Tourism

3.5.1 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 and in these villages farm-based eco-tourism & model village-based tourism can be developed.

3.5.2 Type of Eco Tourism Proposed for Sajjangarh 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. However, the villagers within Sajjangarh Eco-Sensitive Zone do not depend on

forest produce for their livelihood. Therefore, use of forest resources or forest produce is not relevant in this case and hence agro-based eco-tourism has been considered as most suitable. Agro-based eco-tourism is also good for upliftment of village community. The agro-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 agro-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.
8. Participatory dairy-based activities for tourists like milking cattle - Provides visitors with a hands-on learning experience about dairy farming. They get to understand the process of milk production, learn about the care and management of dairy animals, and gain insights into the daily routines of dairy farmers.

3.5.3 Eco tourism (natural tourism, eco tourism policy)

Eco-tourism can be defined as a prime concept working towards conservation of forests and biodiversity, protecting wildlife and present scenic landscapes by developing a

sustainable and hospitable livelihood for the communities that are solely dependent on the forest and by spreading awareness about maintaining and conserving the natural environment among the mass and the authorities in charge.

3.6 Tourist management plan

Eco-tourism may be defined as 'responsible travel to natural areas that conserves the environment and improves the well-being of local people' (TIES). Forests and wildlife are elements of nature and inseparable parts of the environment. Because of the intricate nature of interface between nature and human beings, nature conservation must entail participation of' people as a non negotiable component. The participation in this endeavor includes not only the forest fringe dwellers, but also those who may be living away from the forests. (Policy for Eco-tourism in forest and wildlife areas.)

3.7 Guidelines for all Stakeholders

Promotion and development of ecotourism tourism will involve a diverse set of stakeholders,

whose role will be crucial for the success of the Strategy. The key stakeholders are:

(i). Central Ministries

(ii). State Governments

(iii). Panchayati Raj Institutions

(iv). Hospitality

(v). Non-government organizations

(vi). Local community

Although these are as stated in the National Strategy for Ecotourism (2022), in the case of Sajjangarh ESZ, the crucial role is of the last panchayats, hospitality industry, NGOs and local community. This proposal by taking reference from the National Strategy for Ecotourism (2022 has come with model guidelines for these key stakeholders.

3.7.1 Panchayati Raj Institutions

Panchayati Raj Institutions' support is vital to the success of ecotourism proposals. This is clearly based on their strong influence on local communities.

Therefore these institutions should be consulted and involved in the preparation of plans for developing ecotourism in their villages, from time to time.

3.7.2 Hospitality Industry

Hoteliers, restaurant openers, resort owners who specialize in adventure and ecotourism and tour operators apart from accommodation providers such as hotel, B&B, Farm Stay owners and tourist guides are important stakeholders. There is a need to involve these industry players, who may be willing to be part of developing sustainable tourism destinations. They may have existing business or may set up new business.

They may play a crucial role in the overall health and sanctity of the SJ-ESZ. They can participate by training and hiring local people, abiding by the waste and pollution control guidelines set in the interest of safeguarding SJ-ESZ.
Also, timely participation from these representatives could also aid in coming up with a good sustainable eco tourism business and resolving their issues in a timely manner.

3.7.3 Non-Government Organizations

Non-Government Organizations involved in the areas of sustainable and responsible tourism, integrated rural development, livelihood promotion in rural areas, community development in rural areas can play a great role in forging community linkages. They also play a key role in fostering public participation and awareness amongst local inhabitants.

3.7.4 Local Community

Local community is a key stakeholder and has to be taken on board. The Community has to be made aware of the benefits of sustainable adventure and ecotourism, their apprehensions, if any, have to be allayed and they have to be encouraged to participate and be part of the value chain. In order to ensure inclusive and responsible tourism, most of the supplies and services must be sourced from local providers. Their capacity building will have to be done to ensure they become part of the supply chain.

3.7.5 Traveller or Visitor

Given the fact that the Sajjangarh is an essential part of the overall Udaipur tourist circuit, it attracts a lot of tourist footfall. Hence SJ-ESZ requires sensitive intervention with a focus on tourists. This is specifically with regards to creating awareness about responsible tourism. Tourists should be made aware with an emphasis on the ecological, cultural, and social history of the SJ-ESZ region that they will be visiting.

Making the traveler aware of sustainable and responsible tourism which in turn will lead to more demand for ecotourism. The Ministry in partnership with the States, Industry and Destinations shall launch a campaign for responsible traveler. The Campaign will encourage travelers to behave responsibly.

3.8 Capacity building

Ecotourism is still evolving and there is great need for a well-planned Information, Education and Communication (IEC) campaign to create awareness and understanding amongst all stakeholders. For effective and efficient management of SJ-ESz, it is imperative that the capacity is strengthened, built and prepared for the future. The aim of capacity building programs is to ensure to pass on the knowledge and improve the skill set and knowledge base of the people involved.

In addition to IEC material being made available through various channels, the Ministry will work with the States to organize sensitization and training workshops for various stakeholders including Government and Private Sector officials, NGOs and local communities/ institutions. Apart from various aspects of sustainable and responsible tourism, adventure tourism and ecotourism, it will also cover the need for enhancing the visitor experience and value chain enhancement for competitive advantage. This tourism focus should be an essential component.

- Programs could be run for the officials with respect to monitoring of the area
- Programs could be run for utilization of new age resources and technologies and methods with regards to eco-tourism
- Experts could be called for routine training of the personnel as well as people from villages falling in the SJ-ESZ for the.

- Training can be provided to discharge specialized tasks such as tourist guides, natural science interpreters, patrol partners for protection work, entrepreneurs for small scale homestead-based hospitality industry, small business operators (like souvenir shops, equipment for hire, photography etc).

These activities could be pre planned and/ or based on the necessities. Such a capacity building plan for communities and regulatory staff for every site ensures progressive improvement in quality of operations and flow of benefits to communities. As per the National Strategy for Ecotourism (2022), special attention shall also be paid to impart specialized training to field functionaries.They may include but not be limited to activities pertaining to

- Eco-tourism activities
- Green skilling
- Disaster Management
- Marketing & Branding,
- Tourist Itinerary development
- Tourist assistance
- Jobs and entrepreneurship development
- Impact Assessments

3.9 Public Participation

To ensure the success of ecotourism and related policies, public participatory frameworks that encourage resource mobilization by a group of stakeholders in development, operation and maintenance of SJ-ESZ will be necessary. The same has also been stated important as per the guidelines on Sustainable Eco-Tourism in Forest and Wildlife Areas 2021 of the MoEFCC. These frameworks shall ensure that

- equitable benefits flow from eco-tourism accrues, besides resource investors, to local communities, tribals and other traditional forest dwellers including by way of enhanced livelihood opportunities.
- Local level participation in tourism supports to uphold local culture, tradition and indigenous knowledge of local people.
- Further, keeping in view that most eco-tourism sites are located away from the main city of Udaipur, small-scale operators predominate, suitable programmes may be taken up to

facilitate eco-tourism operators to access incentives allowed to the tourism sector in a timely and adequate manner.

- Participation of local communities in ecotourism planning, development and management processes will also result in accessing opportunities such as self-governance and working collaboratively with other stakeholders, especially on issues affecting their well-being, livelihood etc.
- In addition, if ecotourism works toward increasing interaction between tourists and local residents, it will also be important to educate travelers on local culture and social history, so as to avoid negative impacts associated with cultural and familial dis-integration

3.10 Intangible Heritage

3.10.1 Udaipur Craft

Udaipur being rich in Art and Craft, various crafts can be seen in the city. A large population residing in the villages falling under Sajjangarh ESZ comprises artisan of various arts mentioned below.

- Miniature Painting
- Danka Embroidery
- Marble Work
- Puppet Making

3.10.2 Fair & Festival

- Shilpgram Fair

Shilpgram is an annual fair of Udaipur city held around the end of the year (December). This Craft Bazaar displays numerous works of artists from various ends of the country. The project aims to create awareness about the local art and crafts among the locals through fairs and various workshops demonstrating the art method. The lifestyle and craft of artisans can be experienced through architecture, performing arts, and painting. While promoting the local art and artisans the place also provides the common platform for interactive gatherings among the local and urban artisans.

Winters (Dec- Jan) is considered the best time for a Udaipur trip. The fair is arranged at the end of December that stretches to 10 days. This season is considered to receive the maximum number of tourists and people enjoy this fair to explore the local craft as well.

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