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MANAGEMENT PLAN

SAJJANGARH

WILDLIFE SANCTUARY

2025-26 to 2034-35

FOREST DEPARTMENT RAJASTHAN

MANAGEMENT PLAN

OF

SAJJANGARH WILDLIFE SANCTUARY

For 2025-26 to 2034-35

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FOREST DEPARTMENT RAJASTHAN

PREFACE

Sajjangarh Wild Life Sanctuary is situated in west of Tourist City Udaipur, which surrounds the Sajjangarh Palace overlooking Udaipur City. Geographically the area of this sanctuary falls within revenue limits of Udaipur District of the state of Rajasthan. Presence of historical Sajjangarh Palace also known as "Monsoon Palace" establishes the sanctuary as an important spot from Eco-tourism point of view. From Sajjangarh Palace, which caps the Bansdara hills, 936 Mtrs. above from surrounding countryside, tourists can enjoy the magnificent view of Lakes of Udaipur and Aravalli hill ranges, an oldest formation in the world. The view of sunrise and sunset attracts number of incountry and foreign tourists atop of Bansdara hills.

The Bansdara hill, once covered with dense vegetation was used to be the favorite hunting grounds for the erstwhile Maharanas of Mewar State of ancient Rajputana. Unfortunately non- judicious harnessing of biological and non-biological resources in the name of rapid development much beyond the sustainable limits has left the Bansdara hills in much precarious condition and by the year 1986 the hillock became almost devoid of any vegetation. Realizing its strategic location and importance from ecological and environmental point of view, in the year 1987 the area was declared as Wild Life Sanctuary under Wild Life Protection Act, 1972. The administration and management control of sanctuary area had remained with the territorial Divisional Forest Officer, during the past. Till 1987 the management of area was done on the basis of prescriptions laid down in working plan of concerning Forest Division. On declaration of area as Wild Life sanctuary, it was transferred to Wild Life wing. Since then, the management of Wild Life Sanctuary is being done on the basis of Annual Plans. With an objective to manage the sanctuary on principals of scientific management, the present management plan is prepared for the period of 10 years (2025-2026 to 2034-2035). This management plan includes all the constituents required to manage the Wild Life Sanctuary, Sajjangarh.

The management plan consists 8 chapters. The first chapter is an introduction to the state Rajasthan and its Protected area network. The second chapter contains background information and attributes of the sanctuary including geographical boundaries, geological features and infrastructure available for wild life in the sanctuary. In third chapter history of management and present practices have been discussed. The fourth chapter deals with the interface land use situation in relation with the sanctuary.

Part II of plan contains Suggestive Prescriptions for management of the Peripheral Zone of Influence (ZoI).It contains B1 and B2 part. Objectives of management and constraints in achieving the objectives have been discussed in chapter five. Chapter six deals with the proposed strategies in form of the theme plans. Chapter seven includes details and proposals to promote tourism in sanctuary area as well as the need for interpretation centre and conservation education. Concept of

Eco-development addressing specific issues and broad strategy is discussed in chapter eight. Need for Research, Monitoring & Training has been dealt with in chapter nine. Present organization & administrative set up of the sanctuary along with need of additional staff and infrastructure have been included in chapter ten. The financial requirements to implement the plan proposals have been given in chapter eleven. Schedule of operation & miscellaneous regulations have been incorporated in chapter twelve. Annexures and maps have been included to make the plan most informative and referable for concerned & field staff.

The management plan is a dynamic document. Though the document period has been 2025-26 to 2034-35, it needs periodic review and updating of information. The data will be reviewed constantly through studies, research, monitoring and baseline survey & will be incorporated at a future date.

Udaipur

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ACKNOWLEDGEMENTS

At the very outset we would like to express our gratitude's to Shri Arijit Banerjee, Principal Chief Conservator of Forests and Head of Forest Force, and Ms Shikha Mehra Principal Chief Conservator of Forests and CWLW Rajasthan for providing encouragement, valuable guidance and support which helped us to prepare a meaningful and dynamic document incorporating down to earth proposals for management of Phulwari-Ki-Nal Wild Life Sanctuary.

We are extremely thankful to Shri Rajesh Gupta, APCCF (wildlife) and Shri Seduram Yadav, Chief Conservator of forests, Wildlife Udaipur for valueable suggestations based on which the present management plan has been prepared.

Thanks are extended to Dr. Satish Kumar Sharma for his corporation. Thanks are also due to Shri Kapil Kumar, ACF Phulwari kin al and all the Range Officers, Foresters, Asstt. Foresters, Forest Guards of the Sanctuary posted during the preparatory period of this management plan, for being instrumental in collecting the basic data, maps and relevant information, without which the present document would never have seen the light of the day. Thanks are also due to all the Range officers who are posted in the sanctuary and shared their valuable experiences in giving final shape to this plan. Thanks are also due to local people, who helped in various ways to prepare this management plan.

Last but not the least, we are thankful to all forest officials of the Forest Department, Rajasthan for their guidance and co-operation.

The Management Plan is compilation of management ideas combined with field wisdom. The staff of Phulwari ki nal Wildlife Sanctuary are having rich experiences of local condition. Thanks to all staff members and field workers for inspiring us and sharing the knowledge in formulating the strategies for the management

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MANAGEMENT PLAN: SAJJANGARH WILD LIFE SANCTUARY

PART -A

Protected Area: SAJJANGARH WILD LIFE SANCTUARY

CHAPTER I

INTRODUCTION TO THE AREA

Background of Rajasthan:

Rajasthan India's largest state at 34.2 Million hectares is as big as Germany and with a population of around 70 million has as many people as in France. Home to some of the most fascinating landscapes and steeped in listing and tradition, Rajasthan is home to unique and diverse ecosystem and biological wealth.

Rajasthan, the largest state of India, is bordered by Pakistan to the west, Punjab and Haryana to the north, Uttar Pradesh to the northeast, Madhya Pradesh to the southeast, and Gujarat to the southwest. It is situated in the northwestern part of the Indian Union & lies between 23º30´ and 30º 11' North latitude and 69º 29' and 78º 17' East longitude. Rajasthan state is largely an arid state for most of its part. It has only 9.5 % of total geographical area recorded as forest.

Forests in Rajasthan belong to two types of forest groups. - Tropical dry deciduous forests and tropical thorn forests; which are further divided into 20 types of forests. Major forest types found in Rajasthan are Northern Dry Deciduous Forest (40.07%), *Anogeissus pendula* forest (15.21%), dry deciduous scrub (10.96%), desert dune scrub (06.62%) and desert thorn forest (06.17%).

3.92% of the total geographical area of the state is included in the protected forest area network, which includes 3 National parks, 26 Wildlife Sanctuaries and 36 Conservation reserves. The state also has 5 tiger reserves (Ranthambore, Sariska, Mukundara Hills, Ramgarh Vishdhari

and Dholpur Karauli) and 2 Ramsar sites (Keoladeo National Park and Sambhar Lake). The total protected area of the state is 13418.11 sq. km.

Biodiversity of Rajasthan

Rajasthan's biodiversity is shaped by its diverse climatic zones, ranging from the arid Thar Desert in the west to the semi-arid and sub-humid regions in the east. The state is home to over 2,200 species of plants and a wide variety of wildlife. Notable protected areas include:

- **Ranthambore National Park**: Known for its population of Bengal tigers and a variety of other mammals and birds.
- **Sariska Tiger Reserve**: Famous for its tiger reintroduction program.
- **Keoladeo National Park**: A UNESCO World Heritage Site renowned as a birdwatcher's paradise, hosting migratory species like the Siberian crane.
- **Desert National Park**: Features desert-adapted species like the Great Indian Bustard, Desert Cat, and Desert Fox.

Key flora includes Khejri (Prosopis cineraria), Ber (Ziziphus mauritiana), and indigenous grasses, while the fauna ranges from Indian Gazelle (Chinkara) to reptiles like the Spiny-tailed Lizard.

Unique Features of Rajasthan

Rajasthan's distinctiveness lies in its interplay of natural and cultural attributes:

- **Thar Desert**: The Great Indian Desert spans a significant part of Rajasthan, featuring shifting sand dunes, rocky outcrops, and saline depressions.
- **Aravalli Range**: Among the oldest mountain ranges in the world, it is an ecological lifeline that supports forests and water systems.
- **Salt Lakes**: The Sambhar Salt Lake, India's largest inland saltwater lake, is vital for salt production and birdlife.
- **Forts and Palaces**: The hill forts of Rajasthan, including Amer, Jaisalmer, and Chittorgarh, are UNESCO World Heritage Sites, showcasing historical architectural brilliance.

Topography of Rajasthan

The state's landscape is diverse and categorized into the following:

- **Desert Region**: Dominated by sand dunes, sparse vegetation, and extreme climate variations.
- **Aravalli Range**: Divides the state into two distinct geographic regions, providing forested slopes and a moderate climate.
- **Plains**: The eastern plains, irrigated by rivers like Chambal, are more fertile and conducive to agriculture.
- **Salt Flats and Wetlands**: Including Sambhar Lake and Tal Chhapar, they serve as critical habitats for migratory birds.

The geology of the region comprises granite, quartzite, and marble, adding to its natural richness.

Culture-Nature Linkages in Rajasthan

Rajasthan's culture is deeply rooted in its natural environment, reflecting a harmonious coexistence between human activities and ecological systems:

- **Traditional Water Management**: Ingenious structures like stepwells (baoris), johads (earthen check dams), and canals demonstrate water conservation in an arid climate.
- **Folk Practices**: Songs, dances, and festivals such as Gangaur and Teej celebrate nature's bounty and seasonal changes.
- **Bishnoi Community**: Revered for their ecological ethics, they are known for protecting wildlife and vegetation, including the Blackbuck antelope.
- **Architectural Adaptations**: Forts and havelis feature courtyards, jharokhas (overhanging enclosed balconies), and thick walls for climate resilience.

This intricate web of biodiversity, unique geographic features, and cultural linkages makes Rajasthan a vibrant and ecologically significant state.

Geo-Political Boundaries of Rajasthan

Its geo-political boundaries include:

- **International Boundary**: Rajasthan shares its western border with Pakistan, marked by the Thar Desert and the International Border running through districts like Jaisalmer, Barmer, and Bikaner.
- **Domestic Boundaries**:
  - **North**: Punjab and Haryana
  - **Northeast**: Uttar Pradesh
  - **East**: Madhya Pradesh
  - **Southwest**: Gujarat

Rajasthan comprises 33 districts, with Jaipur as its capital. The state forms an essential part of India's geopolitical landscape due to its strategic location near the international border.

Landscape Attributes & Ecosystem Features of Rajasthan

Rajasthan's landscapes are varied and characterized by the interplay of arid zones, mountain ranges, and fertile plain, range of ecosystems influenced by its diverse topography and climatic conditions:

1. **Desert Ecosystem**:
   - Dominated by xerophytic plants such as cacti and acacia.
   - Fauna includes desert-adapted species like the Great Indian Bustard, Desert Fox, and Spiny-tailed Lizard.
2. **Forest Ecosystem**:
   - Found in the Aravalli Range and southeastern parts of the state.
   - Vegetation ranges from dry deciduous forests to thorn forests.
   - Wildlife includes leopards, sloth bears, and an array of bird species.
3. **Wetland Ecosystem**:
   - Comprises seasonal lakes, reservoirs, and marshes, including Sambhar Lake and Bharatpur's Keoladeo National Park.
   - Provides critical stopover points for migratory birds.
4. **Grassland Ecosystem**:
   - Found in areas like Tal Chhapar Sanctuary, supporting herbivores like blackbucks and predators like foxes.
5. **Mountain Ecosystem**:
   - The Aravallis feature forest patches and microhabitats for a variety of species.
   - These ecosystems are not only vital for biodiversity but also support the livelihoods of local communities, who depend on agriculture, grazing, and tourism.

The assessment conducted by Indian Forest Survey, 2019 reports a total of 3826 wetlands covering an area of 56,341 hectares within the recorded forest area of the state. It consists of 284 natural local wetlands covering an area of 21,519 hectares, and 1275 local man-made wetlands covering an area of 28,064 hectares, and this indicates the need for proper scientific management of forests for the improvement of these wetlands. There is 9829 square km area under grasslands in Rajasthan, which is about 2.9 percent of the total geographical

area of the state. In these grasslands, 375 species of flora and fauna belonging to 46 families and 188 genera are found.

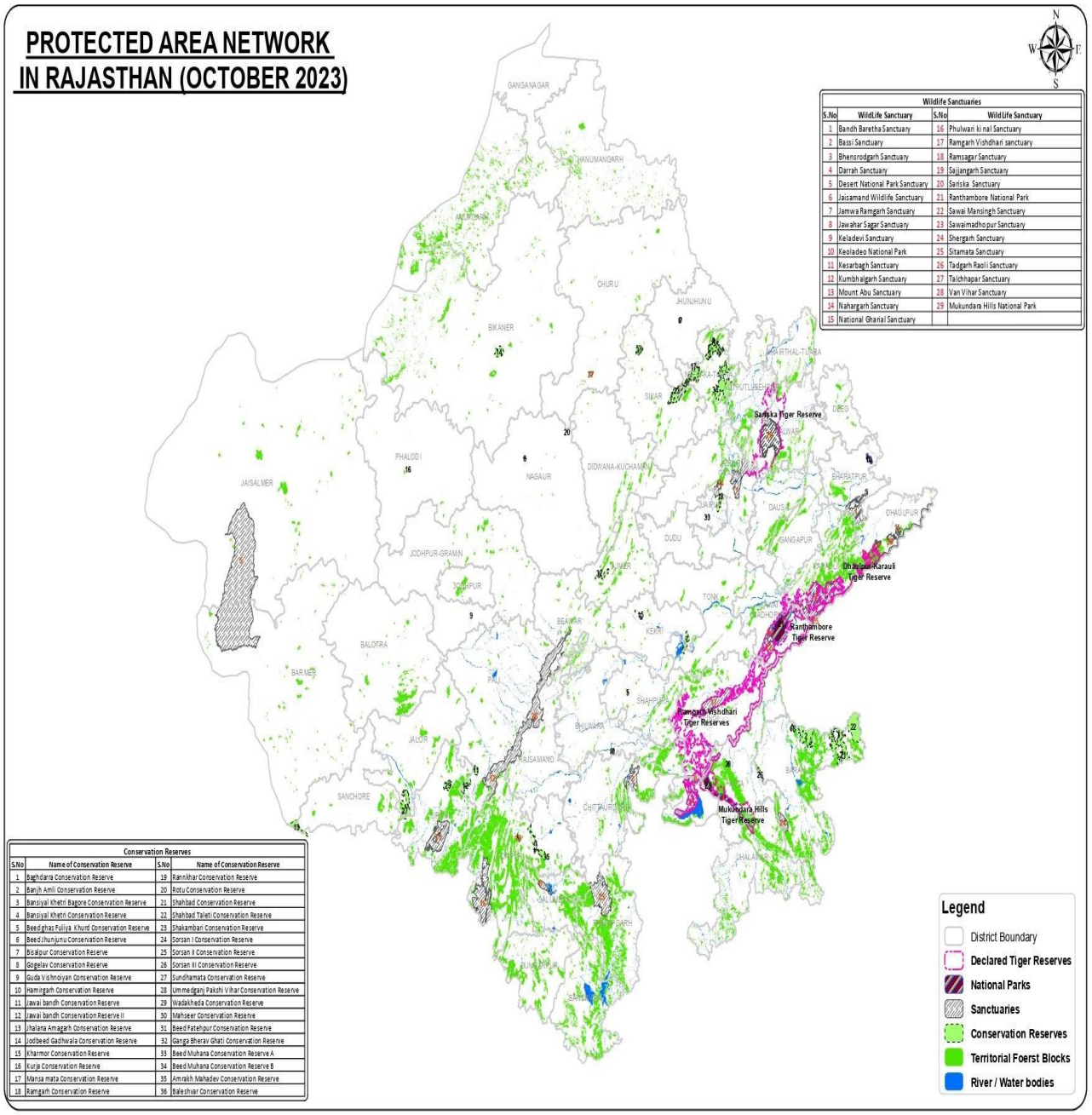
The population of Rajasthan according to census 2011 is 68.55 million which is 5.66 percent of the total population of India. The Twentieth Livestock Census 2019 put the state total livestock population at 56.80 million, which is the second highest in terms of livestock population in the country. Out of which 54.94 million of the total livestock is found in rural areas of the state. This includes 13.9 million cattle, 13.7 million buffalo, 7.9 million sheep, 2.13 million camels and 20.8 million goats, with most of the livestock deriving their fodder supply from forests and forest-based resources, as stall feeding is practiced less in the state.

According to the India Forest Status Report (ISFR) 2019 released by the Forest Survey of India, peoples are dependent on forests in the villages along the banks of forests for fuel (8.5 million tonnes), fodder (112.7 million tonnes), bamboo (3698 tonnes) and minor timber (82.4 thousand cubic metres). These data indicate the value of forests and forest-based resources in the economic and social well-being of the people of the State, mainly in rural areas and forest marginal villages.

1.2 Protected Area (PA) Network of the State:

Rajasthan has a well-established network of Protected Areas (PAs) that conserve the state's rich biodiversity, ranging from its arid deserts to forested hills. These PAs include National Parks, Wildlife Sanctuaries, Conservation Reserves, and Tiger Reserves, contributing significantly to habitat and species protection.

Rajasthan Forest Department is playing an important role in protecting the threatened and endangered wildlife by creating inviolate space for wildlife and enriching the quality of habitat through active management. There are 3 National Parks, 26 Sanctuaries and 36 Conservation Reserves located in the State for this purpose and the state also has 5 tiger reserves.



At present, the denser forest areas of the State are mainly located in sanctuaries and national parks, many of whom are under immense biological pressure from the villages situated inside and in the vicinity. These biological pressures reduce the availability of habitat for wildlife and create competition between large carnivores and humans over the use of natural resources.

List of Protected Areas in Rajasthan as on Dec.2023

S.no	Protected Area Name	District	Area (Sq. Km.)
A	**National Parks**		
1	Keoladeo National Park	Bharatpur	28.73
2	Mukundra Hills National Park	Kota, Chittorgarh	200.43
3	Ranthambhore National Park	Sawai Madhopur	289.11
B	**Wildlife Sanctuaries**		
1	Band Baretha Sanctuary	Bharatpur	171.19
2	Bassi Sanctuary	Chittorgarh	138.50
3	Bhensrodgarh Sanctuary	Chittorgarh	273.54
4	Darrah Sanctuary	Kota, Jhalawar	233.46
5	Desert National Park Sanctuary	Jaisalmer, Barmer	3162.00
6	Jaisamand Sanctuary	Udaipur	52.34
7	Jamwa Ramgarh Sanctuary	Jaipur	300.00
8	Jawaharsagar Sanctuary	Kota, Bundi, Chittorgarh	210.62
9	Keladevi Sanctuary	Karoli, Sawai Madhopur	676.82
10	Kesarbagh Sanctuary	Dholpur	14.76
11	Kumbhalgarh Sanctuary	Rajsamand, Udaipur, Pali	610.53
12	Mount Abu Sanctuary	Sirohi	103.97
13	Nahargarh Sanctuary	Jaipur	52.40

14	National Ghariyal Sanctuary	Kota,Bundi,Sawai madhopur,Karoli, Dholpur	564.03
15	Phulwari ki Naal Sanctuary	Udaipur	511.41
16	Ramgarh Vishdhari Sanctuary	Bundi	303.05
17	Ramsagar Sanctuary	Dholpur	34.40
18	Sajjangarh Sanctuary	Udaipur	5.19
19	Sariska Sanctuary	Alwar	544.22
20	Sawaimadhopur Sanctuary	Sawai Madhopur	288.83
21	Sawaimansingh Sanctuary	Sawai Madhopur	121.60
22	Shergarh Sanctuary	Baran	81.67
23	Sitamata Sanctuary	Udaipur, Chittorgarh	422.94
24	Talchappar Sanctuary	Churu	7.19
25	Todgarh Raoli Sanctuary	Rajsamand, Ajmer, Pali	495.27
26	Van Vihar Sanctuary	Dholpur	25.60
C	**Conservation Reserves**		
1	Bansial-Khetri Bagore Conservation Reserve	Jhunjhunu	39.66
2	Bansial-Khetri Conservation Reserve	Jhunjhunu	70.18
3	Beed Jhunjunu Conservation Reserve	Junjhunu	10.47
4	Bisalpur Conservation Reserve	Tonk	48.31
5	Gogelav Conservation Reserve	Nagaur	3.58
6	Gudha Vishnoiyan Conservation Reserve	Jodhpur	2.32
7	Jawai Bandh Leapard Conservation Reserve II	Pali	61.98

8	Jawaibandh Leopard Conservation Reserve	Pali	19.79
9	Jodbeed Gadhwala Bikaner Conservation Reserve	Bikaner	56.47
10	Mansa mata Conservation Reserve	Jhunjhunu	102.31
11	Rotu Conservation Reserve	Nagaur	0.73
12	Shahbad Conservation Reserve	Baran	189.40
13	Shakambari Conservation Reserve	Sikar, Junjhunu	131.00
14	Sundhamata Conservation Reserve	Jalor, Sirohi	117.49
15	Ummedganj Pakshi Vihar Conservation Reserve	Kota	2.72
16	Rankhar CR	Jalore	72.88
17	Shahbad Taleti CR	Baran	178.84
18	Beed Grass Fuliya Khurd CR	Bhilwara	0.86
19	Baghdara Crocodile CR	Udaipur	3.69
20	Vadakheda CR	Shiroi	43.31
21	Jhalana-Amagarh CR	Jaipur	35.07
22	Ramgarh CR	Barna	38.09
23	Kharmor CR	Ajmer	9.31
24	Hamirgarh CR	Bhilwara	5.66
25	Sorsan Ist	Baran	16.11
26	Sorsan IInd	Baran	4.27

27	Sorsan IIIrd	Baran	0.76
28	Kurnja CR	Jodhpur	2.92
29	Banjhamli CR	Baran	146.21
30	Baleshwar Conservation Reserve	Neem Ka Thana	221.69
31	Beed Muhana CR-A	Jaipur Rural	2.07
32	Beed Muhana CR-B	Jaipur Rural	0.10
33	Ganga Bhairav Ghati CR	Ajmer	39.51
34	Mahaseer CR	Udaipur	2.06
35	Beed Fatehpur CR	Sikar	30.03
36	Amrakh Mahadev Leopard CR	Udaipur	71.47
D	**Tiger Reserves**		
1	Ranthambhore Tiger Reserve	Sawaimadhopur, Karauli, Bundi, Tonk	1530.23
2	Sariska Tiger Reserve	Alwar, Jaipur	1213.34
3	Mukundara Hills Tiger Reserve	Kota, Bundi, Jhalawar, Chittorgarh	1135.79
4	Ramgarh Vishdhari Tiger Reserve	Bundi, Kota, Bhilwara	1496.49
5	Dholpur-Karauli Tiger Reserve	Dholpur, Karauli	599.64
E	**Under Process**		
1	Desert National Park Sanctuary	Jaisalmer, Barmer	3162.00
2	Sariska National Park	Alwar	405.93
3	Kumbhalgarh National Park	Pali, Udaipur & Rajsamand	462.05
4	Band Baretha Sanctuary	Bharatpur	197.86
5	Sariska 'A' Sanctuary	Alwar	3.01

6	Dholpur Sanctuary	Dholpur	204.26
7	Mount Abu Sanctuary	Sirohi	222.13
8	Gajner Sanctuary	Bikaner	26.32

(**Source Annual Administrative Report 2023-24**)

Major biodiversity conservation initiatives and milestones in the state –

1.3.1 Ramgarh Vishdhari Sanctuary has been notified 4th Tiger Reserve in the state and in principle approval also has been obtained for Dholpur-Karauli and Kumbhalgarh Tiger. To increase the protected area in the state, many conservation reserves like Mansa Mata, Beed Jhunjhunu, Shahbad, Rankhar, Beed Muhana, Bhanjh Amli, Mahasheer etc. have been notified.

1.3.2 Wildlife Surveillance & Antipoaching System (WS & APS) Project is an Integral Software based Surveillance solution for Protected Area like Ranthambhore Tiger Reserve, Sariska Tiger Reserve, Mukundra Hills Tiger Reserve, Jawai Bandh Leopard Conservation Reserve, Jhalana Conservation Reserve which includes high level Thermal/Optical Cameras, point to point wireless network and communication equipments.

1.3.3 A project for Biodiversity Conservation has been sanctioned through the French Development Agency and efforts are being made to get another sanction through JICA.

1.3.4 New Forest policy, Climate change policy and eco-tourism policy have been launched in the state. In Rajasthan Ecotourism Policy special importance has been given to conservation of natural sites and livelihood management through ecotourism. Private enterprise would be encouraged so as to get the involvement of local communities in the environment preservation.

1.3.5 As a result of these efforts, interest towards forests and wildlife in the state has increased among the people and forests have increased., Wildlife and environment related activities have gained momentum as well.

1.3.6 To increase vegetation cover outside the forest area, the Tree Outside Forest scheme has been launched and being implemented in the whole state.

1.3.7 According to the tripartite MoU between the Government of India, Wildlife Institute of India and the State Government for the conservation of the critically endangered State bird-Godavan, artificial breeding of the Godavan has been started in Sam and Ramdeora. Under which 27 chicks of Godavan have been hatched are being nurtured. Conservation efforts for Kharmor have also been initiated in Sonkhaliya, with declaration of a Conservation Reserve.

1.3.8 State Wetland Authority has been constituted by the State Government in the year 2019-20. 76 wetlands have been notified in the state and efforts have been initiated to declare 5 wetlands as Ramsar sites.

1.3.9 For prey base augmentation, translocation of surplus herbivores population from Zoos, Biological Parks, KNP etc. to the lesser prey base PAs and Sucessfuly rewilding in natural habitats.

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CHAPTER 2

Introduction to the PA and Background Information

2.1 Name and Constitution/Notification

Situated in most fragile ecosystem of Aravallis "Sajjangarh Wild Life Sanctuary" is just 5 Kms in west of beautiful Lake City "Udaipur". There is only one forest block namely "Sajjangarh" which comprises the sanctuary having an area of 519.61 Hectares. It was declared as "Wild Life sanctuary Sajjangarh" by Government of Rajasthan Notification No. F.11 (64)/Raj.8/86 dated 17.02.87 under the provision of section 18 of wild life protection act 1972 (Central Act No. 53). The legal status of forest area of sanctuary is given in following table:

TABLE 3.1

LEGAL STATUS OF FOREST AREA OF SAJJANGARH WILD LIFE SANCTUARY

S.No.	Legal Status	Area (in hectares)
1.	Reserved Forest	519.61 Hectares

The rights and privileges in the reserved forest area have already been decided. Notification of "Sajjangarh" forest block has been issued by the Government of Rajasthan vide letter No. F.15 (217) Revenue (Ka) 58 dated 19-1-59. Copy of notification as well as the description of boundaries of Sajjangarh block is enclosed at Annexure-3. There is no village present inside the block boundary, however presence of 8 villages around the sanctuary has exerted tremendous biotic pressure on the adjoining forest areas of the sanctuary.

2.2 Location, Physical Boundaries, and Extent –

Geographically this sanctuary is situated between $73^0$37' – $73^0$40' East longitude and $24^0$35' – $24^0$39' North latitudes.

GEOGRAPHICAL:

East : Udaipur city

West : Village Gorella

North : Village Badi & Badi lake

South : Village Hawala

INTERNAL BOUNDARIES:

Area of sanctuary is entirely closed with pucca stone wall and forms one single range namely "Sajjangarh Wild Life Range". There is no need of internal boundaries. The population of Udaipur city is extended up to the foothills of this sanctuary, whereas the villages 'Gorella', 'Hawala' and 'Badi' are located just on the periphery of this sanctuary.

2.3 Zone of Influence

The population around the sanctuary area is mainly agriculturist, pastoralist and labour class, dependent upon the natural resources of the sanctuary for grasses and to some extent for small wood. On the eastern aspect of the sanctuary the boundaries of Udaipur City are touching the sanctuary boundaries. Based on these facts, the zone of influence of wild life sanctuary is tentatively identified up to 5 kms. from boundaries on western, northern and southern sides of sanctuary.

Location, Extent & Boundaries and Natural Attributes of the Z.I.

As mentioned above the Zone of Influence for Sajjangarh sanctuary can be within 5 kms. limits from the sanctuary boundaries on western, southern and northern sides of sanctuary. This area is classified as Eco-development zone. The villages falling within 5 kms. distance on mentioned sides are enclosed at Annexure- 33. As we move farther from sanctuary area the dependency of people on sanctuary decreases but the impact is still there.

On the western, northern & southern side of sanctuary where the Z.I. of sanctuary is proposed the area is hilly with valleys. In this area the forest areas of Udaipur (South) forest division is situated along the border of the sanctuary. The revenue land around the sanctuary is totally cultivated and can not provide much support to sanctuary, to meet the demand of local people in terms of grazing and small timber.

Villages Inside and Outside the P.A.: Ethnic Identities, Traditions, and Customs Relationship between Distinct Groups of people, Relationship with Forests:

The zone of influence (Z.I.) is defined as an area, which is affected by existence of sanctuary and the extent of area as within which, people having sanctuary base resource dependency. But it

should also be taken into account that political and social influence of the people not necessarily dependent on the sanctuary also effects the well-being of sanctuary in many other ways.
There are 8 villages in the Z.I. The social & cultural structure of the society as well as their tradition and custom are almost identical. The only difference is the reduction of their dependency on the sanctuary.

Bhil, Garasia, Bhil Meena and Dangi are the main tribes living around the sanctuary in Z.I. Phytolatry and Zoolatry is common among them. Even celestial bodies are also worshipped. Their religious places are "Deora" generally situated either at outskirts of village or near some hill clad in the forests.

The details of villages present around the sanctuary boundary in Z.I. are given in following table (Table 4.1):

TABLE: VILLAGES SITUATED WITHIN ZONE OF INFLUENCE

Tehsil	**Name of Villages**	**Total Number**
Girwa	Badi, Shisharma, Kodiyat, Barda, Morvania, Gorella, Hawala,Rampura,	Eight

All these villages are tribal dominated. Bhil, Bhil Meena, Garasia and Dangi's are main tribes. Most of villages are purely inhabited by one or two tribes, but few has more than two tribes. Each village has several helmets called "Phalas". These are inhabited by a single or multiple clans.

The State of People's Economy, Vocations, Land use, Use of Forest & Non Forest based Natural Resources by People and Seasonal Patterns:

Agriculture, Animal husbandry, labour-oriented works is the main occupation of people living in proposed Z.I. of the sanctuary. Presence of Udaipur City nearby and demand of milk provokes them to have good number of cattle. Their economy is totally based upon natural resources of land and forest, supplemented with labour work on mines, building works etc.

The average land holding of the people in Z.I. is very small (1 to 1.5 Hectares), with a large number of marginal farmers having large family size. Generally, women and children look after the cattle, whereas man prefers to work as labour. Landless communities are dependent upon labour for livelihood. Some communities like Rajput & Mahajans, although small in number but are educated hence prefers service with government or non-government organizations in Udaipur City. They are generally well off and are also the main business class in the area.

Agriculture is a seasonal work and does not provide employment throughout the year. They do have employment for nearly six months in a year on their farmlands. During the remaining six months of unemployment, they prefer cattle rearing and labour-oriented works. Intricacy of tribal with forests is remarkable. They fully depend on forests for fencing material, fodder, and small timber for housing and agricultural implements. Irrigation facilities are poorly developed. Villagers are having their own water pumps to irrigate their fields.

Generally, the people living in Z.I. influences the surrounding forest areas by having resource dependency with regard to rearing their cattle, collection of fodder and small timbers. Among the cattle population sizeable number of goats and sheeps are present in the herd owned by the people. The Forest area surrounding these villages is worst effected in rainy season when most of the cattle are left in the area for grazing. Some plantations are done by forest department in these areas, which are main source of grass collection for the people of these villages. Villagers collect grasses for their yearlong use from these areas.

Implication of the land use and resources dependency for the conservation of PA:

The land holding in the villages falling within limits of proposed Z.I. is small and the quality of cattle is also poor, which results into poor economy of the people in general. Only positive factor is presence of Udaipur City, which has ample potential to provide them employment. Besides this the economy of these villagers is dependent on the natural resources of the land and the forests. There is no large or small industry set up in the area of Z.I., As the land use pattern indicates, the net area available to agriculture is small owing to the terrain, water availability and soil conditions in the Z.I. This result in poor harvesting and people are forced to take other occupation like Animal Husbandry and working on construction works and Mines as labourer to support their economy.

The poor economy of the area tends to make people more dependent on natural resources, for meeting their livelihood demands. This dependency on surrounding forest areas of the villagers inhibiting these villages leads to degradation of these areas, and recovery is very difficult due to continuous pressure.

In zone of influence the small land holdings also increase the tendency of the people to encroach upon suitable lands of the adjoining forest areas, which further deplete the available forest area.

Forest/P.A. Management Practices & their implication for the people:

Forests in northern, western and southern side of the sanctuary area by absorbing the grazing pressure to a great extent, helps in protection of wild animals in the sanctuary area. The major implications of the sanctuary management practices are listed below:

- Control over grazing in sanctuary area.
- Control over collection of fuel wood, small timber, building material etc.
- Control over poaching and hunting in the area.
- Generation of employment through forestry development works in the area.

2.4 STATEMENT OF SIGNIFICANCE

Situated within the boundary of sanctuary is the "Sajjangarh Palace" overlooking the Udaipur City built by erstwhile Maharana of Mewar on Bansdara Hills, which is 936 Meters above M.S.L. From the hillock one can have a magnificent view of the lakes of Udaipur and Aravalli Mountain ranges. The view of sunrise and sunset attract the visitors, who visit this Palace. The Bansdara hill was having dense forest cover and remained as hunting ground for erstwhile rulers of Mewar. Five shooting boxes commonly known as "Odhis" were constructed around the hills to facilitate hunting and to overview the lush green forest cover of Aravalli.

Due to excessive biotic pressure the forest cover got depleted over the period of time and by 1986 the hillock became totally deprived of any kind of vegetation. Looking to its strategic location and importance from ecological and environmental point of view this area was declared as sanctuary in the year 1987.

The area of this sanctuary which is 5.19 square kilometer is a part of catchment of lakes of Udaipur, which in turn acts as a life line for the city, since they are the only source of drinking water to inhabitants of the city apart from their aesthetic beauty. Availability of water in these lakes largely depends on this area. On declaration of sanctuary, to revive the past glory, pucca wall was constructed over an area of 60 hectares on the eastern slope facing Udaipur City.
The area after closure responded extremely well and developed as an ideal habitat for herbivores. A deer Safari was created and animals like Chittal, Sambar, Wild Boar, Blue Bull, were introduced. Over the period of time animals like Panther, Hyena, Hares & Jackal have reappeared apart from a variety of reptiles & Birds. The stone wall extended and now the entire hillock has been fenced.

2.4.1 Ecological/Biodiversity – floral and faunal Flora:

Sajjangarh Wild Life Sanctuary, being in close proximity to Udaipur city, is a unique example of habitat revival and restoration of past floral & faunal glory, including Panthers, Hyenas, Jackals, Hares and a variety of reptiles and birds. It is now centre for breeding of indigenous, rare and endangered fauna of Aravalli's and it is also acting as translocation centre for wild animals of this region. The sanctuary's vegetation is a mix of dry deciduous forests, scrublands, and grasslands, offering critical habitats for a wide range of wildlife.

Species and communities of conservation importance; key areas:

FLORA:

Heavy Biotic pressure and excessive grazing during the past has resulted in reduced regeneration of some vital species. The slow growing and non-coppicing species including medicinal herbs have been worst affected. Although after declaration of sanctuary and construction of pucca wall all around the boundary they have started regenerating again but still these vital species need effective protection and propagation measures. The floral species that have become rare are listed below:

1. *Anogeissus latifolia* - Species has gone rare and only few trees are observed.

2. *Bridellia retusa* - very rare in sanctuary area.

3. *Madhuca indica* - only few trees including one groove is found in the sanctuary.

4. *Sterculia urens* - Scattered trees are observed. Lack of regeneration is the cause of its loss.

5. *Commiphora wightii-* Only few plants can be seen in the sanctuary area.

6. *Abrus precatorius*- Very few plants are observed. The species is confined only in nallahas.

Apart from the above some plant communities need conservation efforts. *Anogeissus latifolia, Anogeissus pendula, Commiphora wightii, Madhuca indica,* are species of special conservative significance.

FAUNA:

- *Vertebrates:*

The major carnivore at the top of the food chain is Panther (*Panthera pardus*). Other vertebrates inhabiting the area are Striped Hyaena, Jungle Cat, Jackal, Wolf, Indian fox, Common Langur, Blue Bull, Indian Hare, Wild Boar, Squirrels, Rats, Hedgehog, Indian Pangolin, Bats, Porcupine etc.

- Status, Distribution and Habitats of major animals:

(a) Panther:-

The Panther is the top carnivore of the sanctuary. They are inhibiting the forests of Bansdara hills. The woody hilly tracts form the ideal habitat for the Panthers.

(b) The Striped Hyaena :-

Hyaena is nocturnal in nature. They are known as the scavengers as they eats the died animals and left over portions of kills of other animals. Occasionally, goats and sheeps are lifted by them.

(c) Jackal :-

This species prefers outskirts of the sanctuary. It hunts small animals for food and scavenges on dead animals too. It is commonly found in the sanctuary. It is very fond of Ber fruits.

(d) Hanuman Langur:-

It is a folivorus semi-arboreal primate. It likes a variety of food items like foliage, fruits, buds, seed, bark etc. It devours leaves of Mahuwa, Godal, Calotropis, Salar etc. Many troops of langurs roost near Jhar, "Badi Pal" and on roof of the palace.

(e) Indian small Civet and Toddy Cat :-

These two species of civets inhabit in the hollows and crevices of the rocks. They are omnivorous natural animals, found in good number in the sanctuary.

(f) Common Mangoose :-

A species commonly found in the sanctuary. It is diurnal, prefer relatively open areas to live. It depends on rodents, birds, and reptiles for its survival.

(g) Ruddy Mangoose:-

It prefers relatively denser part of the sanctuary. It is a diurnal carnivorous animal, depends on small birds, reptiles, mammals for food. This species is less common within the geographical limits of the sanctuary.

(h) Birds :-

A large number of terrestrial birds are found in the Sajjangarh Wild Life sanctuary viz. Common Quail, Grey Partridge, Painted partridge, Crested lark, Ashycrowed Finch Lark etc. A variety of waterfowl can be seen in the waterbody of Badi Lake. Arboreal birds like yellow legged Green Pigeon, White–browed Fintail, Fly catcher, white–throated fantail flycatchers, grey hornbill, Parakeets, Copper smith etc. are commonly seen in 'Jhar' grove of the sanctuary. Rock loving birds like Brown Rock Chat, Crested Bunting, Longbilled Vulture, Martin etc. are easily visible in the sanctuary. An old vultury of Longbilled vulture is present on eastern vertical rocky face of the sanctuary. Crested Bunting breeds here in the rock cervices during rainy season.

Many bird species found in this sanctuary are listed in the IUCN Red Data Book and ZSI Red Data Book are given in following tables (Table 2.3 & 2.4):

TABLE 2.3 IUCN RED DATA BIRDS OF SAJJANGARH WILD LIFE SANCTUARY.

S. No	*Common Name*	*Latin Name*	Category
1	White Bellied Minivet	*Pericrocotus erythropygus*	Near Threatened
2	Indian Black Ibis	*Prendibis papillosa*	Near Threatened
3	Painted Stork	*Myeteria leucocephals*	Vulnerable
4	White-winged Black Tit	*Parus nuchalis*	Vulnerable
5	Asian Openbill	*Anastomus oscitans*	Vulnerable
6	White-backed Vulture	*Gyps bengalensis*	Vulnerable
7	King Vulture	*Gyps calvus*	Vulnerable

TABLE 2.4 ZSI RED DATA BIRDS OF SAJJANGARH WILD LIFE SANCTUARY

S. No	*Common Name*	*Latin Name*	Category
1	Spoonbill	*Platelia leucorodia*	Threatened
2	Common Peafowl	*Pavo cristatus*	Threatened

2.4.2 Socio-cultural – local communities in and around the protected area

The socio-cultural landscape around Sajjangarh Wildlife Sanctuary is shaped by the interactions of local communities with the sanctuary's natural resources. These communities have deep-rooted cultural, traditional, and economic connections to the land and its biodiversity. Understanding their socio-cultural aspects is crucial for designing effective conservation and management strategies. There are 8 villages in the Z.I. The social & cultural structure of the society as well as their tradition and custom are almost identical. The only difference is the reduction of their dependency on the sanctuary.

Bhil, Garasia, Bhil Meena and Dangi are the main tribes living around the sanctuary. Phytolatry and Zoolatory is common among them. Even celestial bodies are also worshipped. Their religious

places are “Deora” generally situated either at outskirts of village or near some hill clad in the forests.

The details of villages present around the sanctuary boundary in Z.I. are given in following table

VILLAGES SITUATED AROUND P.A

Tehsil	Name of Villages
Girwa	Badi
	Shisharma
	Kodiyat
	Barda
	Morvania
	Gorella
	Hawala
	Rampura

All these villages are tribal dominated. Bhil, Bhil Meena, Garasia and Dangi’s are main tribes. Most of villages are purely inhabited by one or two tribes, but few has more than two tribes. Each village has several helmets called “Phalas”. These are inhabited by a single or multiple clans.

2.4.3 Ecosystem services – rivers, lakes, habitat

Sajjangarh Wildlife Sanctuary, located in the Aravalli hills near Udaipur, Rajasthan, plays a vital role in providing a range of ecosystem services that benefit both biodiversity and local communities. The sanctuary supports ecological, cultural, and economic well-being by maintaining critical ecosystem functions such as water regulation, biodiversity conservation, and habitat provision.

Situated on Western aspect of Bansdhara hills is a perennial source of water “Jhar Water Hole” surrounded by number of ancient Mahuwa trees. Temple of Lord Shiva is in close vicinity of this sacred grove. Tourists can experience the effect of microclimate created by the surrounding

forests sitting at this place. During rainy season, the flowing spring through the area adds the beauty many more times.

BARI LAKE*:*

Badi Lake popularly known as "Tiger Lake" is situated on the western slope of Sajjangarh. The lake was constructed by erstwhile rulers of Mewar mainly for irrigation. The clean water of this deep lake provides an ideal habitat for aquatic fauna and flora. It is suitable for nature camping, boating and other water sports. It is also a source of drinking water for the people of Udaipur City.

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. 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 nallaha due to ground water seepage depending upon recharge during the rains. Moreover, frequent droughts in the region still worsen the conditions for wild life and local population.

The main source of natural water supply is rainwater. There are no river or big Nallahas in the sanctuary. The Badi Lake in proximity of sanctuary is the biggest water body present in the area. There is one open well in the sanctuary, which is one of the major source of water supply for the wild animals. Handpump were installed at Gorella and IPC. As the underground water table has gone down and the well got dried up in 1999-2000, a tubewell was installed near village Hawala for supply of drinking water to wild Animals.

Habitats:

Dry deciduous forests, grasslands, and scrublands in the sanctuary provide critical habitats for keystone and flagship species such as leopards, jackals, and migratory birds.

Wetland habitats within the sanctuary support aquatic plants, insects, and wading birds, contributing to ecosystem diversity.

2.4.4 Connectivity/Linkages

The sanctuary serves as a natural corridor for the movement of species like leopards, jackals, sambars, and smaller mammals**.** It links fragmented habitats across the Aravalli hills, ensuring genetic flow and species survival.

Linkages with Nearby Protected Areas-

Sajjangarh Wildlife Sanctuary shares ecological and geographical linkages with other important protected areas and landscapes in the region:

1. Kumbhalgarh Wildlife Sanctuary:

- Located approximately 60–70 km northwest of Sajjangarh, Kumbhalgarh serves as a larger forest block within the Aravalli range.
- Together, these sanctuaries form a significant wildlife movement corridor for species like leopards and other terrestrial fauna.

2. Jaisamand Wildlife Sanctuary:

- Situated about 50 km southeast of Sajjangarh, Jaisamand Wildlife Sanctuary supports wetland biodiversity and contributes to the ecological network.

3. Baghdara Nature Park:

- A small forested area near Udaipur, Baghdara offers additional connectivity for small mammals and bird species migrating through the region.

4. Urban Lakes:

- Lakes such as Fateh Sagar and Pichola in Udaipur city are hydrologically connected to the sanctuary, supporting aquatic species and migratory birds.

Wireless control room at Sajjangarh fort is being operated round the clock. This control room being at height from surrounding countryside is main mode of communication with other sanctuaries & territorial divisions of this region. However, the control room has only simple fixed wireless set, which is not sufficient for effective communication. It is proposed to install wireless set with repeater at this control room.

Besides this sanctuary has been provided with two fixed sets at its (i) administrative building and (ii) at Gorella, and four handsets with Range Officer incharge of sanctuary, and with Foresters/ Asst. Foresters. It is essential to provide three fixed sets at (i) Main Entry, (ii) At Badi & (iii) At Hawala, one mobile set to Range officer & at least 3 handsets to Forest Guards for effective management of sanctuary.

2.5 APPROACH AND ACCESS

Wild Life sanctuary 'Sajjangarh' is situated 5 kms away from the heart of tourist city Udaipur and is approachable by means of mechanical vehicles & Bicycles. Railway & Bus stand are at a distance of 7 Kms from here, whereas the nearest Maharana Pratap (Dabok) Airport, Udaipur is at a distance of 25 Kms from the sanctuary. From these places Autorickshaw and Taxi cars are available to reach the sanctuary. This sanctuary is having a 'pucca' Tar-road around its geographical boundaries & tourist can enter into the sanctuary boundary from Main Gate after taking proper entry pass 'ticket' from the counter.

2.6 ATTRIBUTES OF THE PROTECTED AREA

2.6.1 Geology, Rock, and 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, schist and vollstone. The soil depth is fairly good in plains, mainly sandy loam with poor moisture retention capacity. The moisture retention capacity is fairly good in the hills covered with vegetation. Here soil becomes hard on drying which results in poor aeration. In the northern part of the sanctuary, the soil quality is very poor, moisture retention capacity is very less and not very conducive for the growth of vegetation.

2.6.2 TERRAIN:

The forest tract of the sanctuary is highly undulating with broken ranges of hills of height ranging from 100 to 200 Mtrs. from surrounding countryside. Most of the hilly tract is highly sloppy with almost 90 to 100 % slopes at places. The hills and hillocks forming a network leading to the nallahas, entering the plains and draining into the bigger nallahas which leads in nearby lakes.

The topography of the area can be divided into hills, piedmont zones and plains. The hills have got a rugged topography. The plains down the hill are mostly agricultural fields.

2.6.3 CLIMATE:

The climate is sub-tropical with extremely hot summer and relatively moderate winter. The variation in seasons are given in following table (Table 2.2):

TABLE 2.2 THE SEASONAL VARIATION AT SAJJANGARH WILDLIFE SANCTUARY

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

2.6.4 Water Resources ((Wetlands, river systems, drainage)

Sajjangarh Wildlife Sanctuary, situated in the Aravalli hills near Udaipur, plays a critical role in the hydrology of the region. The sanctuary is home to seasonal streams, natural springs, and drainage patterns that contribute to the health of surrounding water bodies, including Udaipur's iconic lakes. These water resources support biodiversity, recharge groundwater, and provide essential ecosystem services**.**

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. 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 nallaha due to ground water seepage depending upon recharge during the rains.

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. Recorded rainfall data of the last ten years are enclosed at Annexure-29.

2.6.5 Forest Types, and cover attributes

The forest types:

Forests of the sanctuary are composed of wide floral diversity dominated by mixed miscellaneous forests. The main Tree species of this sub type are *Anogeissus pendula* mixed with *Mitragyana parviflora, Terminella tomentosa, Boswellia serrata, Lannea coromendelica, Bauhinia racemosa, Acacia catehu, Wrghthia tomentosa* etc. At the top hill slopes *Boswellia serrata* and *Laenia grandis* dominates, in the middle slopes, *Anogeissus latifolia, Anogeissus pendula, Casia fistula, Albizia labbec,* etc. exists. In the lower slopes *Zizyphus spp. Acacia catechu, Dicrostacis cineraria, A. leucophloea and Greweia flewecence* etc. are mainly found.

The major species of the lower canopy are *Balanites aegyptica, Flacourtia indica, Adhatoda vesica, Carissa congesta, Alangium salvifolium, Capparis sapieria, Helicteres ixora, Holarrhena antidysentrica, Dichrostachys cineraria, Zizyphus numularia, Vitex nigundo* etc. the grasses include *Themeda triandra, Dicanthium annulatum, Heteropogon contortus, Aristide funiculata, Cenchrus setigerus, Cynodon dactylon, Cenchrus ciliaris* etc.

2.7 LAND USE LAND COVER (LULC)

Assessment of the degradation of forest cover by Remote Sensing and GIS (Geographical Information System) technique of the Sanctuary is the main aim of the present investigation. Anthropogenic activities in the study area are so intense that forest cover is degrading at an alarming rate. Supervised classification methodology has been employed using maximum likelihood technique in ERDAS Imagine 14.0. The images of the maps were classified into Forestland, scrubland, water and barren land. The statistical analysis indicates change in land use pattern from the year 2001 to 2005 and till 2015. And this change in land use pattern is of great concern for environmentalists and this leading to the habitat loss to the endemic flora and fauna species. This scientific venture gives a vivid picture of the forest degradation due to human activities which has to be checked immediately to save the forest land and the sanctuary as well.

2.8 BIOGEOGRAPHIC INFORMATION

2.8.1 Biogeographic classification:

The floral constituents of the Sajjangarh Wild Life 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.

Species and communities of conservation importance; key areas:

Heavy Biotic pressure and excessive grazing during the past has resulted in reduced regeneration of some vital species. The slow growing and non-coppicing species including medicinal herbs have been worst effected. Although after declaration of sanctuary and construction of pucca wall all around the boundary they have started regenerating again but still these vital species need effective protection and propagation measures. The floral species that have become rare are listed below:

1. *Anogeissus latifolia* - Species has gone rare and only few trees are observed.

2. *Bridellia retusa* - very rare in sanctuary area.

3. *Madhuca indica* - only few trees including one groove is found in the sanctuary.

4. *Sterculia urens* - Scattered trees are observed. Lack of regeneration is the cause of its loss.

5. *Commiphora wightii*- Only few plants can be seen in the sanctuary area.

6. *Abrus precatorius*- Very few plants are observed. The species is confined only in nallahas.

FAUNA:

Vertebrates:

The major carnivore at the top of the food chain is Panther (*Panthera pardus*). Other vertebrates inhabiting the area are Striped Hyaena, Jungle Cat, Jackal, Wolf, Indian fox, Common Langur, Blue Bull, Indian Hare, Wild Boar, Squirrels, Rats, Hedgehog, Indian Pangolin, Bats, Porcupine etc.

Status, Distribution and Habitats of major animals:

Panther :- The Panther is the top carnivore of the sanctuary. They are inhibiting the forests of Bansdara hills. The woody hilly tracts form the ideal habitat for the Panthers.

The Striped Hyaena:- Hyaena is nocturnal in nature. They are known as the scavengers as they eats the died animals and left over portions of kills of other animals. Occasionally, goats and sheeps are lifted by them.

Jackal :-This species prefers outskirts of the sanctuary. It hunts small animals for food and scavenges on dead animals too. It is commonly found in the sanctuary. It is very fond of Ber fruits.

Hanuman Langur:- It is a folivorus semi-arboreal primate. It likes a variety of food items like foliage, fruits, buds, seed, bark etc. It devours leaves of Mahuwa, Godal, Calotropis, Salar etc. Many troops of langurs roost near Jhar, "Badi Pal" and on roof of the palace.

Indian small Civet and Toddy Cat :-These two species of civets inhabit in the hollows and crevices of the rocks. They are omnivorous natural animals, found in good number in the sanctuary.

Common Mangoose :- A species commonly found in the sanctuary. It is diurnal, prefer relatively open areas to live. It depends on rodents, birds, and reptiles for its survival.

Ruddy Mangoose:- It prefers relatively denser part of the sanctuary. It is a diurnal carnivorous animal, depends on small birds, reptiles, mammals for food. This species is less common within the geographical limits of the sanctuary.

Birds :-

A large number of terrestrial birds are found in the Sajjangarh Wild Life sanctuary viz. Common Quail, Grey Partridge, Painted partridge, Crested lark, Ashycrowed Finch Lark etc. A variety of waterfowl can be seen in the waterbody of Badi Lake. Arboreal birds like yellow legged Green Pigeon, White–browed Fintail, Fly catcher, white–throated fantail flycatchers, grey hornbill, Parakeets, Copper smith etc. are commonly seen in 'Jhar' grove of the sanctuary. Rock loving birds like Brown Rock Chat, Crested Bunting, Longbilled Vulture, Martin etc. are easily visible in the sanctuary. An old vultury of Longbilled vulture is present on eastern vertical rocky face of the sanctuary. Crested Bunting breeds here in the rock cervices during rainy season.

2.9 ECOSYSTEM SERVICES IN THE PA

Sajjangarh Wildlife Sanctuary plays a vital role in providing a range of ecosystem services that benefit both the local community and the region. These services include biodiversity conservation, water resource regulation, carbon sequestration, soil conservation, climate regulation, recreational and tourism opportunities, and cultural and spiritual significance. The sanctuary's diverse flora and fauna, including endangered species like the Indian leopard, sloth bear, and four-horned antelope, contribute significantly to genetic diversity and ecological balance. Its role as a catchment area for several rivers helps regulate water flow, prevents soil erosion, and recharges groundwater, ensuring a sustainable water source for local communities and agriculture. The sanctuary's forests sequester carbon dioxide, helping to mitigate climate change and improve air quality. Additionally, the forests prevent soil erosion, preserving fertile topsoil and preventing sedimentation in water bodies, which is crucial for maintaining agricultural productivity and preventing flooding. The sanctuary's forests also influence local and regional climate patterns, providing shade, reducing wind speed, and regulating temperature, creating a more conducive environment for both humans and wildlife. Furthermore, the sanctuary's natural beauty, historical sites, and diverse wildlife attract tourists, contributing to local economies and promoting recreational activities such as trekking, wildlife viewing, and camping. The Tourism linked to the sanctuary and Sajjangarh Palace contributes significantly to the local economy. Employment opportunities arise from eco-tourism, guiding, and handicrafts.

2.10 SOCIO-ECONOMIC AND SOCIO-CULTURAL PROFILE

In Sajjangarh wild life sanctuary has as an area of 5 kms. from western, southern and northern boundaries. There are 8 villages in the Z.I. The social & cultural structure of the society as well as their tradition and custom are almost identical. The only difference is the reduction of their dependency on the sanctuary.

2.10.1 Demographic profile

The population in the direct vicinity of the Sajjangarh Wildlife Sanctuary is relatively small. The sanctuary itself spans an area of about 5.19 square kilometers, but its surrounding areas, including villages near Udaipur, are home to a larger population. The population density around Udaipur city is higher, but in the rural areas, the population density tends to be lower.

Tehsil	Name of Villages
Girwa	Badi, Shisharma, Kodiyat, Barda, Morvania, Gorella, Hawala,Rampura,

Bhil, Garasia, Bhil Meena and Dangi are the main tribes living around the sanctuary in Z.I. Phytolatry and Zoolatory is common among them. Even celestial bodies are also worshipped. Their religious places are "Deora" generally situated either at outskirts of village or near some hill clad in the forests. All these villages are tribal dominated. Bhil, Bhil Meena, Garasia and Dangi's are main tribes. Most of villages are purely inhabited by one or two tribes, but few has more than two tribes. Each village has several helmets called "Phalas". These are inhabited by a single or multiple clans.

2.10.2 Traditional use and indigenous knowledge

Indigenous communities in the Sajjangarh region possess a wealth of traditional knowledge about the local ecosystem, its resources, and sustainable management practices. This knowledge encompasses plant and animal identification, sustainable resource management, ecological understanding, and cultural and spiritual connections. Integrating traditional knowledge into modern conservation efforts can contribute to more effective and culturally sensitive management strategies. For example, traditional practices like rotational grazing and selective tree felling can ensure the long-term viability of resources, while understanding ecological dynamics can help in developing sustainable land use plans.

- **Inventory of available data**

A comprehensive inventory of existing data is essential for informed decision-making and effective management of the Sajjangarh Wildlife Sanctuary. This inventory should include data from various sources, such as government agencies, non-government organizations (NGOs), academic institutions, local communities, and participatory data collection. Government agencies can provide data on wildlife censuses, forest cover changes, and management activities. NGOs may have conducted research on biodiversity, community livelihoods, and conservation initiatives. Academic institutions can contribute research papers, dissertations, and theses related to the sanctuary's ecology, biodiversity, and socio-economic aspects. Local communities can share traditional knowledge and observations regarding wildlife, plant species, and ecological changes. Participatory data collection

methods like interviews, focus groups, and participatory mapping can provide valuable insights into local perceptions, needs, and practices. This inventory can be organized into a database or knowledge management system for easy access and analysis.

- **Existing Documentation and Dissemination efforts**

The Kumbhalgarh Wildlife Sanctuary likely has existing documentation and dissemination efforts, including management plans, annual reports, research publications, public awareness materials, and dissemination channels. However, the effectiveness of these efforts may vary, and there may be a need for improved documentation and dissemination strategies to reach a wider audience and ensure better information sharing.

- **Existing local narratives and toolkits (Participatory Rural Appraisal, Multi-stakeholder dialogues, and knowledge exchange plat forms)**

Local narratives and traditional knowledge provide valuable insights into the history, culture, and ecological understanding of the Kumbhalgarh region. These narratives can be documented through oral histories, folklore, and traditional practices. Toolkits for participatory rural appraisals (PRAs) and multi-stakeholder dialogues can be utilized to facilitate effective engagement with local communities, identify local priorities, build consensus, and exchange knowledge. By incorporating local narratives and utilizing participatory tools, the Kumbhalgarh Wildlife Sanctuary can strengthen its connection with local communities and develop more inclusive and sustainable management strategies.

2.10.3 Land use –past and present

Agriculture, Animal husbandry, labour-oriented works is the main occupation of people living in proposed Z.I. of the sanctuary. Presence of Udaipur City nearby and demand of milk provokes them to have good number of cattle. Their economy is totally based upon natural resources of land and forest, supplemented with labour work on mines, building works etc.

The average land holding of the people in Z.I. is very small (1 to 1.5 Hectares), with a large number of marginal farmers having large family size. Generally women and children looks after the cattle, whereas man prefers to work as labour. Landless communities are dependent upon

labour for livelihood. Some communities like Rajput & Mahajans, although small in number but are educated hence prefers service with government or non-government organizations in Udaipur City. They are generally well off and are also the main business class in the area.

Agriculture is a seasonal work and does not provide employment throughout the year. They do have employment for nearly six months in a year on their farmlands. During the remaining six months of unemployment they prefer cattle rearing and labour oriented works. Intricacy of tribal with forests is remarkable. They fully depend on forests for fencing material, fodder, and small timber for housing and agricultural implements. Irrigation facilities are poorly developed. Villagers are having their own water pumps to irrigate their fields.

Generally, the people living in Z.I. influences the surrounding forest areas by having resource dependency with regard to rearing their cattle, collection of fodder and small timbers. Among the cattle population sizeable number of goats and sheeps are present in the herd owned by the people. The Forest area surrounding these villages is worst effected in rainy season when most of the cattle are left in the area for grazing. Some plantations are done by forest department in these areas, which are main source of grass collection for the people of these villages. Villagers collect grasses for their yearlong use from these areas.

2.10.4 Resource dependency of communities such as minor forest produces collection

The land holding in the villages falling within limits of proposed Z.I. is small and the quality of cattle is also poor, which results into poor economy of the people in general. Only positive factor is presence of Udaipur City, which has ample potential to provide them employment. Besides this the economy of these villagers is dependent on the natural resources of the land and the forests. There is no large or small industry set up in the area of Z.I., As the land use pattern indicates, the net area available to agriculture is small owing to the terrain, water availability and soil conditions in the Z.I. This result in poor harvesting and people are forced to take other occupation like Animal Husbandry and working on construction works and Mines as laborer to support their economy.

The poor economy of the area tends to make people more dependent on natural resources, for meeting their livelihood demands. This dependency on surrounding forest areas of the villagers inhibiting these villages leads to degradation of these areas, and recovery is very difficult due to continuous pressure.

In zone of influence the small land holdings also increase the tendency of the people to encroach upon suitable lands of the adjoining forest areas, which further deplete the available forest area.

4.1.5 *Forest/P.A. Management Practices & their implication for the people:*

Forests in northern, western and southern side of the sanctuary area by absorbing the grazing pressure to a great extent, helps in protection of wild animals in the sanctuary area. The major implications of the sanctuary management practices are listed below:

Control over grazing in sanctuary area.
Control over collection of fuel wood, small timber, building material etc.
Control over poaching and hunting in the area.
Generation of employment through forestry development works in the area.

2.10.5 Peoples Biodiversity Register

People`s biodiversity register is prepared.

2.10.6 Local biological/natural resources

The Kumbhalgarh Wildlife Sanctuary and its surrounding areas are rich in local biological and natural resources, which play a crucial role in the livelihoods of the local communities. The dense forests provide a variety of timber and non-timber forest products, including small wood, fodder, fuelwood, and medicinal plants. These resources are essential for the day-to-day needs of the local population, particularly the tribal communities who have historically depended on the forest for housing materials, agricultural implements, and traditional medicine.

Water resources, though limited, are another critical natural asset, with streams and small reservoirs supporting both human and animal populations. However, the increasing human and livestock pressure on these natural resources has led to significant environmental challenges, including forest degradation and soil erosion.

2.11 PERIPHERAL LAND USES

1. Stakeholders in the landscape and forest resource dependency

The population around the sanctuary area is mainly agriculturist, pastoralist and labour class, depending upon the natural resources of the sanctuary for grasses and to some extent for small wood. Based on these facts, the zone of influence of wild life sanctuary is tentatively identified up to 5 km from boundaries of eastern, western, northern and southern side of sanctuary.

2. Major Production Sectors, intensive land uses within the landscape

The area around the Sajjangarh Wildlife Sanctuary, located near Udaipur in Rajasthan, reflects a blend of agricultural, tourism, and conservation activities. While the sanctuary itself is largely preserved for wildlife and nature conservation, the surrounding landscape involves intensive land uses driven by agricultural production, tourism, and urban development. Below are the major production sectors and intensive land uses within the landscape.

3. Eco-sensitive zone

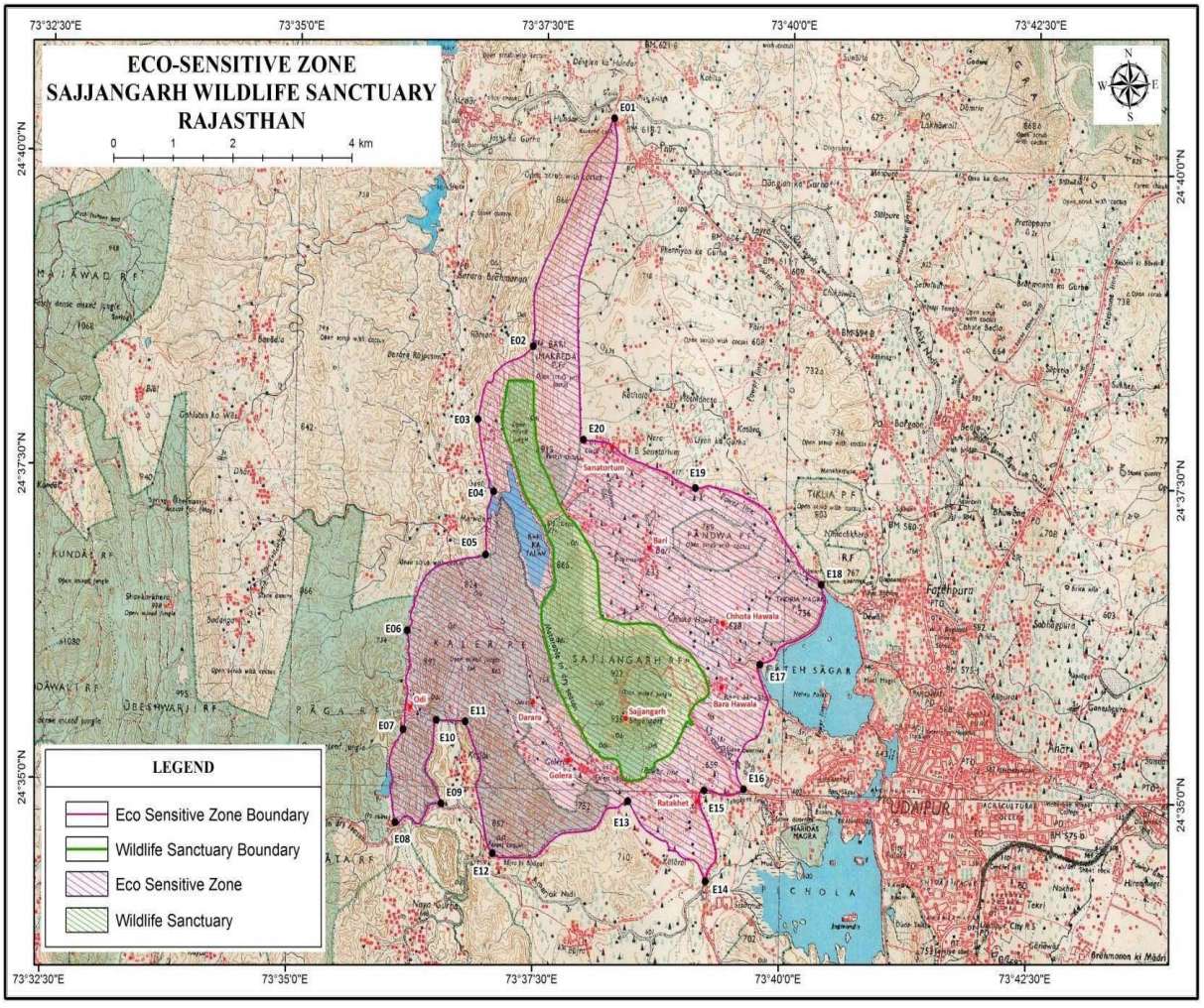
Eco-Sensitive Zones (ESZs), sometimes also known as Ecologically Fragile Areas (EFAs), are areas notified by the Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India around protected areas, National Parks, and Wildlife Sanctuaries. MoEFCC draws powers from the Environment (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.

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.

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.

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:



5. Major Infrastructure and mitigations therein

Sajjangarh Wildlife Sanctuary, being a protected area, has limited infrastructure development to minimize its impact on the fragile ecosystem. However, some existing infrastructure within and around the sanctuary includes:

Roads: The sanctuary is connected by roads to nearby towns and villages, facilitating access for visitors and management staff. However, these roads can pose risks to wildlife through collisions and habitat fragmentation. Mitigation measures include:

I. Constructing wildlife underpasses or overpasses to allow safe crossings.
II. Reducing vehicle speeds in sensitive areas.
III. Promoting eco-friendly modes of transportation for visitors.

Watchtowers: Several watchtowers are located within the sanctuary, providing vantage points for wildlife observation and monitoring. These towers can be used for habitat surveillance, fire detection, and anti-poaching activities.

Rest Houses: There are a few rest houses and tourist facilities within or near the sanctuary, catering to visitors and researchers. These facilities should be designed and managed to minimize their impact on the environment.

Chapter 3

History of Past Management and Present Practices

3.1 MANAGEMENT HISTORY

3.1.1 Conservation History

The Sajjangarh Wild Life Sanctuary is under administrative control of wild life division, Udaipur. It is situated in southern Aravallis. Prior to independence the forests, which are presently within the limits of sanctuary, were managed by erstwhile rulers of "Mewar" state. During those times the area was rich in forest wealth and wild life. Presence of tigers at the apex of biological pyramid itself is evidence of rich floral and faunal wealth of the area. After 1947 with the integration of states and abolition of state rule the area degraded, as there were limited resources for its management. Moreover, release of restrictions has diverted the energies of inhabitants for destruction of forest wealth. As the population increased the people started finding new ways and means to earn money and easiest of all was by destruction of natural resources. Quantum of domestic cattle went up, most of them unproductive, and grazed in adjoining forest areas. Further the proportion of sheeps and goats in cattle herd increased causing further destruction to the forest biomass.

Forest area of Sajjangarh wild life sanctuary had been remained as "Shikargah" (hunting grounds) for state rulers of Mewar prior to independence. The area was rich in wild life during those times. Tigers were reported in this area till fifties. After enactment of wild life (Protection) Act 1972, hunting has completely stopped. No case of hunting has been reported in the sanctuary area after its establishment.

3.1.2 Conservation Strategies employed

There is only one forest block namely "Sajjangarh" which comprises the sanctuary having an area of 519.61 Hectares. It was declared as "Wild Life sanctuary Sajjangarh" by Government

of Rajasthan Notification No. F.11 (64)/Raj.8/86 dated 17.02.87 under the provision of section 18 of wild life protection act 1972 (Central Act No. 53)

Sajjangarh was declared as wild life sanctuary in the year 1987 when the area was almost devoid of any forest cover. To start with a 6' pucca wall was constructed over an area of 60 Hectares under famine relief works and Deer Safari was created. The area responded extremely well with improvement in forest cover. Herbivores like Chittal, Sambar, Blue Bull, Wild Bore were revived besides variety of reptiles, birds and invertebrates. Other animals including Panther, Hyaena, Jackal reappeared in the area. From 1994-97 under "Tourism Development" the pucca stone wall was extended over 10.4 kms length. Remaining wall was taken up under "Tribal Area Development" programme in the year 2001-02 & 2002-03. 625 Running meter stone wall constructed in the year 2001-02 & about 800 running meters in the year 2002-03, thus almost completing the stone wall construction around the periphery of compartment no. 1 & 2 out of 3 compartments of sanctuary area. In the sanctuary area four anicuts were constructed under "Tourism", "Aravalli Afforestation Project" and "Ayad Watershed" programmes & "Central Sponsored Schemes" to facilitate water availability to wild animals. To restock the area Afforestation on 100 Hectares land was done under different schemes.

The sanctuary has started receiving financial assistance under C.S.S from the year 1992-93 and infrastructure development works got momentum.

3.1.3 Forestry Management Practices: Historic & Present

Sajjangarh was declared as wild life sanctuary in the year 1987 when the area was almost devoid of any forest cover. To start with a 6' pucca wall was constructed over an area of 60 Hectares under famine relief works and Deer Safari was created. The area responded extremely well with improvement in forest cover. Herbivores like Chittal, Sambar, Blue Bull, Wild Bore were revived besides variety of reptiles, birds and invertebrates. Other animals including Panther, Hyaena, Jackal reappeared in the area. From 1994-97 under "Tourism Development" the pucca stone wall was extended over 10.4 kms length. Remaining wall was taken up under "Tribal Area Development" programme in the year 2001-02 & 2002-03. 625 Running meter stone wall constructed in the year 2001-02 & about 800 running meters in the year 2002-03, thus almost completing the stone wall construction around the periphery of compartment no. 1 & 2 out of 3 compartments of sanctuary area. In the sanctuary area four anicuts were constructed under "Tourism", "Aravalli Afforestation Project" and "Ayad Watershed" programmes & "Central Sponsored Schemes" to facilitate water availability to wild animals. To restock the area Afforestation on 100 Hectares land was done under different schemes.

The sanctuary has started receiving financial assistance under C.S.S from the year 1992-93 and infrastructure development works got momentum. The details of works carried out under various schemes during last ten years have been enclosed at Annexure- 38.

3.2 HABITAT MANAGEMENT AND PROTECTION

The Sajjangarh Wildlife Sanctuary, located in Udaipur, Rajasthan, plays a critical role in biodiversity conservation and ecological balance in the region. As a protected area, the sanctuary focuses on maintaining and restoring habitats for flora and fauna while managing anthropogenic pressures. Below is a detailed account of the habitat management and protection strategies employed at Sajjangarh Wildlife Sanctuary:

Zoning and Demarcation

Habitat Restoration

Wildlife Protection Measures

Prevention of Anthropogenic Threats

Fire Management

Community Involvement and Eco-Development

Infrastructure Development for Protection

Research and Monitoring Programs

Legal Protection and Enforcement

TIMBER OPERATIONS INCLUDING BAMBOO & FIREWOOD HARVEST:

Neither Timber nor Bamboo has been harvested from the area by any agency of the forest department. During past prior to declaration of area as sanctuary, the right holders were allowed to take dead and dried firewood and grass free of cost. In light of rights and concessions allowed, the villagers harvested the green trees and shrubs also. After declaration of area as sanctuary all kind of activities were banned resulting into replenishment of vegetation & indigenous fauna of the area. Recently by verdict issued by the Supreme Court "No forest produce is allowed to be removed from the sanctuary areas".

NON-WOOD FOREST PRODUCE COLLECTION:

No non-wood forest produces were ever auctioned from the sanctuary area. However, the "Adivasis" living around the area use to collect some plants, shrubs and herbs of medicinal value for their own use.

Legal Status:

There is only one forest block namely "Sajjangarh" which comprises the sanctuary having an area of 519.61 Hectares. It was declared as "Wild Life sanctuary Sajjangarh" by Government of Rajasthan Notification No. F.11 (64)/Raj.8/86 dated 17.02.87 under the provision of section 18 of wild life protection act 1972 (Central Act No. 53).

The rights and privileges in the reserved forest area have already been decided. Notification of "Sajjangarh" forest block has been issued by the Government of Rajasthan vide letter No. F.15 (217) Revenue (Ka) 58 dated 19-1-59. Copy of notification as well as the description of boundaries of Sajjangarh block is enclosed at Annexure-7. There is no village present inside the block boundary, however presence of 8 villages around the sanctuary has exerted tremendous biotic pressure on the adjoining forest areas of the sanctuary.

Hunting

Forest area of Sajjangarh wild life sanctuary had been remained as "Shikargah" (hunting grounds) for state rulers of Mewar prior to independence. The area was rich in wild life during those times. Tigers were reported in this area till fifties. After enactment of wild life (Protection) Act 1972, hunting has completely stopped. No case of hunting has been reported in the sanctuary area after its establishment.

Illegal Activities:

Poaching:

After creation of pucca stone wall around the sanctuary, there remained no problem as far as poaching is concerned.

Illegal Cutting of Trees:

No case of illegal cutting of trees has been reported from sanctuary area after its creation.

Illegal Removal of NWP:

No mass collection of nonwood forest produce is been reported from the sanctuary area, although villager situated on the periphery of the sanctuary seldom collects the parts of trees, shrubs and herbs having medicinal values.

Encroachments & other Illegal Activities:

Location of sanctuary in close proximity of Udaipur City makes it vulnerable from encroachment point of view. However, after creation of pucca wall around the sanctuary, the chances of encroachment on the sanctuary land has been ruled out. No case of encroachment on sanctuary land is registered.

Domestic Live Stock Grazing:

Out of 519.61 hectares area of sanctuary, around 400 hectares has been closed by pucca stone wall fence. In the fenced area there are very few cases reported of grazing by domestic cattle, that too towards "Badi" and "Hawala" village, which has no pastureland available in their revenue limits. The villagers enter their cattle in sanctuary especially during rainy season by damaging the stone fall fence. The inhabitants of other village on the periphery of sanctuary namely "Gorella" do not allow their cattle to enter in sanctuary area.

However, there is continuous pressure of villagers for allowing collection of grasses from the sanctuary in the months of September & October for their year round use. Sometimes during rainy season the villagers does lopping of *Anogeissus* twigs for fodder purpose. The number of cattle existing in the villages situated on the periphery of sanctuary is enclosed at Annexure-31.

Forest Fires:

As summer approaches, the fallen leaves, dry woods and dry grasses forms an ideal material for outbreak of fire incidences. Such incidences in the sanctuary are further aggravated due to presence of place of worship. Although forest fires in the sanctuary are "ground fires" causing little harm to vegetation, but they cause severe loss to the top productive humus layer and thus hampering the regeneration.

Insect Attacks & Pathogenic Problems:

During rains, breeding of butterflies and moths take very heavy toll from green foliage. Leaf skelatinizer attack broad leaf trees just after rains. Ganoderma and other fungi generally appear on dead and rotting wood material lying on the ground of the sanctuary.

3.3 LEASES:

No forestland has ever been given on lease for any purpose.

3.4 ECO-TOURISM AND INTERPRETATION:

Wild Life sanctuary Sajjangarh is situated within close proximity of tourist city Udaipur, which besides having 7 lakes around it, has many historical buildings too. Sanctuary has very high tourism potential because of presence of Monsoon Palace (commonly called Sajjangarh Palace) within its limits. Further the rich floral and faunal diversity of sanctuary area attracts number of visitors coming to Udaipur. The tourist places inside the sanctuary are:

SAJJANGARH PALACE:

Maharana Sajjan Singhji of Mewar started construction of this palace at the altitude of 936 mtrs. M.S.L. and Maharana Fateh Singhji has completed it in 1899 AD This palace also popularly known as "Monsoon Palace" was a summer and monsoon resort and a place for outdoor recreation apart from hunting for Maharanas of Mewar. The smooth shining walls of lime plaster, marble pillars engraved with leaves and flowers, Jharokhas, doms and fountains are living evidence of art and architecture of this region. The palace is illustrative example of rainwater harvesting. Every drop of rainwater falling at any part of the palace is tapped and stored in the huge storage tanks, which even today is a challenge to architects. The illuminated palace at night looks as if "castle of fairies" is floating in the sky.

BARI LAKE:

Badi Lake popularly known as "Tiger Lake" is situated on the western slope of Sajjangarh. The lake was constructed by erstwhile rulers of Mewar mainly for irrigation. The clean water of this deep lake provides an ideal habitat for aquatic fauna and flora. It is suitable for nature camping, boating and other water sports. It is also a source of drinking water for the people of Udaipur City.

SAFARI PARK:

Herbivores like Chital, Sambar, Blue Bull, Wild Boar etc. have been reintroduced in Safari park of the sanctuary to view the wild animals from close quarters. A network of forest roads has been provided to reach different parts of the Safari.

SUNSET/SUNRISE VIEW POINTS:

Sajjangarh being the highest point around Udaipur City attracts visitors for viewing sunrise and sunset. The sunrise provides unique view of lakes of Udaipur and historical places, which is a life time remembrance. The fresh, cool and fragrant breeze of this hour makes one feel energetic. At sunset the surrounding hills farewell the last rays of the sun giving panoramic view. After sunset the magnificent view of illuminated Udaipur is thrilling.

NATURE VIEW POINTS:

Along nature trails, in the sanctuary area view points at "Gorella" and "Badi" are developed in the year 2002-03 to admire beautiful Aravalli hill ranges from close quarters.

MAHARANA PRATAP NATURE TRAIL:

This nature trail was developed in the year 2002-03. From Gorella viewpoint one can track to Badi Lake through this nature trail and can study the beautiful geographical features of Aravalli hills along with rich flora and fauna present in this area. Moreover, during winters variety of aquatic birds can be observed at Badi Lake.

OTHER TREKKING ROUTES:

To promote Eco-tourism numbers of trekking routes are developed in the sanctuary area. They are:

- Sanctuary Gate– Safari Park– Sajjangarh (3 kms.)
- Gorella– Sajjangarh– Badi Lake (5 kms.)
- Sanctuary Gate– Safari Park– Gorella (4 kms.)
- Sanctuary Gate– Gorella– Jhar Mahadev (5 kms.)
- Sanctuary Gate– Gorella viewpoint– Badi Lake (6 kms.)

JHAR WATER HOLE & MAHUWA GROVE:

Situated on Western aspect of Bansdhara hills is a perennial source of water "Jhar Water Hole" surrounded by number of ancient Mahuwa trees. Temple of Lord Shiva is in close vicinity of this sacred grove. Tourists can experience the effect of microclimate created by the surrounding forests sitting at this place. During rainy season, the flowing spring through the area adds the beauty many more times.

ELEPHANT– HORSE SAFARI:

To promote Eco-tourism, Elephant and Horse Safari in the sanctuary has been started in the year 2002. Horses remain available at the main entry of sanctuary, from where they can be hired at an affordable price to make a ride through the sanctuary. Elephants have got to be booked in advance.

NATURE INTERPRETATION CENTRE, SAJJANGARH:

Sajjangarh palace, a derelict monument, which dominates the skyline 2460 feet high on top of Bansdhara hill, part of it is now been used as "Nature Interpretation Centre". Flora and Fauna, both present and past as well as the natural features has been depicted with pictures & translides along with description at this centre, so as to acquaint the visitors and researchers with rich heritage of the sanctuary area.

3.5 RESEARCH MONITORING AND CAPACITY BUILDING

3.5.1 Research Monitoring

No research activity has been carried out on the sanctuary so far, but there is lot of scope for research on different topics. Detailed strategy as well the possible topics has been discussed in relevant chapter of this management plan.

For monitoring the activities only ocular observation is the method adopted. Only written document is the biannual census which give an overview about the health of habitat. No database so far has been created and not much information is available about various parameters of habitat, habitat changes, movement of wild animals, ethiological aspects of wild animals of sanctuary area.

3.5.2 Capacity Building

Staff involved in management of sanctuary has not received specialised training in "Wild Life Management". The need for training strategies and action plan has been discussed in relevant chapter of this management plan.

3.6 Administration and Organisation

Presently the wild life sanctuary Sajjangarh is under administrative control of Deputy Chief Wild Life Warden Udaipur. He is supported by Asst. Conservator of Forests at Head Quarter to look after the development works of sanctuary. The line functionaries at sanctuary level include.

- Forest Range Officer (1)
- Foresters/Asst. Foresters (7)
- Forest Guards (3)
- Cattle Guards (1)

Looking to the tourist traffic in sanctuary, wireless control room at Sajjangarh fort and protocol duties the strength of staff is far below the bare minimum requirement for management & protection of sanctuary. So to overcome the problems of management, it is proposed to increase the strength of staff as mentioned below:

- Forester – 2 No.
- Forest Guards – 3 Nos.
- Wireless Operator – 0 Nos.
- Cattle Guards – 1 Nos.

Chapter 4

Management Issues for Protected Area

4.1 Appraisal of empirical findings

This section provides an appraisal of empirical findings based on habitat selection, population densities, distribution patterns, and human-wildlife conflict data.

Habitat selection by major herbivore/omnivore species including livestock along anthropogenic stress gradient during pinch and other seasons-

- **Panther :-**

The Panther is the top carnivore of the sanctuary. They are inhibiting the forests of Bansdara hills. The woody hilly tracts form the ideal habitat for the Panthers.

- **The Striped Hyaena :-**

Hyaena is nocturnal in nature. They are known as the scavengers as they eats the died animals and left over portions of kills of other animals. Occasionally, goats and sheeps are lifted by them.

- **Jackal :-**

This species prefers outskirts of the sanctuary. It hunts small animals for food and scavenges on dead animals too. It is commonly found in the sanctuary. It is very fond of Ber fruits.

- **Hanuman Langur:-**

It is a folivorus semi-arboreal primate. It likes a variety of food items like foliage, fruits, buds, seed, bark etc. It devours leaves of Mahuwa, Godal, Calotropis, Salar etc. Many troops of langurs roost near Jhar, “Badi Pal” and on roof of the palace.

- **Indian small Civet and Toddy Cat :-**

These two species of civets inhabit in the hollows and crevices of the rocks. They are omnivorous natural animals, found in good number in the sanctuary.

- **Common Mangoose :-**

A species commonly found in the sanctuary. It is diurnal, prefer relatively open areas to live. It depends on rodents, birds, and reptiles for its survival.

- **Ruddy Mangoose:-**

It prefers relatively denser part of the sanctuary. It is a diurnal carnivorous animal, depends on small birds, reptiles, mammals for food. This species is less common within the geographical limits of the sanctuary.

STATUS OF PROTECTED AREA LINKAGES WITH NEARBY AREAS

The ecological connectivity of **Sajjangarh Wildlife Sanctuary** with adjacent landscapes is critical for wildlife movement, genetic exchange, and sustaining the biodiversity of the region. However, urbanization, agricultural expansion, and anthropogenic pressures have affected the integrity of these linkages.

Habitat Fragmentation

Urban Expansion:

- The sanctuary is located near Udaipur city, which has seen rapid urbanization. Residential colonies, commercial establishments, and tourism infrastructure have encroached upon natural corridors.
- Continuous habitat patches have been divided into isolated fragments, reducing their effectiveness as wildlife corridors.

Road and Infrastructure Development:

- Roads and highways cutting through the Aravalli hill ranges have fragmented habitats and restricted wildlife movement.
- Lack of wildlife crossings (underpasses or overpasses) leads to frequent roadkill incidents and increased stress on animal populations.

Anthropogenic Pressure

Tourism Activities:

- High tourist footfall to the **Sajjangarh Palace (Monsoon Palace)** and the sanctuary has increased human interference, especially in ecologically sensitive zones.
- Noise, pollution, and increased vehicular movement disturb wildlife and degrade habitat quality in surrounding areas.

4.2 Identification of Management Issues in the PA

i) Ensuring & improvement of Food availability.
ii) Ensuring water availability: Soil & Water conservation.
iii) Overall improvement in quality of habitat.
iv) Conserving & restoring the floral & faunal biodiversity of the area.
v) Grazing Control.
vi) Poaching control.
vii) Fuel wood & Fodder problem.
viii) Fire control.
ix) Encroachment control.
x) Check points for illicit movement of faunal & Wild Life products.
xi) Boundary demarcation and mutation.
xii) Man-animal conflict.
xiii) Infrastructure & Communication
xiv) Eco-development.
xv) Combating drought condition.
xvi) Development of prey base.
xvii) Promotion of Eco-tourism.
xviii) Nature Interpretation.
xix) Awareness & education programmes.
xx) Training.
xxi) Management Information System.

Chapter 5

Vision and Objectives for the PA and surrounding landscape

5.1 OVERALL VISION AND MANAGEMENT STRATEGY:

The Sajjangarh Wild Life Sanctuary is representative of many rare and medicinal plants of Aravalli ecosystem as well that of faunal species like panther. The situation of sanctuary in close proximity to Tourist City & presence of historical monument "the Monsoon palace" attracts several tourists visiting Lake City Udaipur. This establishes the sanctuary to be an ideal place for promotion of Eco-tourism.

The area in the past has been depleted for short-term gains and has been subjected to excessive human interference and biotic pressure. This resulted into loss of bio-diversity, degradation of the resources as regards to soil cover, soil health, density and number of species, arrest of bio-geochemical cycle, productivity of resource, disbalance of hydrological cycle and successional degeneration. Reduced carrying capacity of the resource resulting hardships for the ecological components including the floral, faunal and tribal population. The enormous biotic pressure and human intervention have resulted in the degradation of the productivity potential of the resource. As a result the resources needs to be managed for enhancing its carrying capacity and restoring functional dynamic ecosystem and making the habitat more and more suitable for the flagship species of the area, the panther and its faunal associates.

5.1.1 Vision

The vision for Sajjangarh Wildlife Sanctuary is to ensure the long-term preservation of its unique ecological, cultural, and scenic values while promoting sustainable management practices and fostering harmony between biodiversity conservation and community well-being.

Vision Statement

"To conserve and enhance the ecological integrity, biodiversity, and cultural heritage of Sajjangarh Wildlife Sanctuary, ensuring its sustainability as a thriving ecosystem and a hub for eco-tourism, research, and community participation."

5.1.2 Management Goal

The management goal for Sajjangarh Wildlife Sanctuary is to ensure the long-term conservation of its unique biodiversity, habitats, and ecological processes while promoting sustainable use of its resources and fostering community involvement. This goal aligns with national and state conservation policies and integrates ecological, cultural, and socio-economic priorities.

5.1.3 Management strategy

The strategy for management of the sanctuary would focus on:

xxii) Ensuring & improvement of Food availability.
xxiii) Ensuring water availability: Soil & Water conservation.
xxiv) Overall improvement in quality of habitat.
xxv) Conserving & restoring the floral & faunal biodiversity of the area.
xxvi) Grazing Control.
xxvii) Poaching control.
xxviii) Fuel wood & Fodder problem.
xxix) Fire control.
xxx) Encroachment control.
xxxi) Check points for illicit movement of faunal & Wild Life products.
xxxii) Boundary demarcation and mutation.
xxxiii) Man-animal conflict.
xxxiv) Infrastructure & Communication
xxxv) Eco-development.
xxxvi) Combating drought condition.
xxxvii) Development of prey base.
xxxviii) Promotion of Eco-tourism.
xxxix) Nature Interpretation.

xl) Awareness & education programmes.

xli) Training.

xlii) Management Information System.

5.1.4 Objectives

- To conserve and improve the biodiversity and ecosystems in the Sajjangarh Wildlife Sanctuary.
- To enhance wild life population in the Sajjangarh Wild Life Sanctuary.
- To improve the habitat and its productivity through Eco restoration especially for the indigenous herbivores and the birds, laying adequate stress on development of grasslands & fodder yielding species.
- To reduce depletive impact of people on the protected area and reduce Wild Life-people conflicts through Eco-development programmes.
- To improve the capacity of the staff through appropriate capacity building programme such as training and strengthening of infrastructure.
- To develop and promote Eco-tourism on sustainable basis.
- To enhance the level of awareness amongst the stakeholders and younger generation specially students.

5.1.5 Perceived Issues in achieving objectives.

1. Biotic pressure from villages situated on the periphery of the sanctuary.

2. Inadequate intelligence information network.

3. Poor integration with other departments.

4. Inadequate soil depth to promote regeneration and thus to ameliorate habitat.

5. Insufficient staff for protection and historical buildings within the limits of sanctuary.

6. Lack of awareness about eco-tourism concept & insufficient interpretation facilities.

7. Lack of essential facilities like availability of drinking water for tourists in the sanctuary area.

8. Higher age group and educational background of the staff with least training and technical exposures.

9. Changes in the existing land use pattern in the near vicinity of the sanctuary.

10. Inadequate moisture conservation in the sanctuary area.

11. Lack of scientific information and database.

12. Lack of amenities for staff personals involved in management of Kumbhalgarh Wild Life Sanctuary.

13. Lack of desired number of efficient field staff along with the lack of vehicles for patrolling in sanctuary area.

14. Deployed native field staff belonging to the sanctuary area or native to the villages on the periphery of the sanctuary.

15. Unavailability of land to settle the new house hold formed due to population expansion resulting in encroachment on sanctuary land.

5.2 STRENGTHS WEAKNESSES OPPORTUNITIES THREATS (SWOT) ANALYSIS

Strengths

1. **Biodiversity Hotspot**: The sanctuary hosts diverse flora and fauna, including leopards, jackals, sambars, and migratory birds, making it an ecologically valuable area.
2. **Proximity to Udaipur City**: The sanctuary's location near the historic Sajjangarh Palace and Udaipur enhances accessibility and attracts tourists.
3. **Scenic Landscape**: The Aravalli hills and lush greenery create an aesthetically appealing environment that supports eco-tourism and recreational activities.
4. **Protected Area Status**: Legal protection under the Wildlife Protection Act, 1972, ensures the sanctuary's ecological integrity.

Weaknesses

1. **Small Area**: The sanctuary spans only 5.19 sq. km, limiting its carrying capacity for wildlife and eco-tourism activities.
2. **Water Scarcity**: Seasonal water shortages affect the habitat, especially during the dry months.
3. **Resource Limitations**: Lack of sufficient funds, staff, and infrastructure hampers effective management.
4. **Urban Encroachments**: Expansion of Udaipur city increases anthropogenic pressure on the sanctuary, leading to habitat fragmentation.

Opportunities

1. **Eco-Tourism Development**: With its location and biodiversity, the sanctuary has significant potential for sustainable eco-tourism initiatives, including trekking, bird watching, and nature interpretation centers.
2. **Community Engagement**: Promoting community involvement in conservation efforts can strengthen local support and reduce resource dependency.
3. **Research and Education**: The sanctuary provides opportunities for scientific research and environmental education programs.
4. **Funding Opportunities**: Tapping into national and international conservation funding schemes, such as CAMPA, CSR, and eco-tourism revenues.

Threats

1. **Urbanization and Encroachment**: Proximity to Udaipur poses risks of urban sprawl, habitat degradation, and increased pollution.
2. **Human-Wildlife Conflict**: The sanctuary's small size and proximity to human settlements lead to frequent conflicts, especially involving leopards.
3. **Invasive Species**: Spread of invasive plant species threatens the native biodiversity.
4. **Climate Change**: Changing rainfall patterns and rising temperatures may impact the ecosystem and water availability.

5.3 LIST OF ZONE AND THEME PLANS

LIST OF ZONE

Since the area of Sajjangarh Wild Life Sanctuary is very small just 5.19 Square kilometers, the activities to achieve the objectives will confine in whole of the area. The area of sanctuary should be used for the purpose of:

i) Tourism & Eco-tourism activities.

ii) Eco development activities.

iii) Habitat improvement activities.

With an object of total management of the area as a single unit following guidelines should be enforced in the area:

i) Total protection of the area be accorded top priority.

ii) Fire conservancy should be strictly enforced. Fire lines should be maintained and new fire lines should be created.

iii) Existing system of division of area into blocks and compartments should be continued.

iv) Grazing should be controlled strictly.

v) Basic facilities like drinking water and urinals should be provided to promote tourism.

vi) Eco-treks should be maintained & developed.

vii) Boundaries are demarcated in almost 80% of area by construction of pucca wall, for remaining area demarcation should be ensured.

viii) Eco development activities should be taken up in whole area.Adequate number of waterholes should be developed.

ix) In Nallahas traversing through the sanctuary area, site specific soil & water conservation works including Drainage Line Treatment and construction of Checkdams should be taken up.

x) Entry of domestic animals in fenced area should be strictly observed and prohibited.

xi) Weeds like “Lantana” should be identified and eradicated.

List of Theme Plans

- Theme Plan for Grazing Control
- Theme Plan for Poaching Control
- Theme Plan for Fuel wood & Fodder Problem
- Theme Plan for Fire Control Problem Identification
- Theme Plan for Encroachment Control
- Theme Plan for Checkpoints/Barriers
- Theme Plan for Boundary Demarcation & Mutation
- Theme Plan for Man Animal Conflict
- Theme Plan for Infrastructure & Communication
- Theme Plan for Eco Development
- Theme Plan for Soil & Water Conservation
- Theme Plan for Water Management & combating Drought Conditions
- Theme Plan for Development of Prey base in poor Wild Life Areas
- Theme plan for Tourism in Kumbhalgarh WLS
- Theme Plan for Ecotourism
- Theme Plan for Nature Interpretation
- Theme Plan for Education & Awareness
- Theme Plan for Techniques of Population Estimation
- Theme Plan for Training
- Theme Plan for Management Information

Chapter 6

Proposed Management Interventions for PA

6.1 THEME PLAN FOR GRAZING CONTROL

By 2002-03 almost total core area of Sajjangarh Wild Life Sanctuary has been fenced with 1.8 mtr. high pucca stone wall followed by 1 mtr. high Angle-Iron barbed wire fencing. This has reduced the pressure of grazing on core area of the sanctuary to a considerable extent. However, about 0.12 Lac domestic animals including cow, buffalo, sheeps & goats belonging to the inhabitants of villages residing on the periphery of sanctuary has tendency to damage the stone wall at places leaving their cattle inside the sanctuary area in search of green fodder. The prevailing tendency is mostly in the areas, where there is least movement of wild animals, areas having poor soil quality, sparse vegetation and availability of green fodder. Besides this the grazing is frequent in the buffer area in the sanctuary which is about 125 hectares. The period from July to October is critical since most of the domestic animals of nearby villages are left into the sanctuary area. After construction of pucca stone wall around the periphery of core area, there is no area left for domestic cattle of these villages as pasture or village community land, thus shifting the pressure of grazing on the sanctuary. Moreover, restriction on collection of grasses from sanctuary area has further increased the problems of these villagers. Generally the domestic animals are left in sanctuary areas around fore noon and taken away by early evening. The grazing incidences are reduced to negligible after Deepawali.

Sajjangarh Wild Life Sanctuary has typical geographic spread. The core area & buffer area terms separates geographic units. The villagers persistently attempt to invade the core area. The grazing by domestic live stock has adversely affected the regeneration. The quality of grasses has deteriorated in buffer area, whereas there is regular pressure of villagers to allow collection of grasses from the core unit of the sanctuary.

Action Plan to Control Grazing:

The grazing problem is acute on eastern aspect of the sanctuary facing towards the Udaipur City. The two villages namely “Hawala” and “Badi” situated in foothills of this aspect have little or no pasture or revenue lands available within their village boundaries for development of pastures. Hence “Stall feeding” and “Agro forestry” with special emphasis on planting fodder yielding trees on agriculture bunds is to be promoted. On this aspect deployment of more number of protection staff is required. Besides these cattle impounding places (Kanji House) should be developed within limits of sanctuary.

Around 185 hectares Buffer area of sanctuary adjoining to village Badi and Hawala is in need of "pucca" stone wall fencing to completely curb the menace of grazing. The stone wall will be constructed in cement-sand mortar having stone masonary of 1.8 mtr. Height followed by 1 mtr. High 3 strands of Angle iron- Barbed wire fence. Total parameter of the construction will be around 6000 Running Meters. It is proposed to construct this wall during the plan period in phased manner. Financial implications of RS. 75.00 Lac required for the purpose is incorporated in Annexure- 51.

On western aspect beyond the boundaries of sanctuary community & forestlands (other than sanctuary) are available. Areas are to be selected from these available community and forest blocks, and should be developed to enhance the productivity of fodder. Only cutting of grasses should be allowed from these areas, so as to promote stall-feeding over the period of time. About 100 hectares area per year may be taken under the "Fodder Development Plan" from these forest blocks.

6.2 THEME PLAN FOR POACHING CONTROL

Although the boundaries of core area of Wild Life Sanctuary Sajjangarh are shielded with "pucca" stone wall Angle Iron-Barbed wire fencing, presently there is no threat of poaching in the sanctuary area. However, the strategic locations of the sanctuary, just about 5 kms. from City of Udaipur and development of residential colonies all around the periphery of sanctuary does not rules out the possibility of "Poaching" during near future. This generates the need for further strengthening of existing fencing. During recent past no case of poaching is reported from sanctuary area, however strategies to control poaching in future is need to be formulated.

6.2.1 *General Strategies for Controlling Poaching:*

The following strategies are proposed to tackle the menace of poaching:

Strengthening of Core Area Fencing: As mentioned in previous para the strategic location of sanctuary near City, development of residential colonies by colonizers generates the need for strengthening of core area fencing. It is proposed to create solar power fencing along 7000 Running meter long periphery of core area of the sanctuary. Besides this all along the periphery of the sanctuary creation of live hedge fencing is proposed by digging a ditch of 60Cm x 60Cm followed by sowing of seeds of Xetropha carcus and Kath Karanj. The financial requirement to

create solar power fencing and live hedge fencing will be RS. 40.00 Lac and RS. 12.00 Lac respectively. Financial implications for two kinds of fencing are incorporated in Annexure-51.

Improving Staffing Pattern: The effective protection of the wild life sanctuary depends on the strength of staff. Apart from number, the quality of staff is also desired. Quality in terms of health, training & devotion etc. There has been no fresh recruitment of the staff at the ground level functionaries i.e. that of forest guards & forester since last 15 years. These two cadres need cutting edge if effective protection is to be ensured at ground level. They are the persons who actively form the front line staff. Trained, educated and young people can deal with the crime better. They are required to keep them updated with recent advances in "Wild Life Management" besides sciences & principles of "bio-diversity Conservation", "Ecosystem", "Population dynamics" etc. It has become increasingly difficult to entrust them with task requiring certain level of training and education. Apart from this, additional pressure of communication with villagers, so as to enlist their participation in protecting the sanctuary has been put on the staff. The staff also lacks regular training required to keep them fit and take coordinated action against miscreants. The staffing pattern should be designed to meet the special needs of the sanctuary and regularly reviewed after five years.

The staff functionaries should be provided specific training in dealing with crime, besides providing complete knowledge about the laws prevailing on the land and to make strong cases in case of any crime detected. Induction of women staff at lower cadres to deal with women offenders will be of extra advantage in ensuring protection against women offenders.

Mobility: Now a days the criminals have become equipped with fast moving vehicles and modern weapons, advanced means of communication etc. The sanctuary staff is not in position to compete with them. It would be helpful that Range officer incharge of sanctuary should be provided with jeep, Foresters with motorcycle and Forest Guards with Mopeds. At least two cycles should be kept at range office and one at forester's Headquarter for patrolling or to check any unwanted incidence. Looking to the topography and terrain of the sanctuary it is essential that one tractor is to be kept at Range Head Quarter.

Control Over use of Firearms around the Sanctuary: It is essential that strict compliance of provision of sec. 34 of wild life protection act 1972 is observed. The registration of weapons of inhabitants living around the sanctuary area should be completed within the limited period.

Fire Arm: It is need of time that firearms should be provided to all officers involved in protection of sanctuary i.e. from Forest Range officer level down to Forest Guard. The government orders pertaining to use of firearms is inadequate. The government order prohibits the use of firearms at night whereas the poachers prefer night hours for crime.

Restriction of Unauthorised Movement in Sanctuary: Many a time villagers as well the City dwellers move in the sanctuary without having proper permission to enter. Such movements are done either for reaching the City by shortest route or by people involved in illegal trade of liquor (brought from adjoining villages). This kind of entry should be monitored and checked since this provides opportunity to commit crimes in sanctuary.

Wild Life Crime Prevention: The villagers living around the sanctuary area and in nearby villages mainly belongs to "Bhil" tribe. This tribe is having lower literacy rate and love for hunting among them. An organised hunting drive locally called as "Heda" is carried out by these tribes around "Holi" festival and they treat them lucky if they are able to hunt some of the small or big wild animal. Under such circumstances it becomes essential that preventive actions should be taken to curb the crimes. The following steps are proposed to prevent wild life crimes done by tribals:

- The staff involved in protection should be vigilant about the movement of the tribals living on periphery and nearby villages.
- Establishment of check post to ensure round the clock vigilance at all entry and exit points of the sanctuary.
- Induction of women staff among ground functionaries so as to check the women culprits involved in crime.
- Network of informers should be developed in suspected villages and public places like Bus stand & Railway station. These informers should be rewarded on providing correct information although secretly.
- The staff personals should be provided with adequate training to deal with poaching incidences and ways of effective patrolling.
- Every Naka under the sanctuary should be provided with at least two double barrel guns.
- Speedy mode of payment of compensation against reporting cattle kill by the carnivores should be ensured.

Field Level Improvement: The staff involved in protection of sanctuary needs improvements at field level, which are:

- Round the clock readiness of flying squad at division level, with separate staff for day and night patrolling along with two drivers.

- Maintenance of patrolling register at Forest Nakas in which the record of inspection of beats in jurisdiction of Naka is to be kept & every information related to the activity of wild life should be recorded in such register.

- Cases related to wild life crimes before compounding or filing targeted in the court are to be reviewed at ACF & DCF level.

- Tourism/VIP's & protocol duties should be separated from the protection duties.

- The court cases & offence cases filed against the staff should be treated as government cases, unless otherwise proved.

- Training & expertise to deal with wild life offence cases should be given to field staff.
- The field functionaries involved in protection are either old foresters and Forest Guards or uneducated Cattle Guards. They are required to be replaced by young and energetic staff for this specific job.

- At range level three to four Forest guards should be kept as reserve to deal with any information related to poaching.

- Procedure for forensic investigation related to wild life material should laid down, so as to enable strong pleading at court level in wild life offence cases.

- The teams involved in anti poaching activity should be rewarded properly.

- The service condition of wild life staff should be modified so that they can work with more motivation and efficiency. Award scheme and out of turn promotion can be the motivating factor.

- Forest Officers should be empowered with police powers under arms act within 5km. radius of sanctuary boundaries.

The following activities are proposed to control poaching at Sajjangarh Wild Life Sanctuary:

- Creation of “pucca” stone masonary wall around remaining area i.e. adjoining to village Badi and Hawala, of 0.45x 0.45 Mtrs cross section having 1.8 Mtr. height followed by 1 Mtr. high 3 strand Angle iron- Barbed wire fence, total parameter of which will be around 6000 Running Meters.

- Creation of Solar power fencing around the Core area of sanctuary, total parameter of which will be around 7000 Running Meters.

- Creation of live hedge fencing by digging a ditch of 60Cm x 60Cm followed by sowing of seeds of Xetropha carcus and Kath Karanj.

- There are four entry points for vehicles and visitor i.e. at Udaipur, Badi, Gorella and Jhar. Out of these entry points at Udaipur and Gorella are guarded well, having barriers in form of Iron gates and protection chowkies. However two check posts at Badi and Jhar, and one Forest Guard Chowky at Hawala is proposed to be constructed and adequate number of staff should be posted.

- Night patrolling should be made more effective by providing adequate staff.

- Strict Vigilance should be observed at water holes, since these are the points most prone to poaching.

- Registration of licenses within 10 Km. periphery of sanctuary boundaries should be completed.

- Information brochures providing know how about the wild life offence cases and consequences should be published to generate awareness among people.

- Women personals should be included in the staff to deal with women offenders.

6.3 THEME PLAN FOR FUEL WOOD & FODDER PROBLEM:

6.3.1 *Existing Situation*

The Sajjangarh Wild Life Sanctuary is surrounded by Udaipur City, Hawala, Badi and Gorella villages just adjacent to its boundaries and another Five villages within 5 kms. distance from its periphery. Apart from Udaipur, which is having population of more than 5.00 Lac, surrounding Eight villages are having total population of about 0.48 Lac and cattle population of 0.12 Lac. The prominent feature of these villages is that maximum of male members provide services in nearby Udaipur City. Whereas women besides agriculture looks after domestic cattle. The milk produced forms supply line of milk to Udaipur City.

Partly because of pucca stone wall fencing & partly because of fear of carnivores, cattle are generally not left in the sanctuary, however the tendency to leave cattle in sanctuary by damaging stone wall in search of green fodder specially during monsoon season not only causes recurring expenditure on repairs of stone wall but also adversely effects the regeneration thus causing depletion of habitat.

Consumption of fuel wood is very low in the villages around sanctuary. Further presence of forest area beyond the periphery of sanctuary, agriculture residues, cow dung cakes & LPG connections in high income families almost satisfy the demand supply ratio, resulting to least dependence for fuel wood on sanctuary area.

6.3.2 *STRATEGY TO CURB THE FODDER PROBLEM*

- On eastern side of sanctuary besides Udaipur City, the other two villages namely Hawala and Badi are lack of pasture or panchayat land within their geographical boundaries. However, number of agriculture fields present in these villages generates scope of planting fodder yielding species under "Agro forestry programme". Awareness among the inhabitants of these villages is to be generated regarding promotion of "Stall feeding" and for planting of fodder yielding tree species on the marginal lands and agriculture bunds etc.

- On Western aspect of the sanctuary starting from revenue boundary of village Gorella upto Badi, the available forest and community land which is not the part of sanctuary area should be put under "Pastoral Plantation". The seed of high protenaceous grasses like *Cenchrus setigerious* and *Cenchrus cilliaris* should be shown and plants having fodder values like *Zizyphus* etc. should be planted. It is assumed that *Anogeissus* will come up in the area and will further serve as fodder to the cattle during pinch period. It

is proposed to take up patches of 25-50 hectares every year in degraded areas. The Eco-Development committees should be encouraged to manage these pasturelands.

- Schemes such as bio gas, fuel efficient crematorium, solar lights, solar cookers and fuel efficient chullahas should be promoted in these peripheral villages so as to reduce the dependence of inhabitants on sanctuary and adjoining Eco-sensitive areas.

6.4 THEME PLAN FOR FIRE CONTROL

6.4.1 *Problem Identification:*

Fire causes great harm to the forests. A single uncontrolled fire can ruin the forests and destroy the entire ecosystem, including the wild life. Fires not only destroy young regeneration but also adversely affect the humus layer thus deteriorating the soil layer. The soil is exposed to be acted upon by sun & wind.

The forest fires are mostly experienced during summer months i.e. from March to June. In Sajjangarh wild life sanctuary the forest fire problem is controlled feature. There are only two fire incidence reported during last five years i.e. in the year 1999 and 2001. The cause of one incidence was electric sparking, whereas that of other is unknown. The nature of fire was that of 'ground fire' damaging 50 Hectares and 3.5 hectares of sanctuary area. However, because of timely information received the fire was put under control before it could have become detrimental for the sanctuary.

To prevent major fires and damage caused out of it, integrated fire management measures are to be adopted.

6.4.2 *The Strategy:*

- The strategy to prevent fire incidences includes:
- Creation of awareness among villagers residing on periphery of sanctuary, visitors visiting the sanctuary and laborers engaged to carry out various developmental activities in the area, by carrying out education programme, and by putting signages at places prone to fire.

- Early detection of fires through well conceived network of communication system & observation points. Besides this patrolling has to play a vital role in prevention & control of fires.
- Fast counter measures in case of fire out break.
- Immediate & versatile follow up action.

Each of above component has to play a vital role in prevention and control of fires.

6.4.3 *Action Plan to Prevent & Control Fires*

- Existing fire lines in sanctuary area should be cleared every year before summer season. The details of existing firelines in the area are given in following table (Table 6.1)

TABLE 6.1

EXISTING FIRELINES IN SAJJANGARH WILD LIFE SANCTUARY

S. No.	Name of Fire line	Length
1.	Main entry to Sajjangarh Fort	3 kms.
2.	Gorella to Sajjangarh Fort	3 kms.
3.	Badi Mahadevji to Sajjangarh Fort	5 kms.
	Total:	**11 Kms.**

- The field staff of wild life sanctuary should be given proper training to fight the fire.
- Fire fighting equipment should be provided at Range head quarter of sanctuary and at Nakas, and staff personnel should be given proper training to use them.
- Existing Ohdi's (the ancient shooting boxes) should be repaired and used as fire watch towers.
- People living in villages situated at the periphery of wild life sanctuary should be educated about danger and damage caused by the forest fires.
- Signages depicting the damage caused due to fires as well the means by which fire can break in the sanctuary should be erected at entry point and at places of tourist interest in the sanctuary.
- Tourists and city dwellers should be discouraged to carry "Bidi" & "Cigarettes" in the sanctuary area to prevent accidental fires.
- Firewatchers should be kept to patrol the area during summer season.

- Besides identified fire lines, new fire lines should be created as per the sensitivity of area to fire hazard.

6.5 THEME PLAN FOR ENCROACHMENT CONTROL

6.5.1 *Situation Analysis:*

Out of 519 hectares area of Sajjangarh wild life sanctuary almost 400 hectares is been closed by pucca stone wall fencing of 1.8 mtr. height followed by 3-strand angle iron–Barbed wire fencing of 1.00 mtr. height. This closed area, which is been considered as core area of sanctuary has completely been protected against the threat of encroachments. Remaining 100 hectares of area, which is on the periphery of village Badi as a part of sanctuary, and another 85 hectares area adjoining to village Hawala, both of which forms Buffer zone of sanctuary are prone to encroachments.

The remaining area is vulnerable to encroachments because of:

- The village Badi and Hawala which are situated at a distance of 8 Kms. and 5 Kms respectively from the heart of tourist city Udaipur is fastly growing up as sub-urb of the city and number of farm houses has been developed around these villages.

- The field staff is not well versed with the boundaries.

- Adequate survey staff is not available for resolving the disputes.

- Mutation of forestland records in the revenue records as well the maintenance of land records at par with revenue settlement is still incomplete.
- Powers to decide encroachment cases under section 91 of Land Revenue Act of the state are delegated to ACF Phulwari Ki Nal Sanctuary, Head quartered at Kotra, a place 135 kms. away from Udaipur, who can not devote ample time to deal with the cases.

6.5.2 *Strategy:*

- Construction of boundary wall of sanctuary area adjoining to village Badi and Hawala, which is about 6000 Running Metre in length is to be completed during the plan period in phased manner.

- Patrolling of the boundaries of sanctuary should be done regularly by the staff and any encroachment should be reported immediately.

- Inspection of boundary pillars by Range officers and other higher officers should be done time to time as per norms and report should be monitored in review meetings of senior officers.
- The non-mutated land should be taken on priority basis for mutation.

- Land records should be completed and copy of map along with the land record should be given down to the level of Forest guard so as to facilitate the checking of boundary pillars during patrolling.

- Scientific instrument like GPS should be provided to the Foresters & higher officers and proper training to use them is to be given to them.

- Encroachment should be given top priority. The powers to trial under section 91 of Land revenue act should be delegated to ACF (Head Quarter) Udaipur a post created in the year 1998-99.

- Regular monitoring on monthly basis related to encroachment cases should be done at Range level and at division level meetings.

- A team of 3 surveyors and a inspector should be deployed at Division level to maintain land records and check at ground level at least once in three months.

6.6 THEME PLAN FOR CHECK POINTS/ BARRIERS TO CHECK ILLICIT MOVEMENT OF FOREST & WILD LIFE PRODUCTS

6.6.1 *Situation Analysis:*

Although at present there is no threat of removal of any forest or wild life products from Sajjangarh wild life sanctuary because of presence of effective fencing however, looking to expansion of Udaipur city and adjoining villages the possibility can not be ruled out. The best way to check illegal transit of wild life and forest products is to strengthen the present checkpoints, and set up new checkpoints and Barrier. Presently the sanctuary has only two checkpoints existing at main entry and Gorella, which are not sufficient looking to future threats.

6.6.2 *Strategy:*

To check the movement of forest and wild life products effectively and efficiently the following steps are proposed:

- Two new barriers are proposed to be set up on priority at:
- Badi
- Jhar
- Each barrier point should have staff of 2 Forest Guards & 3 Cattle Guards.
- Each barrier point should be equipped with wireless system.
- Record should be maintained with respect to the movements, checking done by the staff of barrier.

6.7 THEME PLAN FOR BOUNDARY DEMARCATION AND MUTATION

Boundary demarcation mutation & maintenance of land records is essential to check encroachments in the sanctuary. The staff of sanctuary should know exactly the area under their control. The record of mutation should be completed, so as to prevent any further allotment of land of sanctuary, for other purpose. As mentioned in above paragraph 80% area of the sanctuary is demarcated by pucca stone wall and hence it has no threat in near future. However the remaining 20% area of sanctuary needs immediate attention. The boundary details of Forest Block Sajjangarh constituting the sanctuary area are enclosed at Annexure –7.

The state of remaining mutation in Sajjangarh wild life Sanctuary is given in following table (Table6.2)

TABLE 6.2

BLOCK WISE DETAIL OF MUTATION OF AREA UNDER SAJJANGARH WILD LIFE SANCTUARY

Office	Name o Sanctuary	Name o Block	Total Are (in Hectare)	Area Mutated	Remaining Are to be Mutate (In Hectares)
Deputy Chie Wild Lif Warden, Udaipur	Sajjangarh WLS	Sajjangarh	519.61	510.325	9.285

Strategy:

- Entire land records of sanctuary should be computerised
- The boundaries of sanctuary should be carefully checked and marked clearly on map.
- Beat maps of the sanctuary area should be prepared showing clearly the boundaries and other important features. These beat maps are to be provided to the Forest Guard, so that he can take care of the boundaries in his control. The beat should be the basic unit of management and beat guard should be responsible for its maintenance.
- Updating of land records should be regular process. Every year village wise copy of recorded forestland (Jamabandi) should be obtained and incorporated in record. Any alteration or change in yearly record should immediately brought in the notice of concerned authorities.
- Mutation of un-mutated land of sanctuary should be completed and proper record is to be maintained at division level.

Requirement of funds for the purpose is incorporated in "Annexure- 51".

6.8 THEME PLAN FOR MAN-ANIMAL CONFLICT

6.8.1 *Existing Situation:*

Development of Sajjangarh wild life sanctuary has evolved through different stages. During past the management of sanctuary area was with state rulers, who have their own rules and regulation to manage the area. Over the period of time the area got degraded completely because of biotic

interference. After declaration of the area as 'Wild Life Sanctuary" under wild life (Protection) act 1972 the people living around the area got alienated of the forest personnel because of their own interests and benefits, which otherwise they are enjoying. Decision to construct masonary stone wall around the sanctuary has further aggravated the situation, since free movement of their cattle has been checked and removal of grasses and other MFP's from the sanctuary area has become difficult for them. Of late some case of cattle lifting & hurting have been reported from the villages lying at periphery of the sanctuary. Although it may not because of the animals of wild life sanctuary, but the violent villagers shifted the responsibility on the head of FD. This is a major cause of concern, which allows the villagers to retaliate in any case of hurt to cattle or lifting of cattle by wild animals.

6.8.2 *Strategy to Curb the Situation:*

- Damage to the cattle or crop of villagers situated on the periphery of wild life sanctuary should be adequately compensated.

- Degraded forest & community areas on the periphery of sanctuary should be developed as pastures as discussed under "Theme Plan for Fodder".

- The entry fee to the sanctuary includes Eco-development surcharge. The money collected as eco development surcharge should be plough back in the region for development. No provision has been made so far, hence should be given top priority in interest of the sanctuary.

6.9 THEME PLAN FOR INFRASTRUCTURE & COMMUNICATION

Sajjangarh Wild Life Sanctuary is in close proximity of Udaipur City. Parts of its eastern boundaries are within urban limits of the city. The terrain is hilly undulating and having good density of deciduous tree species. Out of eight villages situated on the periphery of sanctuary the people from three villages namely Gorella, Badi and Hawala as well the city inhabitants move in sanctuary area. To provide adequate protection to the wild life and manage the protected area, proper infrastructure and communication is of great importance. The existing infrastructure is follows:

6.9.1 *Buildings:*

The details of buildings situated within limits of Sajjangarh Wild Life Sanctuary is given in following table (Table 6.3)

TABLE 6.3

EXISTING BUILDINGS AT SAJJANGARH WILD LIFE SANCTUARY

S. No.	Type of Building	Place
1	Forest Guard Chowkies:	1. Opposite IPC. 2. Opposite IPC. 3. Gorella
2	Main entry cum ticket window	At main entry
3	Interpretation centre	Near safari entry
4	Range Office cum Residence	Near main entry
5	Historical Places	Sajjangarh Palace 4 Ohdies

6.9.2 Communication:

Presently the sanctuary has three fixed sets and four hand sets. The details of available fixed and handsets are given in following table (Table 6.4)

TABLE 6.4

DETAILS OF WIRELESS SETS AT SAJJANGARH WILD LIFE SANCTUARY

S. No.	Type of Set	Place of installation
1	Fixed Sets	i) Range Office, Sajjangarh ii) Sajjangarh palace iii) Forest Chowki Gorella
2	Handsets	i) With Range Officer Sajjangarh ii) With Forester iii) Main entry iii) Badi

One fixed set is at the heighest altitude of Udaipur i.e. at Monsoon place (situated at 936 mtr. height). This wireless station acts as control station for wireless network of Udaipur forest divisions as well that for wild life division. The set fixed at this station is simple fixed set, which needs immediate replacement by a set having modern technology.

The two other sets fixed at Range office and Gorella is again in need of replacement. Besides this funds provided for repair of these sets as well the other four Handsets are not even adequate to change their batteries and minor repairs. Further since no repair shop is available at Udaipur and police department has shown their usability to repair the wireless sets, these sets are to be sent to Delhi for repairs. This further effects the communication adversely. It is essential that one hand set and one fixed set should kept in reserve at sanctuary head quarter to meet the situation.

6.9.3 *Strategy:*

Following strategy is proposed to improve infrastructure facilities at Sajjangarh Sanctuary:

- Construction of New Forest guard chowkies at Badi, Jhar, Khedi & Hawala to protect the sanctuary area. These chowkies will also act as barriers to check any unwanted event detrimental to wild life and forests.

- Fixing of wireless set of advanced technology along with repeater at monsoon place, Sajjangarh.

- Fixing of four fixed sets at main entry, Jhar, Badi & Hawala.

- Fixing of barriers at Badi & Jhar.

The financial outlay required for the purpose is incorporated in Annexure- 51.

6.10 THEME PLAN FOR ECO-DEVELOPMENT

Sajjangarh Wild Life sanctuary is situated amidst the most fragile Eco-system of Aravallis. The people living around the sanctuary remained dependent on sanctuary resources directly or indirectly for their needs of fuelwood and fodder in past thus causing adverse impact. This generates the necessity for special Eco-development programme in and around the sanctuary areas with an object to improve capacity of sanctuary management to conserve bio-diversity of area, and to reduce the negative impact of local people.

6.10.1 *Strategy:*

The most effective strategy proposed is to involve the local villagers in development of adjoining areas through process of micro-planning, & by ensuring implementation & management of the areas through their active collaboration. Following activities are proposed in these villages and Sanctuary area:

- Pasture development outside sanctuary area to fulfill the need of grasses
- Animal husbandry activities to improve the cattle breed.
- Investment in alternate fuel source development.
- Investment in developing water holes inside the sanctuary.
- Habitat improvements in sanctuary areas so as to avoid movement of wild animals outside sanctuary.

Details of activities have been covered in coming chapter of this management plan.

6.11 THEME PLAN FOR SOIL & WATER CONSERVATION

The terrain of Sajjangarh Wild Life Sanctuary is hilly and undulating. Because of specific geo-morphological features the depth of soil is shallow. Underneath the shallow soil the earth crust is bouldry and stony causing sparsh growth of vegetation. The hill system has high gradient slopes and numbers of nallahas are traversing throughout the area. As a combined effect of these factor the area of sanctuary is vulnerable to soil erosion. Along with soil erosion there is little or no water conservation because of rapidly flowing nallahas in rainy season. Limited availability of water causes acute shortage of drinking water during summer months.

To improve the water availability and to conserve the soil, following strategies are proposed:

6.11.1 *General Strategies:*

Intensive soil & water conservation measures are to be taken up on watershed basis. The works proposed are:

- Drainage line treatment
- Contour trenching and V- ditches depending upon slope of the area along with sowing of grass & fodder seeds.
- Construction of pucca checkdams in Nallahas supported by loose stone checkdams.
- Construction of limited number of anicuts and water ponds (Nadi's) in the bed of Nallahas.
- Planting of fruit bearing trees along the Nallahas.

6.12 THEME PLAN FOR WATER MANAGEMENT & COMBATING DROUGHT CONDITIONS

6.12.1 *Identification of Problem:*

The sanctuary area falls in dry tropical zone receiving less rainfall. Good rainy seasons are observed once in three or four years. The area receives only about 650-mm average rains in case of good monsoon and numbers of rainy days are 15 to 20. Most of the Nallahas goes dry within two to three months after rains. On the other hand the summers are very harsh and intense because

of which whatever the rainwater is collected on low lying areas gets evaporated very rapidly. Droughts are also frequent which makes the water situation still worse. These features make the sanctuary area devoid of water and make the water most scarce resource and limiting factor for growth of flora and fauna of the sanctuary. Shortages of water especially during summer months results in the movement of wild animals outside the sanctuary in search of water and are killed in accidents or get hurted by the villagers. The habitat quality of the area need to be improved by creating artificial water holes, well dispersed throughout the sanctuary as well as digging of few tube wells so as to facilitate the water supply to these water holes during pinch period. The pucca checkdams and anicuts constructed under soil & moisture conservation works will also serve as water points to curtail the pinch period during summer.

6.12.2 *General Strategies:*

- Construction of two water holes in sanctuary area. The new water holes are proposed looking into the requirement of water in different habitat and ensuring proper dispersal of animals evenly as well as utilization of grasses in whole of the area.
- The existing water points should be desilted regularly so as to maintain their capacity of holding water. List of existing water holes is enclosed at Annexure-18.

- In case of famine, water holes should be regularly filled with water using tubewells and transporting water, if required.

- Installation of hand pumps near existing chowkies. These hand pumps will provide water to the staff as well as for wild animals. Hand pumps at Badi, Gorella and at main entry of sanctuary is proposed during the plan period.
- Deepening and maintenance of existing old wells in the sanctuary area is to be carried out periodically, preferably once in 3 years. The deepening and maintenance should be completed by the end of month March every year.

- Construction of guzzlers should be given top priority. The guzzler tanks should have capacity to store at least 1.00 Lac liters of of water, which can be utilized from October to June. 6 Guzzlers are proposed to be constructed in the sanctuary area during plan period.

- Two tubewells with generator set is to be installed in sanctuary area to ensure water supply to the water holes as well as transportation of water, specially during pinch period.

- Anicuts constructed in the sanctuary area during previous years should be properly maintained and repair work should be carried out as and when necessary.

- Intensive drainage line treatment works should be taken up to ensure conservation of moisture in the area. DLT works should be carried out at 6 Nallahas traversing through the sanctuary area.

- Two anicuts at Badi and Gorella (on western aspect of sanctuary) are proposed to be constructed during plan period.

- One Tractor with Trolley & water tanker of 1000 Lt. capacity which can be attached with tractor is to be purchased to transport the water to waterholes.

6.13 THEME PLAN FOR DEVELOPMENT OF PREY BASE IN POOR WILD LIFE AREAS

Out of total 519 hectares area of wild life sanctuary Sajjangarh, about 200 hectares area has depleting prey base because of intensive biotic pressure. Due to low prey density, the carnivore population is very sparse. Sufficient prey base is required for growth and sustainability of large predator like panther.

Villages situated around the sanctuary and cattle population is the main cause of biotic interference, which has resulted in depredation of the habitat.

6.13.1 *Strategy & Action Plan:*

- 50 hectare area every year is to be selected for four years and intensive measures should be taken to develop good quality of grasses and fodder yielding species.

- The area should have potential for providing water, food and shelter round the year.

- Soil & moisture conservation works should be undertaken in the closed area to improve the soil and water retention to facilitate better growth of vegetation.

- Check dams of both kind 'Kachha' & 'Pucca' should be constructed in the Nallahas. Drainage line treatment works are to be taken up.

- V-ditches, contour trenching & contour dykes with sowing of grass seed should be taken up in the area.

- Small trails should be constructed in the area for carrying out field inspection, which after the development of area will serve as 'Nature trails'.

- Pasture development, works should be taken up in closed area to ensure availability of fodder to herbivores.

- Surplus Sambar, Chittal and other prey base from Udaipur zoo and other places should be relocated.

It is estimated that approximately RS. 27.00 Lac is required during 4 years to develop 200 hectares of area. Total requirements of funds will be 36.00 Lac during plan period for the purpose of habitat improvement and development of prey base in sanctuary area.

6.14 THEME PLAN FOR TOURISM IN SAJJANGARH WILD LIFE SANCTUARY

Wild Life tourism is a tool of awareness generation for conservation of wild life and forest resources. Publicity, nature education and creation of awareness towards wild life conservation create an environment for the benefit of sanctuary. Sajjangarh wild life sanctuary has become a famous tourist spot in tourist circuit of Udaipur for its variety of habitat and recent interventions made to promote tourism in this area. Moreover, picturesque view of sunset from top of the area, frequent sighting of herbivores coupled with presence of historical buildings are the features, which opens new arenas for promotion of Eco-tourism in the area. To promote tourism few tracks are been developed in the area, elephant and horse safari has been started and to begin with a

nature interpretation centre has been started. However, these activities are in their infant stage and need further strengthening to establish the area at apex of tourist circuit in Udaipur.

6.14.1 *Problems of Management of Tourism:*

- The sanctuary area has only five tourist trails. Further on these trails because of terrain tourists generally do not prefer to take their own vehicles. These trails need maintenance every year, after the monsoon season. The expenditure required is not available with the management.

- To promote elephant and horse safari, the management has to rely upon the private party. Private party on having their bookings to other place generally does not prefer to turn up for rides in sanctuary.

- Staff is overburdened because of shortage of manpower. They have to work from early morning to late evenings, thus reducing their efficiency.

- Because of language problem staff is unable to provide requisite information to the tourists.

- Staff can not communicate in English, hence communication with tourists is inadequate.

- The booking office at main entry of sanctuary is not connected by telephone.

6.14.2 *Administrative Problems:*

- Increased administrative work.

- Replying to queries of tourists.

- Management of vehicles, elephants & horses.

- Ensuring availability of nature guides.

6.14.3 *Tourism Facilities:*

Udaipur is well connected from Delhi, Jaipur and Ahmedabad by train. It is also connected by road from Jaipur, Ahmedabad, Kota & Delhi. Nearest airport is Dabok, situated at a distance of 20 km. from the City. The unique pleasant climates because of seven lakes present in and around the City, number of historical buildings, memorable events & places related with great warrior of soil Maharana Pratap and overall green and pleasant environment establishes the City at top of the tourist circuit of the state. From low cost to luxury class hotels are present in the City to cater the needs of tourists. Tourist reception centre run by the tourism department facilitates tourists and provides them requisite information.

Tourism has become an industry in Udaipur. A large number of people are earning their livelihood by adopting 'guide' as an occupation. Besides this large number of people get employment in hotels, on vehicles and as travel agents. Shops having local handicraft items have also been developed on road from Udaipur to Sajjangarh. Tourists coming generally face the problem regarding availability of vehicle to drive through the sanctuary. Tourists need to be tackled by trained personnel in a sophisticated manner. Tourists still approach the forest department for correct information and guidance.

6.14.4 *Strategies for Tourism:*

- Foremost necessity for promotion of tourism in sanctuary area is to provide appropriate facilities to the tourists.

- Eco-tourism trails are to be developed in better form in the sanctuary area, so as to facilitate the free movement of four wheelers.

- It is essential to provide training of nature interpretation to local literate inhabitants so as to provide economic benefit to them.

- Areas having thick groove of evergreen species along with water body should be developed to promote tourism.

- Adequate and specially trained staff should be provided to deal with tourists.

- The income accrued out of tourism as Eco-development surcharge should be reutilised for the Eco-development of the sanctuary.

- The tourism presently restricted to wild life viewing & visit of historical buildings in the sanctuary area. More and more spots are to be developed as view point and tourist spots.

- Birds watching sites for both terrestrial and aquatic birds are to be developed.

- Regular training programmes are to be organised for guides in field of nature interpretation and identification of wild animals and avifauna.

- The interpretation center at Sajjangarh fort has to be completed on priority basis.

- Signages related to natural features, terrestrial and avifauna at places of tourism interest are to be erected at suitable sites.

- As an added attraction to promote tourism sound and light programme is proposed to be started at Sajjangarh Palace.

- Maintenance of historical buildings including Sajjangarh Palace should be ensured.

6.15 THEME PLAN FOR ECO-TOURISM

"Eco-tourism is responsible travel to natural areas which conserves the environment and improves the welfare of local people"

Eco-tourism is generally described as tourism associated with the sanctuary areas and Eco-tourist is a word, which has been coined for nature and wild life tourism. Eco-tourism aims at providing Eco-tourist with nature tourism opportunities and also aims at generating economic returns to strengthen the sanctuary areas and augment economic benefit to local people.

Sajjangarh wild life sanctuary is in close proximity of tourist City Udaipur is true representative of flora, fauna and natural features of Aravallis. The sanctuary within its limits has famous 'Monsoon Palace' built by Maharaja Sajjan Singhji, the erstwhile ruler of Mewar, as well the shooting boxes locally called as Ohdies. The famous 'Tiger Lake' adjoining to sanctuary boundary near Badi village provides ample opportunity to visitors to enjoy aquatic fauna. The rich cultural and historical heritage of the area attracts people from other states of India as well

as from all over the world. The tourist traffic in the sanctuary area has been growing over the last few years.

So far tourism in the sanctuary area has been attracting domestic & foreign tourists in large number but looking to the beauty and splendor forest wealth and historical buildings, there is still lot of scope for tourism related to nature and forests. Sajjangarh wild life sanctuary has tremendous potential for Eco-tourism.

6.15.1 *Issues Related to Promotion of Eco-tourism:*

Following are the issues related to encouraging local participation in Eco-tourism:

- Local participation
- 'Empowerment' as an objective
- Creating Stake holders
- Linking benefits to conservation
- Understanding site specific conditions
- Monitoring and evaluating the activities

6.15.2 *Eco-Tourism Strategy:*

Survey of Potential Sites for Camping & Trekking

- Camping sites should be identified
- Identifying and displaying the historical importance of the area
- Use of existing buildings & to develop infrastructure facilities in them for comfortable stay.
- Trekking routes should be explored and maintenance of existing routes should be ensured.

Operation at Camping Sites:

- Trekking equipment required in the forest area to be identified and processed for hiring out.

- Intensive training to guides to interpret the natural features present in the area.

Signage:

- Proper signage to be put up inside the forest area giving details of flora, fauna, historical sites, details of natural features, medicinal plants & map showing trekking routes.

- Hoarding to be put up on Bus stand, Railway station and on highways to publicize the camping/trekking facilities available in this area.

- Hoarding mentioning Do-s & Don'ts be put up on at the main entry, at viewpoints and at places developed for resting during the trekking.

Publicity:

- Colorful informative brochure and folders to be brought out focussing on Eco-tourism of each specific area. Maps and Do's and Don'ts to be put in also.

- Trees and shrubs should be labeled.

- Signages bearing paintings of animals & birds should be put up at places where there is a high probability to sight them.

6.16 THEME PLAN FOR NATURE INTERPRETATION

Nature Interpretation centre facilities were not available at wild life sanctuary Sajjangarh. It was only in the year 2002, one small interpretation centre has been started at 'Monsoon Palace'. However, because of limited availability of financial resources, only few display boards depicting historical aspect, floral & faunal diversity, natural features and other issues related to area could be developed. Owing to availability of resources it was a good beginning but these

facilities are inadequate and are being used by very few visitors mainly because of following reasons.

- The displayed material is in 'Hindi', hence only incountry tourists are benefited.

- The interpretation centre has only display boards. It is least interactive.

- An information material regarding art culture & historical aspects of the area is not available.

- The interpretation center is very passive & there is no body to explain & guide the visitors.

- A good interpretation center is very essential looking to the location and tourist importance of Udaipur City. It will provide all relevant information about rich cultural & historical heritage of the area that a visitor might like to have.

- 6.16.1*Strategy & Action Plan:*
- It is proposed to develop the existing interpretation centre at 'Monsoon palace" Sajjangarh, since it is the most suited place because of following reason:
- It is situated at heighest altitude comparing to adjoining countryside. (>350 mtrs.)

- Both incountry & foreign tourists visits this place because of its situation and historical events attached with.

- It is a 3 storied building and has adequate space to depict historical, cultural & natural heritage including wild life of the area.

- Following activities will be carried out while developing this interpretation centre:

EXHIBITS:

- The interpretation centre will have three galleries, one at each storey depicting natural, cultural & historical aspects of the area.

- A map of the area showing important places of tourist interest in and around sanctuary area.

- A map of the sanctuary showing important features, treks for visitors and population density of major species.

- Exhibits showing mammals, birds, reptiles, amphibians, which form the faunal population of the sanctuary.

- Exhibits showing invertebrate animal such as molluscs, insects etc found in the sanctuary.

- Exhibits of common trees, plants, flowers and other interesting botanical features peculiar to the sanctuary.

- Exhibits of food chain and food web in the sanctuary area.

- Exhibits on rare & endangered species protected in the sanctuary.

- Exhibits dealing with conservation issues such as 'role of forests in Hydrological Cycle' and the importance of conserving the fragile ecosystems, importance of water conservation, harvesting rainwater etc.

- Exhibits dealing with the objectives, activities and conservation action plans of the sanctuary.

- Exhibits providing tips on do's and don'ts while visiting the sanctuary.

The above exhibits at the interpretation centre properly designed and installed with relevant information contents will serve as powerful tool to orient the visitors regarding rich historical, cultural & natural values of the sanctuary. It will give them an idea and insight regarding the features to look for and assimilate while in the sanctuary on one hand, whereas on the other will help them in identifying some of the floral & faunal species they come across while visiting the area. The interpretation centre would also serve as a post visit resource centre,

where visitors could come back and check and verify their observations (eg. identification of species) with the exhibits.

RESOURCE MATERIAL FOR CONSERVATION EDUCATION:

- A guide map showing the various areas of the sanctuary to be visited, major flora and fauna to be observed at each location and the nature trails available to track.

- Interpretation material in the form of orientation maps, information leaflets, checklist of floral and faunal species etc., which will go a long way in assisting the visitors to take maximum advantage of their visit.

- Trail guides for nature trails should be prepared.

- The interpretation center will act as strong tool for nature guides, which in turn will be able to provide knowledge about natural features to the visitors.

- Information guide on natural, historical and cultural heritage of Sajjangarh.

- The interpretation centre will also serve as an environment education facility for the local schools and general public.

Initial plan to develop interpretation center has been formulated with the help of "Centre for Environment Education", Ahmedabad and submitted to government. It is estimated to cost RS. 15.00 Lac in developing the exhibits. Serious efforts are required to be made to establish the interpretation center as early as possible in benefit of sanctuary & visitors.

6.17 THEME PLAN FOR EDUCATION & AWARENESS PROGRAMME

Extension and awareness generation has been remained as weakness of the wild life wing. Therefore it is very essential to have a proper extension network to promote education and awareness towards wild life protection and conservation among the villagers and city inhabitants living around the sanctuary area. For this following activities are proposed to be taken up during the plan period:

- Development & dissemination of publications, pamphlets, posters and other publicity material.

- Organization of exhibitions, puppet show, video film show etc., both for rural & urban population.

- Involvement of schools, colleges and other educational institution will be encouraged.

- Exchange visit programmes for wild life personals, extension workers and local self government representatives of villages around the sanctuary.

- Publicity through radio talks and press release etc. will be given priority.

6.17.1 ***Strategy:***

The overall strategy for education and awareness programme is to provide educational inputs at various levels to support the execution of development programme and conservation of existing resources in the sanctuary area. The environment education and awareness programme aims to achieve following objectives through design and implementation of appropriate communication methods and approach:

- Create an understanding for protecting the natural forests in the sanctuary area for the cause of indirect and crucial benefits to the local communities on one hand and to the entire region on the other.

- Create an understanding among the local people & general public about the importance of establishment of sanctuary & role of forest department in its development & protection.
- Creation of knowledge base about flora, fauna and natural features of the sanctuary.

- Help general public to understand and appreciate the local communities relationship with the existing natural resources.

- Create wide spread understanding of Eco-development of surrounding forest areas as the most crucial element in the protection strategy.

- Increase people's willingness to accept new technology and practices through their understanding of environmental dimensions.

- Development of interpretation centre for visitors within limits of sanctuary.

- Wide publicity to Eco-development programmes to generate public support.

6.17.2 *Contents:*

The contents of environment education programme will be derived from its overall objectives of increasing all around awareness to participate in the efforts of conservation and development of the sanctuary. The contents will include:

- Benefits of conservation especially to the people living around the sanctuary.

- Importance of wild life sanctuary locally and regionally, specially as the spot of bio-diversity.

- Historical, geographical, floral and faunal information in context of wild life sanctuary Sajjangarh.

- Ecological significance of the sanctuary.

- Threats and opportunities available at sanctuary.

- Understanding protection issues in context of sanctuary.

- Augmenting people and non-government institution support for protection of sanctuary.

- Environmental dimensions of the present livelihood activities of local people.

- Some basic concepts such as natural resources, bio-diversity forest & wild life.

- The ecological, economic, aesthetic and educational value of the sanctuary.

- On the basis of above themes, specific programme for specific group of people will be derived and communicated through appropriate media:

6.17.3 *Target Groups:*

The whole programme will be aimed to facilitate learning, understanding and acquiring skills and will involve groups at many levels since all these groups directly or indirectly effect the conservation and development programme of the sanctuary. The groups, which will participate in the awareness programme, will include:

- The men, women and children of local villages surrounding the sanctuary.
- The people and institutions of Udaipur City.
- Village/Panchayat level functionaries.
- School children & teachers.
- Staff of sanctuary involved in protection and development of sanctuary.
- Researchers and institutions.
- General public in the nearby areas and others.

6.17.4 *Media Forums:*

The selection of communication medium will depend upon number of factors, which includes the theme, message and the audience. Besides this availability of resources, expertise and time will be other factors influencing the communication mode. Medias proposed to be used as communication means subject to availability of resources are enlisted in following table (Table 6.5):

TABLE 6.5

PROPOSED MEDIA TO BE USED AS COMMUNICATION MEANS

S. No.	Medium	Activities
I	Print Medium	Poster, Pamphlets, Wall slogans.

II	Audio Visuals	Video programmes.
III	Exhibitions	At fairs & in selected villages.
IV	Mass Media	News Papers, Magazines & Radio.
V	Other Media	Puppet shows, exposure tours & Eco camps.
VI	Forums	Interactive forums such as meetings, committees, seminars, workshops, interpretation center.
VII	Training Programme	To local people about conservation values. To Teachers and school children. To Forest department personals for Eco-activities. Training for trainers to conduct above programmes.

6.17.5 *Approach, Methods:*

In awareness programme, the overall approach is to facilitate learning about conservation and development of natural resources. The context of the education programme is protection strategy, which includes Eco-development as a crucial element in it. Communication is very important element in the whole process of awareness generation. The approach to the content of this programme is based upon to ensure people's willingness and ability to participate in the Eco activities and the overall conservation efforts.

In this programme all efforts need to be made to use existing forums and infrastructure such as school, panchayats, village fairs etc. for communication. Efforts should be made to use local talents & local term of communication in the designing and use of communication media. Other things being equal, traditional and local forms, resources and persons should be preferred. Besides this interpersonal communication has to play a vital role in success of programme and thus to achieve the objectives. The approach will be to emphasize interactive methods and forums and to use the local forms of mass communication as much as possible.

6.17.6 *Monitoring/ Evaluation:*

Monitoring of the awareness programme for its effectiveness will enhance the ability of communicators to develop better and more effective communication. Informal as well as formal monitoring/ evaluation techniques will be used and corrective actions will be taken for effective running of the programme. Yearly evaluation of the programme by the implementers of Eco-activities is proposed by selecting parameters related to protection, conservation & involvement in development activities.

The proposed financial outlay to carry out different activities proposed is given in following table (Table 6.6):

TABLE 6.6

PROPOSED MEDIUMS FOR AWARENESS & EDUCATION PROGRAMMES

S. No	**Medium**	**Activities**	**Financial Requiremen (RS. in Lac/year)**
1.	Print Medium	Posters, Pamphlets, Wall Slogans	0.40
2.	Audio Visual	Video Programmes	0.40
3.	Exhibitions	At village fairs and schools	0.40
4.	Mass Media	News Papers, Magazines & Radio	0.30
5.	Other Media	Puppet shows, Exposure Tours & Eco-camps	0.30
6.	Forums	Interactive forums such as meetings, committees, seminars workshops & interpretation centres	0.80
7.	Training Programme	For local people, for teachers & school children, for sanctuary personnel and training for teachers.	0.50
		TOTAL	**3.10**

6.18 THEME PLAN FOR TECHNIQUES OF POPULATION ESTIMATION

Wild Life census plays a vital role in scientific management of sanctuary area. The census is not only a powerful tool to evaluate the management practices in past but also provides a vision for future management practices to be adopted in welfare of sanctuary in particular that of wild animals. Census in wild life terminology deals with the estimation of abundance of animal population. The simple set of adjectives: "Absent, rare, occasional, common, abundant" is a measurement of presence of particular faunal species. Census methods can be split into those dealing with observations on actual individuals and those based on other evidences, a distinction, which is referred as direct and indirect methods of census. The important thing to know in census is the pattern of distribution of animals.

6.18.1 *Census:Current Status*

In wild life sanctuary Sajjangarh Panther is at the apex of the biological pyramid and its existence depends on availability of sufficient prey, which in turn depends on forest and grass lands. The habitat of wild life sanctuary Sajjangarh falls under category of "Dry deciduous Forest" and such forests are more productive and richer in terms of forage production than any other habitat. The foremost priority therefore is to maintain and upgrade the availability of forage and save it from overgrazing and competition with domestic cattle. If the population of ungulates is sufficient the panther will also survive and prosper.

At present the census of the panther and ungulates is carried out through biannual census. Following methods are used for census operation:

- Trekking followed by pugmark methodology for Panther.
- Water hole counting for ungulates and other animals.

Census data's based on above methods are enclosed at Annexure-8

6.18.2 *Strategy & Action Plan:*

- The area of wild life sanctuary is divided into counting units for census purposes. The present number of census units is sufficient enough and should be retained for future years.

- In "Pug mark - Census" method pug marks impressions of Panther and other carnivores are identified and taken using "Plaster of Paris" along with information of location date

and time. For the purpose the current practice of adopting trekking and water hole counting should continue in future also.

- For census of ungulates population "Water holes" present in the sanctuary acts as unit of counting, which gives an fair idea of ungulate population in the sanctuary. The method is again recommended to be continued.

- It is proposed that by using GPS system the location of panthers and density of ungulates should be marked on the map of sanctuary.

- Standard formats for collecting the field data in vogue should continued to be used.

- The staff to be engaged in census operation should be given regular intensive training for taking pug mark caste and tracing and subsequently identification of species.

- Present practice of involvement of students of schools and university research scholars and NGO's in census operation should continue and more volunteers should be encouraged to participate.

- Census of wild animals outside the sanctuary area should also be taken care off. The territorial staff should be provided with intensive training about census methodology & identification of wild animals.

- The census operation should be given wide publicity in newspapers.

- The datas collected and analyzed from the field should preserved for future reference.

- A long-term research study about population dynamics, prey predator relationship and the dispersal of major prey species is the need of time.

The biannual financial requirement for carrying out census in sanctuary area and other territorial areas will be around RS. 0.50 Lac in alternate year.

6.19 THEME PLAN FOR TRAINING

Training to staff personnel involved in management of wild life sanctuary pertaining to wild life management and other related disciplines is essential for scientific management. The officer in-charge of the sanctuary is Range officer and they are regularly transferred. Similarly the subordinate staffs at the rank of foresters and forest guards are occasionally transferred. Thus, the system does not have a continuity of trained staff.

The staff personnel posted in wild life sanctuary is traditionally the most primitive of the Forest Department. Wild life management now a days has emerged as a science and scientific management of sanctuary areas is the need of time. The staff is expected to digest the most advance scientific principles of "bio-diversity conservation", "gene pool", "Ecosystem", "Population dynamics" and "recent census techniques to estimate the population" etc. To entrust them with these tasks, they require certain level of training and education. Apart from this because of strategic location of sanctuary the staff has also been burdened with additional pressure of dealing with villagers residing an periphery of sanctuary, protocol duties etc. The staff also lacks regular training required to keep them fit for action against miscreants. All these factors lead to generate the importance of "Basic skill development" training to field staff. Most of the staff of sanctuary is not trained in the matter of wild life protection, conservation and management related subjects. Specialized training of the staff is essential to tone up their skills from time to time.

It is proposed to carry out regular training programmes in the field, at state level training institute as well as at reputed specialized Institutes of the country. The training course can be of short or long duration depending upon the course contents. The "Training" should be made compulsory and in no case staff should be encouraged to skip the opportunity available. Likely areas of training can be:

- Nature interpretation & Eco-tourism.
- Field Botany along with medicinal plants & their uses.
- Avifauna.
- Population dynamics.
- Regeneration of various species.
- Wild Life Laws.
- Forestry Laws.

- Animal health & Nutrition.
- Advanced techniques of wildlife management.
- Techniques of carrying out wild life estimation/census.
- Techniques of Eco-development.
- Extension & communication techniques.

The above list of subjects to be covered during training is suggestive one. More and more topics can be incorporated in training schedule to aquaint the ground functionaries. Besides this short term courses at field level should be held at Sanctuary itself to impart basic skills to field staff.

The financial requirements for imparting training to staff at various levels is given in following table (Table 6.7):

TABLE 6.7
FINANCIAL REQUIREMENT FOR TRAINING TO STAFF PERSONNELS

S. No	Module	Financial Requirement (RS. in Lac)
1.	Internal training for subordinate staff @ RS. 200/- per person per year (two courses)	0.30
2.	Institutional Training for Dy.CWLW/ ACF/Range Officer/ Foresters & Forest Guards @ 2000/- per person per year	0.50
3.	Educational trips and staff visit to other sanctuaries (Twice a year)	0.50
	Total:	**1.30**

6.20 THEME PLAN FOR MANAGEMENT INFORMATION SYSTEM

Present, is the age of information and efficiency of organization depends upon its Management Information System (MIS). It not only helps managers at various levels in organization but also helps in dissemination of information to the society. Not only the Sajjangarh wild life sanctuary but other sanctuaries too within the jurisdiction of wild life division, Udaipur does not have well defined MIS. As a result the functioning of organization suffers, hence is a felt need for sound MIS.

6.20.1 *Identification of Problems related to MIS:*

- Retrieval of Information is slow
- Repetitive processing of information manually
- Delays in transfer of information
- Erratic reporting of information
- Lack of standard formats
- Non compliance of the schedules.

6.20.2 *Areas Requiring Special Attention:*

- Forest & Wild life protection including monitoring forest & wild life offences and court cases.
- Settlement and demarcation including monitoring of encroachment cases.
- Information related to establishment matters including deployment of staff.
- GIS based resource inventory including wild life and development works.
- Management plan and perspective planning.
- General Periodic returns.
- Annual Plan of operation, Budgeting, Monitoring & Evaluation.
- Resource inventory such as vehicles, arms, wireless network and other equipment.
- Eco-tourism activities.

- Documentation of resources.

- Environment awareness Programmes

- Inventory and information related to villages around the sanctuary.

- Information relating to registration of arms, and licenses issued under Wild Life Protection act, 1972.

6.20.3 *Action Plan for Management Information System:*

- Information needs at different levels will be identified.

- The data source will be identified.

- Standardized format for collecting and recording data will be finalized.

- Communication Network for information transfer and feed back is to be identified.

- Periodicity of data input and transmission of information will be standardized.

- Formats for reporting will be finalized as per the needs of different levels.

- Naka, Range & Divisional Notebooks are to be maintained regularly. It is expected that happenings in sanctuary should be recorded in these books by forester, R.O. and Dy.CWLW respectively. Any deviation and lapses should be viewed seriously.

- At each Naka level village information record under their jurisdiction should be maintained.

- Record of wild life offence cases and offenders should be maintained at division and range level.

- Computer based GIS framework will be used for inventory and management purposes including monitoring and evaluation.

- The divisional office, ACF's and sanctuary Incharge R.O.'s office should be provided with computer facilities and Internet connections.

- Additional post of Data Entry Operator, may be on contractual basis should be provided at Divisional and sanctuary level.

- Efficacy of MIS will be periodically reviewed and the necessary alterations in the system should be made as per the requirement.

6.20.4 *Management Considerations:*

While designing the MIS following steps should be taken into consideration.

- Basic character of data collected at field level should remain the same.

- Repetition of items of input information should be avoided.

- Format of output data should be kept similar as far as possible.

- Datas should be easily accessible. The staff at all level should be able to collect the input datas easily, only with some orientation and training suited to his level.

- The programme be introduced in phased manner and improved according to needs.

ZONATION IN SAJJANGARH WILD LIFE SANCTUARY

Since the area of Sajjangarh Wild Life Sanctuary is very small just 5.19 Square kilometers, the activities to achieve the objectives will confine in whole of the area. The area of sanctuary should be used for the purpose of:

- Tourism & Eco-tourism activities.

- Eco development activities.

- Habitat improvement activities.

- With an object of total management of the area as a single unit following guidelines should be enforced in the area:
- Total protection of the area be accorded top priority.

- Fire conservancy should be strictly enforced. Fire lines should be maintained and new fire lines should be created.

- Existing system of division of area into blocks and compartments should be continued.

- Grazing should be controlled strictly.

- Basic facilities like drinking water and urinals should be provided to promote tourism.

- Eco-treks should be maintained & developed.

- Boundaries are demarcated in almost 80% of area by construction of pucca wall, for remaining area demarcation should be ensured.

- Eco development activities should be taken up in whole area.

- Adequate number of waterholes should be developed.

- In Nallahas traversing through the sanctuary area, site specific soil & water conservation works including Drainage Line Treatment and construction of Checkdams should be taken up.

- Entry of domestic animals in fenced area should be strictly observed and prohibited.

- Weeds like “Lantana” should be identified and eradicated.

Chapter 7

Research, Monitoring, and Training

Research-

Research is one of the major issues in the Plan Outline of the Management Plan document. The document envisaged that the scientific staff of the sanctuary would undertake basic research programmes aimed at evaluating systematic factors and influences, for devising pragmatic management practices to cover specific populations and the entire ecosystems. Research constitutes a very important aspect of effective management of wildlife protected areas. Research based wildlife management is crucial for the success of any PA. This is a legitimate activity, and must be compatible with the objectives of wildlife management in the protected area. The PA should have a clear wildlife research policy based on the following priorities.

7.1.1 Research Priorities

Sajjangarh Wildlife Sanctuary, located in Udaipur, Rajasthan, is a crucial ecological zone that demands targeted research to ensure effective conservation and sustainable management. The following research priorities aim to address its key challenges and opportunities:

1. Biodiversity Monitoring

- **Objective**: Document and monitor the diversity of flora and fauna in the sanctuary to create a baseline database.
- **Focus Areas**:
    - Study the population, distribution, and behavior of flagship species such as leopards, sambars, jackals, and migratory birds.
    - Investigate the ecological role of lesser-known species, including reptiles, amphibians, and insects.
    - Periodic assessments to detect changes in biodiversity trends.

2. Habitat Restoration

- **Objective**: Restore degraded habitats and improve ecological conditions.
- **Focus Areas**:
    - Identification and management of invasive plant species like *Prosopis juliflora* that threaten native biodiversity.
    - Study of native vegetation dynamics to guide reforestation and grassland restoration programs.

- Impact of habitat degradation on key species and their recovery potential.
- patterns and prevent conflict.

3. Climate Change and Ecosystem Resilience

- **Objective**: Understand the impacts of climate change on the sanctuary's ecosystem.
- **Focus Areas**:
  - Study the effects of changing rainfall patterns and rising temperatures on vegetation and water availability.
  - Predict species adaptation or migration due to climate changes.
  - Develop climate-resilient management strategies to safeguard habitats and species.
- **Water Resource Management Objective: Address water scarcity and optimize water resource management in the sanctuary.**
- **Focus Areas**:
  - Study the seasonal availability and usage of waterholes by different species.
  - Assess the impact of artificial waterholes on wildlife movements and interactions.
  - Explore rainwater harvesting and groundwater recharge strategies.

4. Eco-Tourism Impact Assessment

- **Objective**: Ensure eco-tourism practices are sustainable and align with conservation goals.
- **Focus Areas**:
  - Study the ecological footprint of tourism activities, including trekking, safaris, and visitor facilities.
  - Assess the carrying capacity of the sanctuary to determine sustainable visitor limits.
  - Monitor wildlife behavior and habitat disturbances due to tourism.

5. Community Engagement and Livelihood Studies

- **Objective**: Enhance local community involvement in conservation and reduce resource dependency.
- **Focus Areas**:
  - Study socio-economic profiles of local communities to understand their reliance on forest resources.
  - Evaluate the impact of eco-development programs on community livelihoods.
  - Identify sustainable livelihood alternatives to minimize forest dependency.

6. Long-Term Monitoring and Data Management

- **Objective**: Establish a comprehensive system for tracking ecological changes over time.
- **Focus Areas**:
  - Set up permanent monitoring plots for vegetation and wildlife.
  - Use camera traps and GIS tools for real-time wildlife monitoring.
  - Create an open-access database to store and analyze research findings.

Wildlife management is a mix of field craft and science based on field research. Research in the PA should focus on the critical information needs, which are by and large common to most of our Protected Areas. Professional researchers working in isolation on topics or species relating to their field of interest can contribute very little for fostering wildlife management. The research should be "problem solving studies", based on a consultative process involving PA management, indigenous people and overall ground reality prevailing in our tropical setting.

Some "pressure points" for PA management are common to most of our PAs, and in addition to the ongoing small term projects, wildlife research in Kumbhalgarh Sanctuary should preferably focus on these:

PA Managerial Priorities	**Research Areas**
A) **Values Relating to PA :** 1. Ecological/ Regional landscape	✓ Regional changes in species richness & diversity ✓ Changes in species occurrence ✓ Effect on water table ✓ Habitat fragmentation ✓ Endangered species: prey base, age/ sex ratio, biomass computation, life table computation
2. Habitat degradation	✓ Types of exotic infestation ✓ Control methods
3.Livestock depredation by carnivores & crop damage by wild ungulates	✓ Reasons for livestock depredation ✓ Percentage of livestock in the food-spectrum of carnivores ✓ Reasons for crop damage
4. Habitat management practices	Biodiversity conservation vis-a-vis management practices in-vogue
5. Poaching	Magnitude Modusoperandi (variations) Wildlife crime intelligence and networking Wildlife crime prevention
6. Fire	✓ Nature and efficacy of existing preventive and control measures ✓ Changes in the habitat due to fire ✓ Changes in animal use pattern due to fire

7. Insects as agents of ecological change	✓ Impact (magnitude) ✓ Ecological changes ✓ Periodicity
8. In-situ conservation	✓ Founder population size ✓ Translocation
9. Eco-tourism	✓ Involvement of host-communities ✓ Mechanism ✓ Impact assessment
10. Jurisprudence	✓ Morphological studies ✓ Biochemical studies ✓ DNA fingerprinting
11. Wildlife disease	✓ Landscape epidemiology studies ✓ Linkages between sylvatic & pastoral cycles
12. Animal monitoring and estimation techniques	✓ Customization of software ✓ Estimation procedures, indices for various species ✓ Home range studies
Study of Wetland	✓ Vegetative succession in the entire wetland, especially in regard to weed invasion in draw down area. ✓ Detailed ecology of the fauna of the wetland especially invertebrate fauna ✓ Effect of agricultural and other practices in the catchment area of Sanctuary.
• **Biotic Pressure on PAs:** Vision beyond the PA	✓ Effect of existing land use ✓ Mechanism/ strategy to mitigate ill effects ✓ Magnitude of crop damage outside PAs

Interface problems	✓ Methods for mitigation ✓ Decadal population growth in impact zones outside PAs (human/ cattle) ✓ Resource use pattern of indigenous people ✓ Impact of PAs on indigenous people ✓ Legal status of the impact zone & relate problems ✓ Community role in conservation ✓ Levels of sustainable use ✓ Grazing impact ✓ Regeneration status in right burdened forests ✓ Impact of rights and concessions on habitat quality ✓ Socio-economics of indigenous community ✓ Resource requirements of indigenous people & dependencies ✓ Traditional knowledge & occupation of indigenous communities ✓ Impact assessment of Eco-development woks

7.2 Monitoring

Monitoring Plan for Sajjangarh Wildlife Sanctuary

Monitoring is essential for evaluating the ecological health and management effectiveness of Sajjangarh Wildlife Sanctuary. Site-specific monitoring themes are identified to track critical components, ensure adaptive management, and address conservation challenges.

7.2.1 Identification of Site-Specific Monitoring Themes

1. Wildlife Population Monitoring

- **Focus Area**:
    - Flagship species: Leopards, sambars, jackals, and migratory birds.
    - Lesser-studied species: Reptiles, amphibians, and insects.
- **Purpose**:
    - Assess population trends and health of key species.
    - Identify changes in distribution and behavior.
- **Methods**:
    - Camera trapping for leopards and other large mammals.
    - Bird surveys during migratory seasons.
    - Line transect and point count methods for smaller animals.

2. Habitat Condition Monitoring

- **Focus Area**:
    - Native vegetation cover and grassland health.
    - Impact of invasive species like *Prosopis juliflora*.
- **Purpose**:
    - Evaluate the effectiveness of habitat restoration measures.
    - Identify areas requiring additional management intervention.
- **Methods**:
    - Vegetation sampling and mapping using GIS.
    - Fixed monitoring plots to assess habitat changes over time.

3. Water Resource Monitoring

- **Focus Area**:
    - Availability and utilization of natural and artificial waterholes.
    - Groundwater levels and rainwater harvesting structures.
- **Purpose**:
    - Ensure sufficient water availability for wildlife.
    - Mitigate the effects of seasonal water shortages.
- **Methods**:
    - Regular water quality testing.
    - Usage monitoring with camera traps and direct observation.

4. Human-Wildlife Conflict Monitoring

- **Focus Area**:
    - Incidents of leopard-human conflicts in nearby villages.
    - Crop and livestock depredation.
- **Purpose**:
    - Reduce conflicts and improve coexistence strategies.
    - Evaluate the effectiveness of compensation and mitigation measures.
- **Methods**:
    - Conflict incident reports and mapping conflict hotspots.
    - Socio-economic surveys to understand community impacts.

5. Visitor Impact Monitoring

- **Focus Area**:
  - Eco-tourism activities such as trekking, nature trails, and visitor behavior.
  - Impact of tourism on wildlife and habitats.
- **Purpose**:
  - Minimize ecological disturbances caused by visitors.
  - Enhance eco-tourism sustainability.
- **Methods**:
  - Visitor surveys to assess their understanding and behavior.
  - Monitoring of tourism zones to track habitat degradation and wildlife disturbance.

6. Invasive Species Monitoring

- **Focus Area**:
  - Spread of invasive plant species like *Prosopis juliflora*.
  - Impact on native biodiversity.
- **Purpose**:
  - Prevent further spread and manage existing invasions.
- **Methods**:
  - GIS-based mapping of invasive species distribution.
  - Long-term monitoring plots to evaluate restoration efforts.

7. Climate and Weather Monitoring

- **Focus Area**:
  - Rainfall patterns, temperature variations, and drought periods.
  - Impact of climate change on the sanctuary's ecosystems.
- **Purpose**:
  - Adapt management practices to changing climatic conditions.
  - Predict climate-related impacts on species and habitats.
- **Methods**:
  - Install automated weather stations within the sanctuary.
  - Analyze long-term climate data and trends.

8. Community Involvement and Resource Use Monitoring

- **Focus Area**:
  - Dependency of local communities on sanctuary resources.
  - Effectiveness of alternative livelihood programs.
- **Purpose**:
  - Reduce over-dependence on sanctuary resources.
  - Promote sustainable livelihoods.
- **Methods**:
  - Regular socio-economic surveys of nearby communities.
  - Monitor the effectiveness of eco-development committees (EDCs).

9. Threat and Pressure Monitoring

- **Focus Area**:
  - Illegal activities like poaching and encroachment.
  - Fire incidents and their impact on habitats.
- **Purpose**:
  - Strengthen enforcement measures to address threats.
  - Assess the effectiveness of patrolling and surveillance.
- **Methods**:
  - Use of patrolling records and mobile apps for real-time threat reporting.
  - Analyze fire incidents using satellite imagery and field reports.

7.2 Monitoring Framework

The PA Management should continue to ensure that the monitoring of biological resources form a basic routine activity in protected area management, and it is the principal way in which the management can identify trends or changes, and so gauge the effectiveness of its managerial inputs. Though it may sound an unplanned and subjective procedure, it is easy to collect useful biological information in a simple, systematic and scientific manner. The management should strive to include a number of useful monitoring activities in the routine duties of the staff, as well as regular annual estimation of wildlife, counts and other activities. All such data should be incorporated in the MIS in a routine manner.

The PA should continue the present system of ecological monitoring of flora and fauna. As stated above, the Reserve has a very good network of forest camps covering all vegetation cover types and habitats of wildlife. All these forest camps have been provided with camp registers containing printed proforma of information/ data collection relating to the broad phenology of the vegetation type, species-wise animal sighting with their age-class and sex-class structures, females with fawns, lactating females, and others etc. The proforma for recording indirect evidence of panther has also been included. As far as the management is concerned, a useful inventory could be as simple as information on the distribution of important species, whose numbers reflects important ecological processes. Even crude indications of the numbers of these animal species would add to the value of inventory. A coloured photographic guide for identification of animals has been prepared and distributed among all the field staff. A photographic album of ground flora covering many species of grasses, herbs and shrubs should

be prepared and should be distributed to all field staff involved in the day to day monitoring to facilitate easy identification of species from the management point of view. The data generated from such continuous monitoring should later be inferred/ analysed into very interesting trends, and bases for species-specific and habitat specific planning in the PA. The proforma of the above camp register is given below. Each Forest Guard in-charge of the respective camp must fill in the requisite information derived from the daylong patrolling of his beat. This would lead to the generation of a lot of data on the basic parameters required for managing a wildlife protected area.

The data can be complied for large carnivore on the basis of camp registers and monthly presence map for panther may be prepared**.**

Format of Patrolling Camp Register for Routine Ecological Monitoring

Particulars of Patrolling			Phenology			
Date	Place& Compartment No.	Time	Flowering trees/ Plants	Fruiting Trees/ Plants	Leaf Fall	New Leaves
1	2	3	4	5	6	7

Herd Structure of Ungulates			
Total No. of	All Male Herd	Female-Fawn Herd	Mixed Herd

Herds (Chital/ Sambar/ Nilgai/)	t	Adult	n	l	t	-Adult	n	l	e Adult	Male Sub Adult	male Adult	Female Sub Adult		l
8	9	10	1	12	13	14	15	16	1	1	19	20	2	22

Various Stages of Antler Development					Birth Frequency of Ungulates (15 days Intervals)		Stages of Gestation	
s with Fallen Antlers	s with Developing Antlers	s with Branched velvet Antlers	s with Developed Hard Antlers	l	Date	t Total NewBorn	t No. of Pregnant Female	No. of Lactating Females
23	24	25	26	27	28	29	30	31

Data/ Evidence Relating to the Leopard

Male/ Female Pugmark (No./ Unit Distance Walked)	Urination (No./ Unit Distance Walked)	Scraping (No./ Unit Distance Walked)	Call	Scratches (No./ Unit Distance Walked)	Scat (No./ Unit Distance Walked)	Cattle Kill	Other Kill	Stride Measurement	Straddle Measurement	Signature Inspecting Officer
32	33	34	35	36	37	38	39	40	41	42

Training Needs Assessments

Though the management of the Sajjangarh Sanctuary ecosystem itself is a learning process for the majority of the frontline staff, the Park Management should ensure that the newly inducted staff undergoes wildlife training conducted by various Institutes in the State and outside. Officers should be encouraged to undergo Diploma as well as Certificate and Capsule courses conducted by the Wildlife Institute of India, Dehradun for officers down to the Forest Ranger. The information about the training and institute providing training is as following –

Table No. – 101

S. No	Course Name	Course Type	Course Duration	Participant Level	Resource person/ org.	Frequency

	Advance Diploma in Wildlife Management	Diploma Course	Ten Months	A.C.F./DCF	WII, Dehradun	Once
	Eco-development	Module	Three Months	A.C.F./DCF	WII	Once
	Wildlife Management	Certificate Course	Three Months	F.R.	WII	Once

Besides, Forest Guards posted in wildlife area should be trained for wildlife management at wildlife training centre Jaipur. Apart from above basic training, some very important trainings are require to staff/officers for their day to day functioning.

1. **Weapon training -**

The staff has to face the anti-social elements including hard-core criminals, who are engaged in unlawful activities. To have an effective control, the staff must be equipped with modern arms and ammunitions and should know how to handle the arms ammunitions. Thus full course training to handle the arms and ammunition should be arranged for the field staff on regular basis.

2. Wildlife Health Monitoring Training

Monitoring of wildlife health and treatment of various contagious diseases require some technical skills. The staff must also know the techniques to collect samples to send it to forensic laboratory or to the research centre at WII, Dehradun for its detailed analysis.

3. Chemical immobilization training -

It has been realized that frequent stray of wild animals occurs near the human habitation especially during summer season. Such unusual situation creates problems, both for wild

animals and human beings. Such animals, that come under distress should be safely captured to release in wild after proper treatment.

4. Tourism and interpretation training

Tourism and Interpretation are very sensitive issues. Even a slight discourteous behavior can defame the PA as well as the Forest Department. The staff engaged in handling the tourists must be properly trained to handle the situation in a cordial manner. In doing so, the implementation of various Rules and Enactment, related with the wildlife tourism and management, is ensured also. Similarly, staff deputed for interpretation activities must have sufficient knowledge about the Protected Area and other on-going activities. If the tourists are not satisfied for their queries, the purpose of extension and Interpretation cannot be achieved. A fundamental training and regular refresher course training to the staff should be done. At present no systematic training on tourism and interpretation activities has been organized.

5. Computer Application Training:

Use of Computer application and related software has now become an indispensable task for day-to-day management. Application of GIS and other related software and their interpretation could improve the efficiency of the P.A. Management. All these efforts may be useful, when the staff capable enough to handle these machines. Hence three- month **Capsule course training** for the selected staff / officers should be arranged at Jaipur or Udaipur.

Apart from these training some other important topics may be included if required.

7.4 . Human resources development Plan (HRD Plan)

Wildlife management is a specialized branch, which need special orientation, skill and knowledge. Training makes a technocrat and field staffs perfect in his profession. Exposure of good efforts done in the *Par excellence* site develops a feeling of motivation to achieve the goal to the same degree or sometimes higher also. Not only this, tremendous degree of confidence is also developed if the initiative done is appreciated by others. Hence it is nice to initiate effort to impart special training to all level of staff in various relevant fields.

Imparting of training to the field staff and the official posted in the Kumbhalgarh Sanctuary has got much relevance, as they have to handle sensitive bio-diversity conservation vis-à-vis eco-development issue. Although adequate technical assistance and guidance would

be availed from the concerned experts. Hence imparting regular refresher courses covering different topics is recommended for the various levels of staff of Sanctuary as following -

. No	Course Name	Course Type	Course Duration	Participant Level	Resource person/ org	Frequency
	General wildlife management course	Orientation Course	One week	D.C.F./C.F.	WII, Dehradun	Once
a	--do--	Orientation Course	10 days	A.C.F./ D.C.F.	WII, Dehradun	Once
b	--do--	Orientation Course Module I	One week	Ranger Foresters	Forestry Training Institute, Jaipur	Once
c	--do--	Orientation Course	One week	Forest Guard & Cattle Guard	Forestry Training Institute, Jaipur	Once
	Soil and moisture Conservation	Orientation	One week	Ranger	Forestry Training	Once in a year

		Course		Foresters, & Forest Guard	Institute, Jaipur	
	Rural development	Orientation Course	One week	Ranger Foresters, & Forest Guard	Forestry Training Institute, Jaipur	Once in a year
	Enforcement of Law and Enactment's	Refresher Course	Three days	Range officers Dy. Ranger Foresters & Forest Guards	Forestry Training Institute, Jaipur	Once in six months
	Education Awareness course	Refresher course	One week	ACF, Range officers, Foresters and Forest guard	WII, Dehradun for DCF and ACF; FTI Jaipur For Foresters and Forest guards.	Once in two year

The senior as well as lower field staff should be exposed to latest trends and developments achieved in different subjects related with wildlife management. Such exposure would help the field staff to carry out various management practices for effective management. A regular short- course requires to be organized from time to time for the ground level field staff to impart technical expertise to carry out various routine works, like; population estimation, water hole management, wildlife habitat management and the like.

To impart training in the above topics and other useful subjects, the selected staff should be sent to Forestry Training Institute, Jaipur, for witch funds and equipment has to be provided.

Conducting Study tours at par-excellence sites: -

- Eco-development study tour for EDC members and associated staff
- Wildlife management study tour for Officers & field staff.
- International study tours
- Working visit for PA Officers

Workshops and Field Study: -

Every year workshop and field study should be organized at PA level to share the experience gain during the field works and disseminate the new knowledge and practices being used in other PAs. Some of the topic for workshop and field study may be -

- Wildlife and its habitat monitoring and understanding the objective of data collection during regular patrolling.
- Wildlife census and field techniques
- Anti-poaching, Legal proceeding and forensics
- Micro planning for eco-development in surrounding villages
- Fire protection training
- EDC Account keeping
- Environmental Education and Awareness
- PA planning workshop
- Regional planning workshop
- PA management plan finalization workshop

During these types of workshop and field training regular interactions/discussions between officers and field staff would also add to the understanding of new perspectives relating to wildlife management.

7.4 Maintenance of Control Forms for Sajjangarh Wildlife Sanctuary

Control forms are essential for systematically documenting and maintaining recordmanagement activities, ecological monitoring, research, and socio-economic data in Protected Areas (PAs) like Sajjangarh Wildlife Sanctuary. These forms provide structured information, ensure accountability, and facilitate decision-making for effective conservation.

Below are the types of control forms that should be provided and maintained for the sanctuary:

1. Wildlife and Habitat Monitoring Forms

Purpose: To record data on wildlife populations, habitat conditions, and ecological changes.

Details to Include:

- Wildlife Sighting Form:
  - Date, time, species, number of individuals, location (GPS coordinates), behavior observed.
- Camera Trap Monitoring Form:
  - Camera ID, installation date, location, species captured, number of images/videos.
- Vegetation Sampling Form:

    - Plot location, species composition, canopy cover, invasive species presence, and growth conditions.
- Waterhole Usage Form:
    - Waterhole ID, usage by wildlife (species and frequency), water levels, seasonal observations.

2. Anti-Poaching and Patrolling Forms

Purpose: To track anti-poaching activities and ensure adequate patrolling within the sanctuary.

Details to Include:

- Patrolling Log Sheet:
    - Patrol route, start/end times, staff involved, observations (e.g., wildlife, threats).
- Illegal Activities Report Form:
    - Incident type (poaching, encroachment), location, evidence collected, action taken.
- Seizure and Arrest Form:
- Date, items seized, individuals apprehended, legal action initiated.

3. Eco-Tourism Management Forms

Purpose: To monitor visitor activities, ensure sustainable tourism practices, and manage revenues.

Details to Include:

- Visitor Entry Register:
    - Name, contact details, nationality, entry fees paid, date/time of visit, purpose of visit.
- Visitor Impact Assessment Form:
    - Tourist activities (e.g., trekking, safaris), observed disturbances (e.g., littering, noise), recommendations for improvement.
- Revenue Collection Form:
    - Entry fees, parking fees, guide charges, merchandise sales, total revenue collected.

4. Human-Wildlife Conflict Monitoring Forms

Purpose: To document conflicts between wildlife and local communities and monitor mitigation measures.

Details to Include:

- Conflict Incident Report Form:
  - Incident date, species involved, type of conflict (crop damage, livestock depredation), location, estimated losses.
- Compensation Claim Form:
  - Claimant details, incident details, verification process, compensation amount provided.

5. Research and Project Documentation Forms

Purpose: To maintain data from research studies and special projects conducted in the sanctuary.

Details to Include:

- Research Project Proposal Form:
  - Research title, objectives, methodology, researcher details, permissions granted.
- Research Progress Report Form:
  - Project milestones achieved, data collected, preliminary findings, challenges faced.
- Final Research Report Form:
  - Summary of findings, recommendations, implications for management.

6. Infrastructure and Equipment Maintenance Forms

Purpose: To ensure proper upkeep of sanctuary infrastructure and equipment.

Details to Include:

- Equipment Maintenance Log:
  - Equipment name, purchase date, usage details, maintenance schedule, repair history.
- Infrastructure Maintenance Form:
  - Facility type (e.g., research station, waterholes, watchtowers), issues observed, repairs undertaken, costs incurred.

7. Fire Monitoring and Control Forms

Purpose: To document fire incidents and evaluate fire prevention measures.

Details to Include:

- Fire Incident Report Form:
    - Date/time of fire, location, cause, area affected, species impacted, action taken.
- Fireline Maintenance Form:
    - Fireline ID, maintenance schedule, length cleared, staff involved, equipment used.

8. Disease Surveillance Forms

Purpose: To monitor the health of wildlife populations and identify disease outbreaks.

Details to Include:

- Wildlife Health Observation Form:
    - Species, symptoms observed, date/time, location, sample collection details.
- Disease Outbreak Report Form:
    - Species affected, number of cases, suspected cause, intervention measures, veterinary reports.

9. Community Engagement and Eco-Development Forms

Purpose: To document community involvement and assess the impact of eco-development programs.

Details to Include:

- Community Meeting Record Form:
    - Date, location, attendees, topics discussed, decisions made.
- Eco-Development Program Monitoring Form:
    - Program name, objectives, beneficiaries, outcomes, feedback from participants.
- Livelihood Assessment Form:
    - Community income sources, dependency on sanctuary resources, impact of alternative livelihood programs.

10. Biotic Pressure Monitoring Forms

Purpose: To monitor external pressures on the sanctuary and assess their impact.

Details to Include:

- Grazing Impact Form:
    - Grazing intensity, location, species grazed, impact on habitat.
- Resource Use Survey Form:
    - Types of resources collected (e.g., firewood, fodder), frequency, user demographics.

11. Wetland Monitoring Forms (If Applicable)

Purpose: To track the ecological health of wetlands in the sanctuary.

Details to Include:

- Water Quality Monitoring Form:
  - Waterhole ID, parameters tested (pH, salinity, pollutants), seasonal variations.
- Wetland Fauna Survey Form:
  - Species observed, abundance, breeding behavior, seasonal changes.

12. Periodic Review and Reporting Forms

Purpose: To facilitate regular assessment of management effectiveness.

Details to Include:

- Monthly/Annual Progress Report Form:
  - Summary of activities undertaken, milestones achieved, challenges faced, recommendations for improvement.

Implementation and Maintenance

1. Digitalization:
   - Use mobile apps or digital systems for real-time data collection and storage.
2. Training:
   - Train staff and researchers on the proper usage and maintenance of these forms.
3. Periodic Audits:
   - Conduct regular audits to ensure the forms are updated and accurately reflect field realities.

Chapter 8

Organisation, Administration, and Budget

8.1 Steering Committee

As per the requirement of act the process of constituting steering committee for ensuring, co-ordination, monitoring, protection and conservation of large carnivores and prey animals is in progress.

8.2 Co-ordination with Line agencies / Departments

Co-ordination with line agencies / departments are needed for: -

→ Better protection

Police, revenue, railway authorities, Judiciary etc.

→ Eco-development

Revenue, Rural development, Agriculture, health, Veterinary, Horticulture, Jila Panchayat, Women and child development, PHED, Education, Tribal welfare etc.

→ Gaps in habitat development

Jila Panchayat, Rural development, Agriculture etc.

→ Conflict resolution

Revenue, Police, Tribal welfare, Judiciary etc.

It is evident from above that co-ordination can be obtained in many ways and in many fields. Better co-ordination will not only ease pressure on limited resources of reserve management but will earn general goodwill among various sectors.

For co-ordination following measures could be adopted:-

- Regular meetings with line department.
- Co-coordinating with District Collector and CEO, ZP for organising special meetings with line departments.
- Knowing various schemes of line departments and identifying schemes suitable for the PA area.

- Reserve tour of officials of line departments.

- Accreditation and highlighting achievements of other departments in PA area.

These are few suggestive things, but in practice convergence could be achieved only through good interpersonal relationship with officials of line departments of various levels from district to village. Officer of PA should interact with their respective counterparts in other departments**.**

8.3 HRD/Staff Deployment –

A well-structured HRD plan is essential to ensure effective management of Sajjangarh Wildlife Sanctuary. Below is a detailed framework for HRD and Staff Deployment.

Adequate deployment of trained personnel is essential for effective patrolling, biodiversity conservation, eco-tourism management, and conflict mitigation.

Existing Staff Structure

The current staff structure in Sajjangarh Wildlife Sanctuary includes:

- **Field Staff**: Forest guards, foresters, and range officers responsible for day-to-day operations like patrolling, monitoring, and enforcing legal protection.
- **Administrative Staff**: Range officers, Assistant conservator of forest, divisional forest officers, and clerical staff to oversee planning and coordination.
- **Specialized Teams**: GIS analysts, ecologists, and veterinary experts for wildlife monitoring and research.
- **Support Staff**: Drivers, maintenance workers, and assistants.
- **Eco-Development Committees (EDCs)**: Local community members engaged in conservation and tourism activities.

Existing Staff Strength

- Staff deployment varies by the size and significance of the protected area.

Gaps Identified

- Insufficient staff numbers in remote and smaller protected areas.
- Lack of trained personnel for specialized tasks such as wildlife monitoring and GIS-based mapping.
- Inadequate field equipment for patrolling and habitat management.

3. Human Resource Development (HRD)

Training and Capacity Building

1. **Wildlife Management Training**:
    - Topics: Species monitoring, habitat management, conflict mitigation, and eco-tourism practices.
    - Target: Forest guards, range officers, and watchers.
2. **Technology Integration**:
    - Training on the use of GPS devices, camera traps, drones, and GIS software for monitoring and patrolling.
    - Collaboration with technical institutions for skill enhancement.
3. **Community Engagement**:
    - Workshops on participatory conservation for EDC members and local communities.
    - Training programs to promote sustainable livelihoods such as eco-tourism, handicrafts, and NTFP collection.
4. **Disaster Management and Climate Resilience**:
    - Training on fire management, flood response, and climate adaptation strategies.

Institutional Strengthening

- Collaboration with institutions like the Wildlife Institute of India (WII) and state forest training academies for advanced capacity-building programs.

- Partnerships with NGOs and universities for research-based training programs.

4. Staff Facilities and Welfare

- **Housing and Amenities**: Provision of accommodations, healthcare, and education facilities for field staff and their families in remote areas. Accommodation facility for Acfs , Rangers and lower staff.
- **Incentives and Rewards**:
    - Performance-based incentives for staff involved in anti-poaching and successful conservation efforts.
    - Awards and recognition for exceptional contributions.

5. Technology and Equipment Needs

- **Field Equipment**: Binoculars, GPS devices, drones, camera traps, and patrolling vehicles.
- **Communication Systems**: Wireless networks and mobile apps for real-time reporting.
- **IT Infrastructure**: Computers and GIS labs for data analysis and habitat mapping.

6. Budget and Resource Mobilization

- **Budget Allocation**: Dedicated funds for staff recruitment, training, and welfare.
- **CSR and Grants**: Leverage corporate social responsibility (CSR) contributions and international grants for HRD initiatives.
- **Eco-Tourism Revenue**: Utilize a portion of tourism revenue for staff development and welfare.

7. Monitoring and Evaluation

- **Performance Reviews**: Regular assessments of staff performance to identify gaps and training needs.
- **Staff Strength Reports**: Annual updates on staff deployment and requirements in each PA.

8.4 Fund-Raising Strategies-

Effective fund-raising strategies are essential for sustainable management and conservation of Sajjangarh Wildlife Sanctuary. The sanctuary, being a relatively small protected area, requires innovative approaches to generate funds while maintaining ecological balance and promoting sustainable practices. Below are proposed strategies to mobilize resources for the sanctuary:

Ongoing Government schemes (State and Centre):

- **Centrally Sponsored Scheme** under the Ministry of Environment, Forest, and Climate Change (MoEFCC).
- **Compensatory Afforestation Fund Management and Planning Authority (CAMPA)**
- **NABARD** – For ANR planting , RDF-1 , RDF-II , Soil and Moisture conservation Work , JFM Activities , Project Management.
- **Rajasthan Protected Areas Conservation (RPAC)**

The Rajasthan Protected Areas Conservation (RPAC) initiative is an umbrella framework designed to oversee and manage the protection, restoration, and sustainable development of Protected Areas (PAs) in Rajasthan

- **State Fund**
- **CSR contributions**

Revenue Generation through Eco-Tourism

Entry Fees and User Charges:

- Increase entry fees for domestic and international tourists with periodic reviews.
- Introduce charges for specific activities like guided treks, photography permits, and bird-watching tours.

Eco-Tourism Packages:

- Develop comprehensive eco-tourism packages, including guided tours of Sajjangarh Palace and the sanctuary, night safaris, and nature camps.

Souvenirs and Merchandise:

- Set up eco-friendly souvenir shops selling handicrafts, wildlife-themed merchandise, and local artisan products.

Luxury Tourism Opportunities:

- Collaborate with luxury hotels and resorts in Udaipur to offer eco-tourism add-ons

(e.g., safari tours, forest retreats)

Corporate Social Responsibility (CSR)

1. **Engage Corporates**:

- Partner with businesses under their CSR mandates for habitat restoration, water conservation, and eco-tourism infrastructure.
- Focus on companies in sectors like tourism, hospitality, and sustainability.

2. **Adopt-a-Species Program**:

- Allow corporations or individuals to "adopt" flagship species (e.g., leopards) or habitats in exchange for sponsorship and recognition.

1. **Infrastructure Development**:

- Seek funding from corporations for setting up watchtowers, waterholes, eco-tourism centers, and other facilities.

3. **Government and International Grants**

1. **Centrally Sponsored Schemes**:

- Utilize funds from schemes like the **Integrated Development of Wildlife Habitats (IDWH)** and **CAMPA**.

2. **State-Specific Funding**:

- Propose state government grants for eco-tourism promotion and community engagement programs.

3. **International Conservation Organizations**:

- Collaborate with global NGOs like WWF, IUCN, or UNESCO for biodiversity conservation grants.
- Seek funding under international agreements like the Convention on Biological Diversity (CBD).

4. **Community-Based Initiatives**

1. **Eco-Development Committees (EDCs)**:

- Encourage local community participation in revenue-generating activities such as guided tours, handicraft sales, and sustainable farming practices.

2. **Volunteer and Internship Programs**:

- Generate funds by inviting domestic and international volunteers or students for research, habitat management, and educational programs.

3. **Local Festivals and Events**:

- Organize nature-themed festivals, marathons, or cultural events in the sanctuary to raise awareness and generate funds.

5. Innovative Financing Mechanisms

1. **Green Bonds**:

- Issue green bonds for eco-restoration and infrastructure development projects.

2. **Carbon Credits**:

- Develop carbon sequestration projects under the sanctuary's forested areas to earn revenue through carbon credits.

3. **Wildlife Conservation Trust Funds**:

- Establish a dedicated trust fund for the sanctuary to pool donations from individuals, corporates, and organizations.

6. Public-Private Partnerships (PPP)

1. **Tourism Infrastructure Development**:

- Collaborate with private operators for eco-tourism facilities like trekking trails, safari vehicles, and interpretation centers.

2. **Research and Monitoring Support**:

- Partner with private research institutions and universities for funding wildlife studies and ecological monitoring programs.

7. Digital Platforms and Crowdfunding

1. **Online Donations**:

- Create a dedicated website or partner with crowdfunding platforms to accept donations from wildlife enthusiasts globally.

2. **Social Media Campaigns**:

- Use platforms like Instagram, Facebook, and YouTube to raise awareness and funds through engaging content on the sanctuary's wildlife and conservation efforts.

8. Leveraging Tourism in Udaipur

1. **Integration with Udaipur Tourism**:

- Bundle visits to Sajjangarh Wildlife Sanctuary with Udaipur's famous attractions like Lake Pichola and City Palace.
- Collaborate with local tour operators for integrated packages.

2. **Night Tourism**:

- Introduce guided night tours and safaris under controlled settings, leveraging Sajjangarh's proximity to Udaipur.

9. Monitoring and Accountability

1. **Transparent Financial Management**:

- Maintain clear records of all fund allocations and expenditures to build trust among donors and stakeholders.
- Publish annual reports highlighting the impact of funded initiatives.

2. **Periodic Review**:

- Evaluate fund-raising efforts and their effectiveness every year, adapting strategies as needed.

The Plan Budget:

Presently the Sajjangarh wild life sanctuary gets funds from “Non Plan” to meet out the expenditure on establishment. To carry out the development activities in sanctuary area under central sponsored scheme (100%) funds are provided.

The budget requirement of this management plan can be broadly classified into following categories:

Establishment Cost:

The present mode of bearing establishment cost through “State Plan” or “Non Plan” should continue. Expenditure on Salary, T.A., Medical, Office expenses & running of motor vehicles should be met from the existing budget heads.

Development Activities Proposed in Management Plan:

State government has limited financial resources. Hence the expenditure required to carry out the development works proposed in management plan are to be met through “Central sponsored Scheme” (100% share).

Contingency Expenditures:

The existing entry fees for the tourists include Eco-development surcharge. The Eco-development surcharge has been collected since the year 1999-2000. Presently this Eco-development surcharge is been deposited under "Revenue Head” of state government. It is proposed that the Eco-development surcharge collected should be re-allotted to meet out the contingency expenditures in the sanctuary area. It is suggested that the revenue from the Eco-development surcharge should be deposited in the P.D Account of Dy. Conservator of Forests Wildlife, Udaipur to be opened for this purpose.

BUDGETING FOR MANAGEMENT PLAN:

The budgeting for the plan period (2025-26 to 2034-35) for various components of management plan has been done. Year wise physical and financial requirements are submitted for consideration at Annexure- 51.

Part B

Suggestive Prescriptions for management of the Peripheral Zone of Influence (ZoI)

Eco-Sensitive Zone:

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.

ESZ description and extent :

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.

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.

Activities/Interventions provided in the ESZ notification/Zonal Master Plan (ESZ) as per the provisions governed by the provisions of the Environment (Protection) Act, 1986 :

1. **List of activities prohibited or to be regulated within Eco-sensitive Zone.-** 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 thereunder, and be regulated in the manner specified in the Table below, namely:-

S.No.	Activity	Remarks
(1)	(2)	(3)
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: Provided no mining quarrying, quarrying of digging of earth shall be carried out on steep hill slopes. Explanation.- "steep hill slope" means hill slope with a gradient of more than 20º. (b) 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.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 as per applicable laws.
5.	Establishment of new major hydroelectric projects and irrigation projects.	Prohibited (except as otherwise provided) as per applicable laws.
6.	Use or production of any hazardous substances.	Prohibited (except as otherwise provided) as per applicable laws.

7.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise provided) as per applicable laws.
8.	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.
Regulated Activities		
9.	Establishmentof 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 kilometre 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.	(a) 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. (b) 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.	(a) 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. (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.
12.	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.
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 at night.	Regulated for commercial, purpose, under applicable laws.
18.	Introduction of exotic species.	Regulated under applicable laws.
19.	Protection of hill slopes and river banks.	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.
Promoted Activities		
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.	Agro forestry.	Shall be actively promoted.
36.	Environnemental 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.

2. **Measures to be taken by State Government.-**The State Governments shall take the following measures for giving effect to the provisions of this notification, namely:-

(1) **Land use.-** Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the Monitoring Committee, and with the prior approval of the State Government, to meet the residential needs of local residents, and for the activities listed against serial numbers 15, 22, 28, 30 and 33 in column (2) of the Table in paragraph 4, namely:-

- widening and strengthening of existing roads and construction of new roads;
- small scale industries not causing pollution;
- eco-friendly tourism activities;
- rainwater harvesting; and
- cottage industries including village artisans, etc.

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the State Government and without compliance of the provisions of article 244 of the Constitution or law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007):

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of Monitoring Committee, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph:

Provided also that there shall be no consequential reduction in green area, such as forest area and agricultural area and efforts shall be made to reforest the unused or unproductive agricultural areas.

(2) **Natural springs.-**The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the guidelines shall be drawn up by the State Government in such a manner as to prohibit development activities at or near these areas which are detrimental to such areas.

(3) **Eco-tourism.-** (a) The activity relating to Eco-tourism within the Eco-sensitive Zone shall be as per Tourism Master Plan, which shall form part of the Zonal Master Plan.

(b) The Tourism Master Plan shall be prepared by Department of Tourism, in consultation with Department of Forests and Environment of the Government of Rajasthan.

(c) The activity of Eco-tourism shall be regulated as under, namely:-

(i) all new Eco-tourism activities or expansion of existing eco-tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forest and Climate Change and the eco-tourism guidelines issued by National Tiger Conservation Authority, (as amended from time to time) with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco- sensitive Zone;

Provided that, beyond one kilometre 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.

(ii) 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).

(4) **Natural heritage.-** All sites of valuable natural heritage in the Eco-sensitive Zone, such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) **Man-made heritage sites.-** Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic and cultural significance shall be indentified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) **Noise pollution.-** The Environment Department of the State Government or State Pollution Control Board shall implement the regulations for control of noise pollution in the Eco-sensitive Zone in accordance with the provisions stipulated of The Noise Pollution (Regulation And Control) Rules, 2000 under the Environment (Protection) Act, 1986.

(7) **Air pollution.-** The Environment Department of the State Government or State Pollution Control Board shall implement standards and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rule made thereunder. If required, standards may be made more stringent for protection of environment.

(8) **Discharge of effluents.-** The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the rules made thereunder.

(9) **Solid wastes. -** Disposal of solid wastes shall be as under:-

(i) the solid waste disposal in Eco-sensitive Zone shall be carried out in accordance with the provisions of the Solid Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change vide notification number S.O. 1357 (E), dated the 8th April, 2016 as amended from time to time;

(ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;

(iii) the biodegradable material shall be recycled preferably through composting or vermiculture;

(iv) the inorganic material may be disposed in an environmentally acceptable manner at site(s) identified outside the Eco- sensitive Zone and no burning or incineration of solid wastes shall be permitted in the Eco-sensitive Zone.

(10) Bio-medical waste.- The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out in accordance with the provisions of the Bio-Medical Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change vide notification number G.S.R 343 (E), dated the 28th March, 2016, as amended from time to time.

(11) **Vehicular traffic**. - The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal Master Plan is prepared and approved by the competent authority in the State Government, the Monitoring Committee shall monitor compliance of vehicular movement under the relevant Acts and the rules and regulations made thereunder.

(12) **Industrial units.-** (a) No establishment of new wood based industries within the proposed Eco-sensitive Zone shall be permitted except the existing wood based industries set up as per the law.

(b) No establishment of any new industry causing water, air, soil or noise pollution within the Eco-sensitive Zone shall be permitted.

(c) No new explosive go down shall be established within the Eco-sensitive Zone.

3. Monitoring Committee:- (1) The Central Government hereby constitutes a Monitoring Committee, for effective monitoring of the Eco-sensitive Zone, which shall comprise of the following, namely:-

(a) District Collector, Udaipur - Chairman;

(b) one representative of Non-Governmental Organisation working in the field of environment to be nominated by the Government of Rajasthan for a term of three year – Member;

(c) one expert in the area of ecology and environment to be nominated by the Government of Rajasthan for a term of three year – Member;

(d) District level officer of the Public Work Department –Member;

(e) District level officer of the Mining Departments – Member;

(f) District level officer of the Irrigation Departments – Member;

(g) District level officer of the Tourism Departments – Member;

(h) District level officer of the Police Departments – Member;

(i) District level officer of the Municipal Council Departments – Member;

(j) District level officer of the Industry Departments – Member;

(k) District level officer of the UIT Departments – Member;

(l) Regional Officer (RO) of the State Pollution Control Board – Member;

(m) SDO, Udaipur -Member;

Deputy Conservator of forest – Member-Secretary

4. Terms of reference.- (1) The tenure of the Monitoring Committee shall be of three years.

(2) The Monitoring Committee shall monitor the compliance of the provisions of this notification.

(3) The activities that are covered in the Schedule to the notification of the Government of India, 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.

(4) The activities that are not covered in the Schedule to the notification of the Government of India, 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 concerned Regulatory Authorities.

(5) The Member-Secretary of the Monitoring Committee or the concerned Collector(s) or the concerned park Deputy Conservator of Forests shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 (29 of 1986) against any person who contravenes the provisions of this notification.

(6) The Monitoring Committee may invite representatives or experts from concerned Departments, representatives from Industry Associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.

(7) The Monitoring Committee shall submit the annual action taken report of its activities as on the 31st March of every year by the 30th June of that year to the Chief Wildlife Warden of the State as per pro-forma appended at **Annexure V**.

(8) The Central Government in the Ministry of Environment, Forest and Climate Change may give such directions, as it deems fit, to the Monitoring Committee for effective discharge of its functions.

No new commercial hotels and resorts shall be permitted within one kilometre 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

GPS coordinates of proposed Eco-sensitive Zone around Sajjangarh Wildlife Sanctury

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° 35.528' 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	E17	73° 39.757' E	24° 36.038' N
18	E18	73° 40.366' E	24° 36.684' N
19	E19	73° 39.071' E	24° 37.430' N
20	E20	73° 37.927' E	24° 37.794' N

List of Villages falling within the Eco sensitive Zone

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

ANNEXURE – 1

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

AREA STAEMENT

S. No.	Name of Block	Legal Status	Notification No.	Compa-rtment Included	Area in Hectares as per Block file	Area in acres as per Block file
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Sajjangarh	Reserve Forest	F.11(64) Raj.-8/ 86 dated 17.02.1987	1 to 3	519.61 Hectares	1289 Acres

Note:- Besides above area of Forest Block Sajjangarh, an area of 141.75 Hectares of revenue land is also included in the Sanctuary Area.

ANNEXURE – 2

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

ZONE – WISE AREA STATEMENT

Name of Division / zone	Protected Unit	Name of Block	Compartment No included in Block	Area in Hectares
1	**2**	**3**	**4**	**5**
Wild Life, Division Udaipur	Sajjangarh Wild Life Sanctuary	Sajjangarh	1 to 3	519.61 Hectares

Note:- Besides above area of Forest Block Sajjangarh, an area of 141.75 Hectares of revenue land is also included in the Sanctuary Area.

ANNEXURE – 3

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

RANGE WISE & BLOCK WISE AREA STAEMENT

S.No.	Name of Range	Name of Block	Compartments	Area in Hectares
1	**2**	**3**	**4**	**5**
1	Sajjangarh	Sajjangarh	1 to 3	519.61 Hectares

Note:- Besides above area of Forest Block Sajjangarh, an area of 141.75 Hectares of revenue land is also included in the Sanctuary Area.

ANNEXURE – 4

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

AREA STATEMENT SHOWING CONSTITUTION & EXTENT OF THE SANCTUARY BY COMPARTMENTS

S.No.	Name of Division	Name of Range	Name of Block	Compa-rtment No.	Area in Hectares		
					R.F.	P.F.	U.C.
1	2	3	4	5	6	7	8
1	Wild Life Division, Udaipur	Sajjangarh	Sajjangarh	1 2 3	151 244 118	- - -	- - -

Note:- Besides above area of Forest Block Sajjangarh, an area of 141.75 Hectares of revenue land is also included in the Sanctuary Area.

ANNEXURE – 5

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

AREA STAEMENT

1. DISTRICT - WISE AREA

S.No.	Name of District	Area of Sanctuary within Limits of District Boundaries (in Hectares)	Details of Area (in Hectares)		
			R.F.	P.F.	U.C.
1	2	3	4	5	6
1	UDAIPUR	519.61	519.61	-	-

Note:- Besides above area of Forest Block Sajjangarh, an area of 141.75 Hectares of revenue land is also included in the Sanctuary Area.

2. LEGAL STATUS WISE AREA

S.No.	Total Area of Sanctuary	Details of Area (in Hectares)			
		R.F.	P.F.	U.C.	Revenue land
1	2	3	4	5	6
1	519.61	519.61	-	-	144.75

Note:- Besides above area of Forest Block Sajjangarh, an area of 141.75 Hectares of revenue land is also included in the Sanctuary Area.

ANNEXURE – 6

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

राजस्थान सरकार

राजस्व (वन) विभाग

क्रमांक :प.स.एफ.11(64)राज–8/86 जयपुर दिनांक 17.02.1987

अधिसूचना

यतः राज्य सरकार को यह प्रतीत होता है कि इससे संलग्न उपबन्ध में परिनिश्चित क्षेत्र को उसमें पाए जाने वाले वन्यजीवों के संरक्षण, प्रचारण एवं उनके विकास पर्यावरण के प्रयोजनार्थ उसके परिस्थितिक प्राणी जातीय, वनस्पति भू–संरक्षण तथा प्राणी विज्ञान सम्बन्धी सहयोजन और महत्व के कारण वन्यजीव अभयारण्य के रूप में गठित करने की आवश्यता है।

अतः वन्यजीव (संरक्षण) अधिनियम, 1972 (1972 के केन्द्रिय अधिनियम संख्या 53) की धारा 18(1) के अधीन प्रदत्त शक्तियों के प्रयोग में राज्य सरकार निम्न अनुसूचि में वर्णित सीमाओं के अन्तर्गत आने वाली भूमि अभयारण्य घोषित करती है, जिसे भविष्य में ''सज्जनगढ़ अभयारण्य'' के नाम से जाना जावेगा। अर्थात :–

क्र. सं.	क्षेत्र	नाम तहसील	जिला	सीमाए	वि. वि.
1	वन्यजीव अभयारण्य सज्जनगढ़	गिर्वा	उदयपुर	उत्तर : वनखण्ड सज्जनगढ़ की उत्तरी सीमा पूर्व : वनखण्ड सज्जनगढ़ की पूर्वी सीमा दक्षिण : वनखण्ड सज्जनगढ़ की दक्षिणी सीमा पश्चिमीः वनखण्ड सज्जनगढ़ की पश्चिमी सीमा	

राज्यपाल की आज्ञा से

हस्ताक्षर

(जे. एस. यादव) उप

शासन सचिव, वन

ANNEXURE – 7

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

विज्ञप्ति वन विभाग

संख्या : एफ15(217)राजस्व(क)58 दिनांक 19.1.1959

विविध

विज्ञप्ति संख्या 13485 दिनांक 20.8.47 में संलग्न अनुसूची (अ) में वर्णित जिस भूमि को आरक्षित वन मेवाड वन अधिनियम (अधिनियम संख्या 2 सन्1942) के अन्तर्गत बनना प्रस्तावित किश्या गया था।

और उपरोक्त अधिनियम के अनुसार जो इस भूमि में अधिकारों के दावे प्रस्तुत करने की निश्चित अवधि समाप्त हो चुकी है।

और जो कि अनुसूची (ब) में र्णित मात्रा तक दावे स्वीकृत कर लिए गए है, और अनुदान (जो राजस्थान सरकार के इच्छानुसार वापिस लिए जा सकते है) प्रदत्त कर दिए गए है।

अतः इसके द्वारा यह ज्ञापन किया जाता है कि उक्त अनुसूची में वर्णित, ग्राम समूह अनुसूची में अंकित मात्रा तक तथा उन ऋतुओं में व वन के उन भागों में व उन नियमों के अन्तर्गत जो कि समय–समय पर राजस्थान सरकार निर्धारित करें, उपभोग करते रहेगे।

इसके द्वारा यह भी ज्ञापन किया जाता है कि राज्य सरकार राजस्थान वन अधिनियम की धारा 20 के अन्तर्गत उक्त भूमियों को दिनांक 1.4.1956 से आरक्षित वन घोषित करती है।

राज्यपाल की आज्ञा से,
राधा कृष्ण चतुर्वेदी राजस्व
सचिव

अनुसूची (अ)

जिला	परगना	पट्टी	वन खण्ड	अन्दाजिया रकबा	हदूदव सीमा	विशेष ा
						विवरण
उदयपुर	गीरवा	–	सज्जनगढ़	1284 एकड	सीमा विवरण का परिशिष्ठ (अ) संलग्न	

परिशिष्ठ (अ)

वनखण्ड सज्जनगढ़, रेंज उदयपुर, तहसील गीरवा का सीमारेखा विवरण :–

क्र. सं.	सीमा चिन्ह संख्या से	सीमा चिन्ह संख्या तक	दूरी जरीब व कडियों में		दिशा	विवरण रेखा
			जरीब	कडियां		
1	2	3	4	5	6	7
1	1	2	4	30	पूर्व	सीधी रेखा
2	2	3	14	50	पूर्व	सीधी रेखा
3	3	4	4	70	दक्षिण	सीधी रेखा
4	4	5	2	80	दक्षिण	सीधी रेखा
5	5	6	17	90	दक्षिण	सीधी रेखा
6	6	7	6	10	दक्षिण	सीधी रेखा
7	7	8	13	20	दक्षिण	सीधी रेखा
8	8	9	20	23	दक्षिणपूर्व	सीधी रेखा
9	9	10	8	60	दक्षिणपूर्व	सीधी रेखा
10	10	11	12	60	दक्षिणपूर्व	सीधी रेखा
11	11	12	2	60	दक्षिणपूर्व	सीधी रेखा
12	12	13	10	15	दक्षिणपूर्व	सीधी रेखा

13	13	14	8	73	दक्षिणपूर्व	सीधी रेखा
14	14	15	6	07	दक्षिणपूर्व	सीधी रेखा
15	15	16	5	40	दक्षिणपूर्व	सीधी रेखा
16	16	17	4	00	दक्षिण	सीधी रेखा
17	17	18	18	40	दक्षिण	सीधी रेखा
18	18	19	10	40	दक्षिण	सीधी रेखा
19	19	20	19	73	दक्षिणपूर्व	सीधी रेखा
20	20	21	19	67	पूर्व	सीधी रेखा
21	21	22	21	50	पूर्व	सीधी रेखा
22	22	23	8	67	दक्षिणपूर्व	सीधी रेखा
23	23	24	4	93	दक्षिण	सीधी रेखा
24	24	25	7	25	दक्षिण	सीधी रेखा
25	25	26	4	20	दक्षिण	सीधी रेखा
26	26	27	8	55	दक्षिण	सीधी रेखा
27	27	28	12	50	दक्षिण	सीधी रेखा
28	28	29	10	20	दक्षिण	सीधी रेखा
29	29	30	5	40	दक्षिण	सीधी रेखा
30	30	31	4	40	दक्षिण	सीधी रेखा

31	31	32	3	70	दक्षिण पश्चिम	सीधी रेखा
32	32	33	2	80	दक्षिण पश्चिम	सीधी रेखा
33	33	34	5	84	दक्षिण पश्चिम	सीधी रेखा
34	34	35	7	35	दक्षिण पश्चिम	सीधी रेखा
35	35	36	15	17	दक्षिण पश्चिम	सीधी रेखा
36	36	37	10	40	दक्षिण पश्चिम	सीधी रेखा
37	37	38 / 1	1	37	दक्षिण पश्चिम	सीधी रेखा
38	38 / 1	38 / 2	136	80	उत्तर पश्चिम	सीधी रेखा
39	38 / 2	38 / 3	22	00	उत्तर	सीधी रेखा
40	38 / 3	38 / 4	118	40	उत्तर पश्चिम	सीधी रेखा
41	38 / 4	39	27	40	उत्तर	सीधी रेखा
42	39	40	3	80	उत्तर पूर्व	सीधी रेखा
43	40	41	8	00	उत्तर	सीधी रेखा
44	41	1	10	50	उत्तर	सीधी रेखा

नेटः— 1. जरीब से अभिप्राय 76.1 / 4 फिठ से है। जिसमें 100 कडियां है। 2. माप से अभिप्राय धरातल के स्तर के माप से है।

ANNEXURE – 8

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

CENSUS FIGURES OF WILD ANIMALS IN SAJJANGARH WILD LIFE SANCTUARY FROM 2025

S.N.	Animal species	Year										
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Panther	5	1	0	4	4	5	3	-	2	-	12
2	Jungle Cat	3	0	4	2	4	6	5	-	12	-	14
3	Jackal	8	0	5	6	8	8		-	17	-	18
4	Hyaena	1	0	1	1	1	2	11	-	2	-	2
5	Newla	-	27	-	25	3	-	7	-	7	-	5
6	Sambar	5	11		10	13	9	9	-	23	-	28
7	Hare	-	-	-	-	-	-	-	-	-	-	-
8	Pata Goh	7	-	-	-	1	-	4	-	3	-	5
9	Wild Boar	4	0	-	0	1	2	-	-	-	-	21
10	Languar	178	79	133	133	128	125	97	-	90	-	92
11	Chetal	47	27	27	27	42	14	27	-	51	-	52
12	Peafowl	-	-	-	-	-	-	-	-	-	-	-
13	Quails	-	-	-	-	-	-	-	-	-	-	-
14	Blue Bull	24	31	32	32	34	25	173	-	26	-	27
15	Fox	3	2	0	0	0	-	0	-	3	-	4
16	Python	-	-	-	1	3	-	1	-	-	-	-
17	Hawk	-	-	-	-	-	-	-	-	-	-	-
18	Porcupine	-	-	-	-	-	-	-	-	-	-	-
19	Civet	-	-	9	8	10	-	14	-	-	-	-
20	Chinkara	-	-	-	-	-	-	-	-	-	-	-
21	Rabbit	81	33	33	41	23	27	40	-	-	-	8
22	Peacock	207	132	133	150	152	152	221	-	35	-	43
23	WhiteMunia	-	-	-	-	-	-	-	-	-	-	-

24	Owl	-	-	-	-	-	-	-	-	-	-	-

ANNEXURE – 9

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF MAMMALS WITH LOCAL STATUS

S. No	Local Name	English Name	Scientific name	Status
1.	Bhund	Wild Boar	*Sus scrofa*	R
2.	Chhachhunder	Grey Musk Shrew	*Sunchus murinus*	C
3.	Samisulia	Bat	*Cyanopterus sphynx*	L
4.	Bagal	Flying Fox *	*Pteropus gigenticus*	A
5.	Cheetra	Panther	*Panthera pardus*	L
6.	Vandra	Common Langur	*Prebytis entellus*	L
7.	Jharakh	Striped hyaena	*Hyaena hyaena*	L
8.	Jungli minki	Jungle cat	*Felis chaus*	L
9.	Khiskoli	Five striped Palm squirrel	*Funambulus pennanti*	A
10.	Halahooda	India pangolin	*Manis carassicaudata*	R
11.	Lonkdi	Indian fox	*Vulpes bengalensis*	R
12.	Noliyo	Common Mongoose	*Herpestes edwardsi*	C
13.	Bhundra	Ruddy mongoose	*H. smithi*	R
14.	Oonder	House rat	*Rattus rattus*	A
15.	Roj, Neelgai	Blue bull	*Boselaphus tragocamelus*	I
16.	Hanhan	Indian Hare	*Lepus nigricollis*	C
17.	Heli	Indian porcupine	*Hystrix indica*	L
18.	Shiyal	Jackal	*Canis aureus*	A
19.	Viju	Indian Small Civet	*Vivaricula indica*	L
20.	Viju	Toddy cat	*Paradoxurus hermaphroditus*	L

* No roosting inside. They roost in city area, come over here during night for feeding

INDEX :

Local Status A = Abundent, C = Common, L = Less common,
R = Rare, I = Inttroduced

ANNEXURE – 10

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF BIRDS WITH LOCAL STATUS

Group	English name	Latin Name	Local name	Local
Partriges & Francolins	Painted Francolin	*Francolinus pictus*	Kalda	L
	Grey Francolin	*F. pondicerianus*	Teetar	R
Quails & Button Quails	Common Quail	*Coturnix coturnix*	Lava	C
	Rain Quail	*C. coromadelica*	Lava	C
	Rock Bush Quail	*Perdicula argoundah*	Lava	C
	Yellow-legged button Quail	*Turnix tanki*	Lava	C
	Barred Button Quail	*T. suscitator*	Lava	L
Pheasants	Indian Peafowl	*Pavo cristatus*	Mor	R
Geese, Whistling Ducks Shelduck, Ducks	Ruddy Shelduck	*Tadorana ferruginea*	-	R
	Gadwal	*Anas strepera*	-	R
	Eurasian Wigeon	*A.. penelope*	-	R
	Spot-billed Duck	*A. poecilorhyncha*	-	R
	Common Teal	*A. crecca*	-	R
	Garganey	*A. querquedula*	-	R
	Northern Pintail	*A. acuta*	-	R
	Northern Shoveller	*A. clypeata*	-	R
	Common Pochard	*Aythya ferina*	-	L
Woodpeckers	Yellow-Crowned Woodpecker	*Dendrocopos mahrattensis*	Sutharna	L
	Black Rumped Flameback	*Dinopium benghalensis*	Sutharna	C
Barbets	Coppersmith Barbet	*M. heamcephala*	Chhoti tatrok	C
Hornbill	Indin Grey Hornbill	*Ocyceros birostris*	Dhantar	R
Hoopae	Commor Hoopoe	*Upupa epops*	Sutharia	L
Rollers	European Roller	*Coracias garrulus*	-	R
	Indian Roller	*C. benghalensis*	Nillkanth	L

Kinghfisher	Common Kingfisher	*Alcedo athis*	-	L
	White-throated kingfisher	*Halcyon smyrnesis*	-	C
	Pied Kingfisher	*Ceryle rudis*	-	L
Bee-eater	Green Bee-eater	*Merops orientalis*	-	C
Cuckoo	Pied cuckoo	*Clamator jacobinus*	-	C
	Common Hawk Cuckoo	*Hierococcyx various*	-	L
	Eurarian Cuckoo	*Cuculus canorus*	-	L
	Asian Koel	*Eudynamys scolopacea*	Koel	C
	Sirkeer Malkoha		-	R
	Greater Coucal	*Phoenicophaeus leschnaultii*	-	C
		Centropus sinensis		
Parakeets	Rose ringed Parakeet	*P. krameri*	Hooda	C
	Plum headed Parakeet	*P. cynoceplala*	Tui	C
Swift	House swift	*Apus affinis*	Kanuda	R
Owl	Eurasian Eagle Owl	*Bubo bubo*	Ghughu	R
	Spotted owlet	*Athene brama*	Chhibra	C
Nightjar	Indian Nightjar	*Caprimulgus asiaticus*	Pataped	R
	Savanna Nightjar		Pataped	C
		C. affinis		
Pigeon	Rock Pigeon	*Columba livia*	Pareva	C
	Yellow-footed Green Pigeon	*Treron phoenicoptera*	Halewar	L
Doves	Laughing Dove	*Streptopelia senegalensis*	Holy	A
	Spotted Dove		Holy	R
	Europian Collared Dove	*S. chinensis*	Holy	A
		S. decaocto		
Rallids	Common Moorhen	*Gallinula chloropus*	-	R
	Common Coot	*Fulica atra*	-	C
Waders	Common Redshank	*Tringa totanus*	-	L
	Green Sandpiper	*T. ochropus*	-	L
	Wood sandpiper	*T. glareola*	-	L
	Common sandpiper	*Actitis hypoleucos*	-	C
Thick Knees	Europian Thick-knee	*Burhinus oedicnemus*	-	L
Plovers & Lapwings	Little Ringed plover	*Charadrius dubius*	-	L
	Red wattled lapwing	*Vanellus indicus*	Teetodi	A
Terus	River tern	*Sterna aurantia*	-	L

Kites	Black shouldered Kite	*Elanus caeruleus*	-	C
	Black Kite	*Milvus migrans*	-	C
Vultures	Egyptian Vulture	*Neophron percnopterus*	Hamli	L
	White-rumped Vulture	*Gyps bengalensis*	Girajh	R
	Long-billed Vulture	*G. indicus*	-	R
Accipiters	Shikra	*Accipiter badius*	-	C
Bazzards	White-eyed Buzard	*Butostur teesa*	-	C
Grebe	Little Greb	*Tachybaptus ruficollis*	-	C
Darter & Cormorants	Darter	*Anhinga melanogaster*	-	L
	Little cormorant	*Phalacrocarax niger*	-	C
	Great Cormorant	*P. carbo*	-	L
Egret & Herons	Little Egret	*Egretta garzetta*	Bagula	A
	Intermediate Egret	*Mesophoyx intermedia*	Bagula	L
	Cattle Egret	*Bubulcus ibis*	Bagula	A
	Indian Pond Heron	*Ardeola grayii*	Bagula	A
	Grey Heron	*Ardea cinerea*	Bagula	L
Ibises	Black-headed Ibis	*Threskiornis melounocephala*	-	L
	Black Ibis	*Pseudibis papillosa*	-	L
Storks	Painted Stork	*Mycteria leucocephala*	-	L
	Asian Openbill Stork	*Anastomus oscitans*	-	C
	Woolly-necked Stork	*Ciconia epicopus*	-	L
Pitta	Indian Pitta	*Pitta brachyura*	-	C
Shrike	Longteiled Shrike	*Lanius schach*	Son-chiri	A
	Great Grey Shrike	*L. excubitor*	-	R
Treepie & Crows	Rufous Treepie	*Dendrocitta vagabunda*	Ganela	C
	House Crow	*Corvus splendens*	Kowa	C
	Large-billed Crow	*C. macrorhynchos*	Dhod	C
Oriole	Eurasian Golden oriole	*Oriolus oriolus*	Peelak	A
Minivet	Small Minivet	*Pericrocotus cinnamomeus*	-	C
Fantails	White-throated Fantail	*Rhipidura albicollis*	Nachan	L
	White-browed fantail	*R. aureola*	-	L

Drongos	Black-Drongo White-bellied Drongo	*Dicrurus macrocercus* *D. caerulescens*	Kangwalia -	C L`
Paradise Flycatchers/ Flycatchers	Asian Paradise - Flycatcher Red-throated Flycatcher Grey-headed Canary Flycather	*Terpsiphone paradisi* *Ficedula parva* *Culicicapa ceylonensis*	Mehpedka - -	L C C
Ioras	Common Iora	*Aegithina tiphia*	-	C
Chat bush chuts, Robi etc.	Oriental Magpie Robin Indian Robin Black Redstart Common Stonechat Pied Bashchat Variable wheater	*Copsychus saularis* *Saxicoloides fulicata* *Phoenicurus ochruros* *Saxicola torquata* *S. capreata* *Oenanthe picata*	- Duchki - - - -	C C C C C R
Starling and Mynas	Brahminy starling Bank Myna Common Myna	*Sturnus pagodarum* *Acridotheres gingivalis* *Acridotheres tristis*	Cabar Cabar Cabar	C R A
Tit	Great Tit Black-lored Tit	*Parus major* *P. xanthogenys*	- -	L R
Martin & Swallows	Dusky Crag Martin Wire-tailed swallow Red-rumped swallow	*Hirumdo cancolor* *H. smithii* *H. daurica*	- - -	C C C
Bulbul	Red vented Bulbul	*Pyconotus cafer*	Pittola	A
Warblers	Grey- breasted Prinia Ashy Prinia Lesser Whitethroat Common Tailor bird	*Prinia hodgsonii* *P. socialis* *Sylvia curruca* *Orthotomus sutorius*	- - - -	A A A C
White eye	Oriental white eye	*Zosterops palpebrosus*	-	A
Babbler	Common Babbler Large Grey Babbler Jungle Bobbler	*Turdoides caudatus* *T. malcolmi* *T. striatus*	- - -	R C R
Larks	Indian BushLark Ashy-Crowned Sparrow Lark	*Mirofra eyethroptera* *Eremopterix nigriceps*	- -	L C

Sunbird	Purple sunbird	*Nectarinia asiatica*	Sui	C
Sparrow weavers and munias	House sparrow	*Passer domestica*	Chakli	A
	Chestnut shouldered petronia	*Petronia xanthocollis*	-	A
	Baya weaver	*Ploceus philippinus*	Jhari	L
	Scaly-breasted Munia	*Lonchura punctulata*	-	C
	Indian Silverbill	*L. malabarica*	-	C
Wagtail	White wagtail	*Motacilla alba*	-	C
	White browed wagtail	*M. maderaspatensis*	-	L
	Yellow wagtail	*M. flava*	-	L
	Citrine wagtail	*M. citreola*	-	L
Pipit	Paddyfield Pipit	*Anthus phulvus*	-	A
Buntings	Crested Bunting	*Melophus lathami*	-	C

INDEX A = Abundent, C= Common,
L = Less common, R= Rare

ANNEXURE – 11

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF AMPHIBIONS WITH LOCAL STATUS

Local Name	English Name	Scientific Name	Status	
			National	Local
Dedka	Indian Bull Frog	*Rana tigerina*	-	C
Dedka	Indian Burrowing Frog	*R. tomopterna*	-	A
Dedka	Skipper Frog	*R. cynophlyctius*	-	A
Dedka	Cricket Frog	*R. limnocharis*	-	A
Dedka	Indian Baloon Frog	*Uperodon systoma*	-	L
Dedka	Common Toad	*Bufo melanoctictus*	-	A
Dedka	Marbled Toad	*B. andersoni*	-	L

INDEX A = Abundent, C= Common,
L = Less common, R= Rare

ANNEXURE – 12

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF REPTILES WITH LOCAL STATUS

S. No.	Local Name	English Name	Scientific Name	Status
1.	Ajgar	Indian python	*Python molursus*	R
2.	Andhdi chakdol, Boga	John Sandboa	*Eryx johni*	L
3.	Bodi bamani	Common Skink	*Mabuya carinata*	C
4.	Dedu	Cheakered Keelback	*Natrix piscator*	C
6.	Dhaman	Rat snake	*Ptyas mucosus*	C
7.	Garodi	House lizard	*Hemidactylus flaviviridis*	A
8.	Kachhua	Starred tortoise	*Geochalone elegans*	R
9.	Kachinda, Kangatia	Garden Lizard	*Calotes versicolor*	A
10.	Kalotra	Common Indian Krait	*Bungarus caerulens*	R
11.	Khadchitti	Russel's Viper	*Vipera russelli*	R
12.	Leelo kachindo, Halanviya	Indian Chamaeleon	*Chamaeleon zeylanicus*	R
13.	Nag, Nagin	Indian cobra	*Naja naja*	R
14.	Kachhua	Flapshell turtle	*Lissemys punctata*	R
15.	Pankha	Fan-throated lizard	*Sitana ponticeriana*	C
16.	Patla goh	Moniter lizard	*Varanus bengalensis*	C
17.	Udni	Tree snake	*Dendrolephis tristis*	R

INDEX A = Abundent, C= Common,
L = Less common, R= Rare

ANNEXURE –13

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF FISHES WITH LOCAL STATUS*

S. No.	Local Name	English Name	Scientific Name	Status
1.	Katla	Katla	*Catla catla*	A
2.	Rohu	Rohu	*Labeo rohita*	A
3.	Grigal	Grigal	*Cirrhina mrigal*	C
4.	Mahasir	Mahasir	*Tor tor*	C
5.	Putthi	Putthi	*Puntius sarana*	L
6.	Sarsi	Sarsi	*Labeo granius*	L
7.	Lanchi	Lanchi	*Wallago attu*	C
8.	Singhara	Singhara	*Mystus seenghati*	C
9.	Kater	Kater	*Mystus cavassius*	R
10.	Sanwal	Sanwal	*Channa manilius*	C
11.	Singhi	Singhi	*Heteropntustis fossilis*	R
12.	Bam	Bam	*M. armatus*	R
13.	Suiya	Suiya	*Bellana cancilla*	R
14.	Baata	Baata	*Labeo baata*	R
15.	Dudhia	Dudhia	*Labeo bugget*	R
16.	Chaal	Chaal	*Rasbora damicassicus*	R
17.	Kalot	Kalot	*Labeo calbasu*	R

*Few fishes are present in Jhar water hole and many are present in closed by water holes like Badi talab.

INDEX A = Abundent, C= Common,
L = Less common, R= Rare

ANNEXURE – 14

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF IMPORTANT INVERTEBRATES WITH LEGAL STATUS

S. No.	Hindi Name	Local Name	Latin Name	Status Abundant / Common / Less Common / Rare
1	**2**	**3**	**4**	**5**
1	Madhu makhi	Bhanwar	*Apis dorsata*	Less Common
2	Madhu makhi	Bhanwar	*Apis indica*	Less Common
3	-	Tanni	*Cicada sps.*	Abundant
4	Kenchua	Alsiya	*Pheritema posthumas*	Common
5	-	-	*Neocerambyx paris*	Rare
6	-	-	*Mantis sps.*	Common
7	Gobar ka Gubrella	Gobar ka Gubrella	*Onthophagus sagittarius*	Common
8	Gharmela Bada	Gharmela Bada	*Julus sp.*	Rare
9	Kante ka Kida	Kante ka Kida	*Clania sp.*	Common
10	Titli	Titli	*Melanitis leda*	Rare
11	Titli	Titli	*Terias hecaba*	Common
12	Titli	Titli	*Junonia orithya*	Common
13	Titli	Titli	*Euploea core*	Common
14	Titli	Titli	*Vanessa carduri*	Common
15	Titli	Titli	*Papilio polytes*	Common
16	Titli	Titli	*Argema selena*	Common
17	Rashem ki Titli	Mewar ki dokri	*Anthera mylitta*	Common
18	Zebra makdi	Kolan	*Plexippus paykully*	Common
19	Aakere kaTidda	Tiddla	*Poecilocrus pictos*	Very Common

20	Kenkra	Katla	*Paratelphusa jacquemonti*	Rare

ANNEXURE – 15

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

A LIST OF TREES, SHRUBS, HERBS, CLIMBERS, GRASSES AND BAMBOOS IN THE SANCTUARY WITH LOCAL STATUS

INDEX:- (A= Abundent, C=Common, L=Less common, R= Rare, I= introduced)

TREES

S. No.	Botanical Name	Common Name	Family	Status
1.	*Acacia catechu*	Khair	Mimosaceae	A
2.	*Acaia leucophloea*	Ronjh	Mimosaceae	A
3.	*Acacia nilotica*	Desi Bawalia	Mimosaceae	L
4.	*Acacia senegal*	Kumta	Mimosaceae	A
5.	*Adina cordifolia*	Haldu	Rubiaceae	R
6.	*Aegle marmelos*	Bili	Rutaceae	L
7.	*Ailanthus excelsa*	Ardusa, Paba	Simaroubaceae	L
8.	*Alangium salvifolium*	Ankol	Alangiaceae	L
9.	*Albizzia lebbeck*	Black Siris	Mimosaceae	L
10-.	*Albizzia odoratissima*	Safed Siris	Mimosaceae	L
11.	*Albizzia procera*	Safed Siris	Mimosaceae	R
12.	*Annona sequamosa*	Sitaphal	Annonaceae	C
13.	*Anogeissus pendula*	Dhokda	Combretaceae	C
14.	*Anogeissus latifolia*	Dhavda	Combretaceae	C
15.	*Anogeissus sericea*	Adrukh, Indok	Combretaceae	R
16.	*Azadirachta indica*	Neem	Meliaceae	L
17.	*Balanites aegyptica*	Hingot	Balanitaceae	C
18.	*Bauhenia recemosa*	Jhinjha, Heetri	Caesalpiniaceae	L
19.	*Bombax ceiba*	Semal	Bombacaceae	L
20.	*Boswellia serrata*	Salar	Burseraceae	L
21.	*Butea monosperma*	Khakhro	Papilionaceae	L
22.	*Cassia fistula*	Karmela	Caesalpiniaceae	L

23.	*Cassia siamea*	Kasid	Caesalpiniaceae	I
24.	*Cordia mixa*	Gunda, Lisoda	Ehretiaceae	L
25	*Crataeva religiosa*	Varna	Capparaceae	R
26	*Dalbergia sissoo*	Sissoo	Papilionaceae	I
27	*Diospyros melanoxylon*	Timru	Ebenaceae	C
28	*Ehretia laevis*	Tambolia	Ehretiaceae	L
29	*Emblica officinalis*	Amla	Euphorbiaceae	L
30	*Erythrina suberosa*	Dhed khakhro	Papilionaceae	R
31	*Euclyptus sp.*	Nilgiri	Myrtaceae	I
32	*Ficus benghalensis*	Vad	Moraceae	C
33	*Ficus racemosa*	Umara	Moraceae	C
34	*Ficus religiosa*	Piplo	Moraceae	C
35	*Flacourtia montana*	Kankan	Flacourtiaceae	C
36	*Gardenia resinifera*	Dikamari	Rubiaceae	R
37	*Grewia hirsuta*	Khad Dhaman	Tiliaceae	L
38	*Grewia tenax*	Gangeti	Tiliaceae	L
39	*Grewia tiliaefolia*	Dhaman	Tiliaceae	L
40	*Grewia villosa*	Gangeti	Tiliaceae	R
41	*Holoptelia integrifolia*	Kanji	Ulmaceae	L
42	*Hymenodictyon excelsum*	Lunio	Rubiaceae	R
43	*Lannea coromandelica*	Godla	Anacardiaceae	A
44	*Leucaena leucocephala*	Subabul	Mimosaceae	I
45	*Limonia acidissima*	Kotbadi	Rutaceae	R
46	*Madhuca indica*	Mahudo	Sapotaceae	L
47	*Mangifera indica*	Amba	Ancardiaceae	C
48	*Melia azaderach*	Bakain limdo	Meliaceae	L
49	*Mitragyna parviflora*	Kalam	Rubiaceae	C
50	*Moringa oleifera*	Sahjana	Moringaceae	L

51	*Pithecellobium dulce*	Kikar	Mimosaceae	L
52	*Pongamia pinnata*	Karanj	Papilionaceae	R
53	*Prosopis cineraria*	Khijdo,	Mimosaceae	R
54	*Prosops juliflora*	Vilayati	Mimosaceae	I
55	*Soymida fabrifuga*	Royan	Meliaceae	R
56	*Sterculia urens*	Kadayo	Sterculiaceae	L
57	*Tamarindus indica*	Khatri Amli	Caesalpiniaceae	L
58	*Tecomella undulata*	Rohida	Bignoniaceae	R
59	*Tectona grandis*	Sag, Sagwan	Verbenaceae	R
60	*Wrightia tinctoria*	Dudhi	Apocyanaceae	A
61	*Wrightia tomentosa*	Dudhi	Apocyanaceae	L
62	*Zizyphus mauritiana*	Bordi	Rhamnaceae	L
63	*Zizphus xylophyrus*	Ghat bor	Rhamnaceae	L

SHRUBS

S. No.	Botanical Name	Common Name	Family	Status
1.	*Adhatoda vesica*	Ardusa	Acanthaceae	C
2.	*Calotropis gigantea*	Akdo	Asclepiadaceae	A
3.	*Calotropis procera*	Akdo	Asclepiadaceae	L
4.	*Capparis decidua*	Ker	Capparaceae	R
5.	*Capparis sepieria*	Kanther	Capparaceae	A
6.	*Corissa conjesta*	Karamada	Apocynaceae	L
7.	*Cassia auriculata*	Awal	Caesalpiniaceae	A
8.	*Cassia occidentalis*		Caeslpiniaceae	L
9.	*Clerodendron phlomidis*	Arani	Verbenaceae	L
10.	*Dendrocolamus strictus*	Bans	Poaceal	R
11	*Dendropthoe fulcuta*	Vahi-hankal	Lorarthaceae	R
12.	*Dichrostachys cinerea*	Goya khair	Mimosaceae	C

13.	*Euphorbia caducifolia*	Thor	Euphorbiaceae	C
14.	*Euphorbia nivulia*	Thor	Euphorbiaceae	C
15.	*Helicteres isora*	Marod phali	Sterculiaceae	L
16.	*Holarrhena antidysenterica*	Kadwa	Apocyanaceae	L
17.	*Jatropha carcus*	Ratna jyot	Euphorbiaceae	A
18.	*Jatropha gossypifolia*	Chhoti Ratan Jyot	Euphorbiaceae	A
19.	*Kirganelia reticulata*	Kamboi	Euphorbiaceae	L
20.	*Leptadenia pyrotechnica*	Khinp	Asclepiaduceae	L
21.	*Mimosa hamata*	Aila	Mimosaceae	R
22.	*Nyctenthes arbor-tristis*	Tamat	Nyctoginaceae	L
23.	*Plumbego zeylanica*	Chitrak	Plunbeginaceae	L
24.	*Ricinus communis*	Arundo	Euphorbiaceae	R
25.	*Securinega leucopyrus*	Shenvi	Euphorbiaceae	L
26.	*Thespesia lampas*	Paras pipal	Malvaceae	R
27.	*Viscum articulatum*	Vando	Loranthaceae	L
28.	*Vitex nigundo*	Nagod	Verbenaceae	A
29.	*Vogelia indica*	Chitawal	Plembegenaceae	A
30.	*Waltheria indica*	--	Sterculiaceae	L
31.	*Woodfordia fruticosa*	Dhavadi	Lythraceae	L
32.	*Zizyphus glabarata*	Bordi	Rhamnaceae	L
33.	*Zizyphus nummularia*	Chanibor	Rhamnaceae	A

CLIMBERS

S. No.	Botanical Name	Common Name	Family	Status
1.	*Abrus precatorius*	Ratti	Papilionaceae	C
2.	*Ampelocissus latifolia*	Khata limbu	Vitaceae	C

3.	*Asparagus racemosus*	Satvari	Liliaceae	L
4.	*Cardiospermum halicacabum*	Kak mardika	Sapindaceae	A
5.	*Cayratia camosa*		Vitaceae	C
6.	*Celastrus paniculata*	Mali	Celastraceae	L
7	*Cissampelos pareira*	Pahod Bel	Menispermaceae	C
8.	*Clitoria ternatea*	--	Papilionaceae	R
9.	*Coccinia indica*	Tindori	Cucurbitaceae	C
10.	*Cocculus hirsutus*	Vevdi	Menispermaceae	C
11.	*Cryptolepis buchanani*	--	Periplocaceae	C
12.	*Cucumis callosus*		Cucurbitaceae	C
13.	*Cuscuta reflexa*	Amarvel	Convolvulaceae	C
14.	*Dioscorea bulbifera*	Varahi kand	Dioscoriaceae	C
15	*Hemidesmus indicus*	Dudhvel	Asclepiadaceae	C
16	*Ipomoea nil*	Kaladana	Convolvulaceae	C
17	*Ipomoea pestigridis*	--	Convolvalaceae	C
18	*Ipomoea sindica*	--	Convolvulaceae	L
19	*Ipomoea sinensis*	--	Convolvulaceae	
20	*Luffa acutangula*	Turia	Cucurbitaceae	C
21	*Luffa echinata*	Kakadvel	Cucurbitaceae	C
22	*Maerua arneria*	Hemkand	Capparidacea	R
23	*Merremia aegyptica*		Convolvulaceae	C
24	*Marremia emarginata*		Convolvulaceae	C
25	*Merremia hederacea*	---	Convolvulaceae	C
26	*Momordica balasama*	---	Cacurbitaceae	R
27	*Momordica dioca*	Kikoda	Cacurbitaceae	A
28	*Mucuna pruriens*	Kavach	Papilionaceae	C
29	*Pergularia daemia*		Asclepiadaceae	C
30	*Peuraria taberosa*	Gejvi	Papilionaceae	C

31	*Passiflora edulis*		Passiflorace	L
32	*Rhynchosia bracteata*	Kamal vel	Papilionaceae	C
33	*Rhynchosia minima*		Papilionaceae	C
34	*Rivea hypocrateriformis*	Faug, Fag	Convolvulaceae	C
35	*Tinospora cordifolia*	--	Menispermaceae	C
36	*Trichosanthes brackteata*	Ratrani	Cucurbitaceae	C
37	*Trichosanthes cucumarina*	--	Cucurbitaceae	C

HERBS

S. No.	Botanical Name	Common Name	Family	Status
1.	*Abelmoschus manihot*	Jungli Bhindi	Malvaceae	C
2.	*Abutilon indicum*		Malvaceae	C
3.	*Acalypha ciliata*		Euphorbiaceae	C
4.	*Acalypha malabarica*		Euphoriaceae	C
5.	*Acalypha indica*		Euphorbiaceae	C
6.	*Acanthospermum hispidum*		Compositae	A
7.	*Achyranthus aspera*	Ulta Kanta	Amraldaceae	A
8.	*Aeschynomene indica*		Papilionaceae	C
9.	*Ageratum conyzoides*		Compositae	C
10-.	*Aloe vera*	Patha	Lilaceae	R
11.	*Alysicarpus hamosus*	---	Papilionaceae	C
12.	*Alysicarpus longifolius*	---	Papilionaceae	C
13.	*Alysicarpus procumbens*		Papilionaceae	C
14.	*Alysicarpus rotundifolia*	--	Papilioaceae	C

15.	*Alysicarpus tetragonoloba*	--	Papilionaceae	C
16.	*Alysicarpus vaginalis*	--	Papilionaceae	C
17.	*Ammania baccifera*		Lythraceae	C
18.	*Amaranthus gracilis*		Ammrantaceae	C
19.	*Amaranthus hybridus*		Ammrantaceae	C
20.	*Amarantus spinosus*	--	Ammrantaceae	C
21.	*Amaranthus tricolor*		Ammrantaceae	C
22.	*Argemone maxicana*	--	Papaveraceae	A
23.	*Bidens bipinnata*		Compositae	A
24.	*Baccopa monneiri*	Brahmi	Scrophulanaceae	
25	*Blepharis liniriaefolia*	--		C
26	*Blumea glomerata*	--	Compositae	C
27	*Borreria stricta*	--	Rubiaceae	A
28	*Brassica nigra*	Kali Rai	Cruciferae	L
29	*Cannabis sativa*	Bhang	Cannabianaceae	R
30	*Cassia abrus*	Chimod	Caesalpiniaceae	C
31	*Cassia pumila*		Caesalpiniaceae	C
32	*Cassia tora*	Puwad	Caesalpiniaceae	C
33	*Celosia argentea*		Ammrantaceae	C
34	*Chenopodipum album*	Chil	Chenoprodiaceae	C
35	*Cleome gynandra*		Capparaceae	C
36	*Cleome viscosa*		Capparaceae	C
37	*Commelina benghalensis*		Commelinaceae	A
38	*Commelina haskali*	---	Commelinaceae	A
39	*Commelina paludosa*	--	Commelinaceae	A
40	*Corchorus acutangulus*	---	Tiliaceae	L
41	*Corchorus capsularis*	---	Tiliaceae	L
42	*Corchorus depressus*	---	Tiliaceae	L
43	*Coronopus didymus*	---	Cruciferae	L

44	*Crotolaria filipes*	---	Papilionaceae	R
45	*Crotolaria juncea*	Saniya	Papilionaceae	L
46	*Crotolaria medicaginea*	Ran Methi	Papilionaceae	A
47	*Cyanotis fasciculata*	---	Commelinaceae	L
48	*Cyathocline purpurea*	--	Compositae	C
49	*Cyperus compressus*		Cyperaceae	C
50	*Cyperus rotundifolia*	---	Cyperaceae	C
51	*Desmodium dichotomum*	Shal parni	Papilionaceae	C
52	*Desmodium gangeticum*	---	Papilionaceae	C
53	*Desmodium rotundifolium*	---	Papilionaceae	C
54	*Desmodium neomaxicum*	---	Papilionaceae	C
55	*Desmodium trifolium*	---	Papilionaceae	C
56	*Dipteracanthus patulus*	---	Acanthaceae	L
57	*Dipteracanthus micranthus*	---	Acanthaceae	L
58	*Dipteracanthus prostratus*		Acanthaceae	L
59	*Echinops echinatus*	---	Compositae	C
60	*Eclipta alba*	Bhangaro	Compositae	C
61	*Euphorbia geniculata*	---	Euphorbiaceae	C
62	*Euphorbia hirta*	---	Euphorbiaceae	C
63	*Euphorbia hypercifolia*	--	Euphorbiaceae	C
64	*Euphorbia prostrata*	---	Euphorbiaceae	C
65	*Evolvulus alsinoides*	Kalishan khavali	Convolvulaceae	C
66	*Haplanthus tentaculatus*	--	Acanthaceae	L

67	*Haplanthus verticillatus*	---	Acanthaceae	L
68	*Hydrilla verticillata*	---	Hydrocharitaceae	C
69	*Hygrophila auriculata*	---	Acnthaceae	C
70	*Indigofera cordifolia*		Papilianaceae	A
71	*Indigofera tinctoria*	--	Papilionaceae	C
72	*Justicia repens*	---	Acanthaceae	C
73	*Lepidagathis trinervis*	---	Acanthaceae	A
74	*Lapidium sativum*	--	Cruciferae	C
75	*Leucas aspera*	Kubi	Labiatae	A
76	*Leucas cephalotes*	Kubo jungli	Labiatae	C
77	*Leucas zeylanica*	Kubo	Labiatae	C
78	*Limnophila indica*		Scrophulariaceae	C
79	*Lindenbergia indica*	Patharchati	Scrophulariaceae	
80	*Ocimun canum*	Jungli tulsi	Labiatae	C
81	*Phyllanthus niruri*	Bhoy Amli	Euphorbiaceae	A
82	*Physalis minima*	Popatiya	Solanceae	C
83	*Physalis peruviana*	---	Solanaceae	C
84	*Pluchea lanceolata*		Compositae	C
85	*Portulacea oleracea*	Moti luni	Portulacaceae	R
86	*Portulacea quadrifida*	Zini luni	Portulacaceae	R
87	*Pulicaria angustifolia*	---	Compositae	C
88	*Riungia parviflora*		Acanthaceae	R
89	*Ruelia tuberosa*	---	Acanthaceae	C
90	*Seasmum indicum*	Tal	Padaliaceae	C
91	*Sesbania bispinosa*		Papilionaceae	L
92	*Sida cordifolia*	---	Malvaceae	C
93	*Sida glutinosa*	---	Malvaceae	C
94	*Smithia sensitiva*	---	Papilionaceae	C
95	*Smithia conferata*	---	Papilionaceae	C

96	*Solanum nigrum*		Solanaceae	C
97	*Solanum surattense*	Bhoi ringni	Solanacae	C
98	*Tephrosia labialis*	---	Papilionaceae	C
99	*Tephrosia pumila*	---	Papilionaceae	C
100	*Tephrosia purpurea*	---	Papilionaceae	C
101	*Tephrosia tenuis*	---	Papilionaceae	C
102	*Tephrosia villosa*	---	Papilionaceae	C
103	*Tribulus terrestris*	Gokharu	Zygophylaceae	R
104	*Trichodesma zeylanica*	---	---	R
105	*Tridax procumbens*	Kali Mendhi	Composite	A
106	*Triumfetta pentandra*	---	Tiliaceae	C
107	*Triumfetta rhomboidea*	---	Tiliaceae	C
108	*Triumfetta rtudifolia*		Tiliaceae	C
109	*Tubipora acaulis*	---	Acanthaceae	C
110	*Urginea indica*	Jungli Piyaj	Liliaceae	C
111	*Vernonia anthihelmintica*	Kali jiri	Composite	R
112	*Vermonia cinerea*	---	Composite	A
113	*Vicoa auriculata*	---	Composite	A
114	*Vicoa indica*		Compsite	L
115	*Xanthium strumarium*	Gokharu	Composite	A
116	*Zornia diphylla*	Samar ani	Papilionaceae	C
117	*Zornia gibbosa*	---	Papilionaceae	C

GRASSES

S. No.	Botanical Name	Common Name	Family	Status
1	*Alloteropsis cimicina*	---	Graminae	L
2	*Andropogon pertusa*		Graminae	L
3	*Apluda aristata*		Graminae	C

4	*Apluda mutica*		Graminae	C
5	*Aristida adscensionis*	Lapdu	Graminae	C
6	*Aristida funiculata*	Laso lampdo	Graminae	L
7	*Arthroxon serrulatus*	---	Graminae	C
8	*Brachiaria racemosa*	--	Graminae	C
9	*Cenchrus setigerus*	Dhaman	Graminae	L
10	*Chloris dolicostachys*		Graminae	C
11	*Chloris montana*	---	Graminae	C
12	*Chloris virgata*	---	Graminae	C
13	*Cymbopogan martinii*		Graminae	L
14	*Cynodon dactylon*	Dub	Graminae	A
15	*Dendrocalamus strictus*	Bamboo	Graminae	R
16	*Dicanthium annalatum*	---	Graminae	A
17	*Digitaria adscendens*	----	Graminae	C
18	*Digitaria granularis*	---	Graminae	C
19	*Dimeria ornithopoda*	---	Graminae	C
20	*Echinochloa colonum*	Samo	Graminae	R
21	*Eragrostis ciliaris*	---	Graminae	R
22	*Eragrostis japonica*	---	Graminae	L
23	*Eragrostis pilosa*	---	Graminae	L
24	*Eragrostis viscosa*		Graminae	L
25	*Hteropogon contortus*	Surawala	Graminae	L
26	*Melanocenchrus jacquemontii*	---	Graminae	A
27	*Oryza sativa*		Graminae	C
28	*Paspalidium flavidum*	---	Graminae	C
29	*Paspalidium geminatus*	---	Graminae	C
30	*Saccharum spontaneum*	Kans	Graminae	C

31	*Setaria tomentosa*	---	Graminae	C
32	*Setaria verticillata*		Graminae	L
33	*Sorghum vulgare*	Baru	Graminae	C
34	*Sporobolus marginatus*	---	Graminae	L
35	*Spodiopogon rhizophorus*	---	Graminae	L
36	*Tetrapogon tennelus*	---	Graminae	L
37	*Themeda triandra*	Ratad	Graminae	L
38	*Urochloa panicoides*	---	Graminae	L

PARASITES

S. No.	Botanical Name	Common Name	Family	Status
1	*Cuscuta reflexa*	Amar Bel	Conolvulaceae	C
2	*C. hylina*	Amar Bel	Conolvulaceae	C
3	*Dendrophoetha fulcata*	Vahi Hankal	Loranthaceae	R

PTERIDOPHYTES

S. No.	Botanical Name	Common Name	Family	Status
1	*Adiantum caudatum*	-	Adiantaceae	C
2	*Actinopterua radiatum*	Morpankhi	-	A

ANNEXURE – 16

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF PLANT SPECIES SERVE AS FOOD TO WILD ANIMALS

S. No.	Name of Plant	Name of species depend for food	Part of plant eaten
1	*Borhaavia diffusa*	Porcupine	Root
2	*Puraria tuberosa*	Porcupine	Tuber
3	*Lannea grandis*	Hanuman Langurs	Leaves
4	*Zea mays*	Hanuman Langurs	Cob
5	*Anogeissus latifolia*	Hanuman Langurs	Bark
6	*Ficus glomerata*	Hanuman Langurs	Bark
7	*Albizia odoratissima*	Hanuman Langurs	Bark
8	*Butea monosperma*	Flying fox *	Flower
9	*Ficus religiosa*	Flying fox *	Fruit
10	*Albizia odoratissima*	Flying fox *	Leaves
11	*Madhuca latifolia*	Flying fox *	Flower, rind of fruits
12	*Ziziphus nummularia*	Jackal and Birds	Fruit

* There is no roosting site of Flying Fox inside the sanctuary, but those roosting in general Hospital & Samore Bagh come to this sanctuary for feeding.

ANNEXURE – 17

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF SPECIES OF ETHNOBOTANICAL VALUE IN AND AROUND SAJJANGARH

S. No.	Use of plant	Used by	Name of species useful
1.	Fruits used for nutrition	Bhil Tribe	*Mangifera indica, Ficus glomerata, Madhuca latifolia, Diospyros melanxylon, Puraria tuberosa, Carissa congesta, Pithocelobium deulce, Cordia mixa*
2.	Seeds used as delicacy	Bhil Tribe	*Sterculia urens, Mangifera indica, Terminalia bellirica*
3.	Weather forcasting	Bhil Tribe	*Lannia grandis, Azadiradita indica,*
4.	Henna	Bhil Tribe	*Impetiance balsamina, Lindenbergia muraria*
5.	Roots used as delicacy	Bhil Tribe	*Bombex ceiba, Puraria tuberosa,Ceropegia bulbosa*
6.	Tonic	Bhil Tribe	*Asparagus racemosus*
7.	Adornment	Bhil Tribe	*Butea monosperma*
8.	Indigenous medicine	Bhil Tribe	*Butea monosperma, Acacia catechu, Urgenia indica, Acacia leucophloea, Holoptelia integrifolia, Emblica officinalis,Capparis seperia, Terminulia bllerica,*
9.	Dry Farm-fence	Bhil Tribe	*Alangium salvifolium Butea monosperma, Zizyphus mauritiana*
10.	Live farm fens	Bhil Tribe	*Euphorbia nerifolia, Jatropha curcas, Delonix elata*
11.	Country liquor	Bhil Tribe	*Madhuca latifolia, Terminalia tomentosa,*
12.	Oil seed	Bhil Tribe	*Madhuca latifolia, Jatropha carcus, Pongamia pinnata*
13.	Fibre	Bhil Tribe	*Sterculia urens, Butea monosperma, Helicteres isora, Pongamia pinnata, Holeoptelia integrifolia.*

ANNEXURE – 18

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

CATEGORY - WISE LIST OF NATURAL & ARTIFICIAL WATER SOURCES

S. No.	Name of Range	Name of Water Hole	Category Artificial / Natural	Block in which Water Hole Situated	Compart-ment No.
1	**2**	**3**	**4**	**5**	**6**
1	Sajjangarh	Jhar	Natural	Sajjangarh	1
2	Sajjangarh	Badi Talab	Artificial	Sajjangarh	-
3	Sajjangarh	Earthen Dam Sfari 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 foot hills	Artificial	Sajjangarh	1
19	Sajjangarh	Fish pond	Artificial	Sajjangarh	2

ANNEXURE – 19

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

IMPORTANT EVENTS POACHING AND DEATH SINCE CREATION

S. No.	Year	Poaching (No. of cases)	Natural Deaths	Encroachment
1	2016	-	-	-
2	2017	-	-	-
3	2018	-	-	-
4	2019	-	-	-
5	2020	-	-	-
6	2021	-	-	-
7	2022	-	-	-
8	2023	-		
9	2024	-		
10	2025	-		

ANNEXURE – 20

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF OFFICERS WHO HELD THE CHARGE OF INCHARGE, PROTECTED AREA SAJJANGARH

S.No.	Name of Officer	From	To	Remark
1	2	3	4	5
1	Shri. Jagmohan Bagoria	1.4.2003	18.8.2004	
2	Shri. Bhagwan Singh Rathore	18.8.2004	21.11.2005	
3	Shri. Laxmi Kant Joshi	21.11.2005	31.7.2006	
4	Shri. Radha Kishan Sharma	31.7.2006	12.3.2007	
5	Dr. Satish Kumar Sharma	12.3.2007	30.9.2009	
6	Shri. Jagmohan Bagoria	30.9.2009	9.11.2010	
7	Shri. Jagdish Singh Solanki	9.11.2010	-	
8	Shri Ganeshi lal Gothwal	19.09.2021	31.01.2024	
9	Shri Rajendra Singh Solanki	01.02.2024	23.05.2025	
10	Shri Sitaram Meena	28.05.2025	Continue	

LIST OF ACFs WHO HELD THE CHARGE OF INCHARGE, PROTECTED AREA JAISAMAND

S.No.	Name of Officer	From	To	Remark
1	2	3	4	5
1	Shri Ganeshi Lal Gothwal	19.09.2021	08.12.2024	
2	Miss Surbhi Sharma	09.12.2024	19.01.2025	
3	Shri Kapil Kumar	23.01.2025	continue	

ANNEXURE – 21

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

STATEMENT OF POSTS SANCTIONED & STAFF WORKING AGAINST THE SANCTIONED POSTS

S.No.	Category of Post	Sanctioned No.'s	Working	Vacant	Since When?
1	**2**	**3**	**4**	**5**	**6**
1	Range Officer	1	1	-	-
2	Assistant Forester	1	1	-	-
3	Forest Guard	6	6	-	-
4	Cattle Guard / Work Charge	10	10	-	-

ANNEXURE – 22

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

INFORMATION REGARDING VEHICLE

EXISTING :-

S.No.	Category of Vehicle	Total Run So Far	Present Condition
1	**2**	**3**	**4**
1	Motorcycle 3 No	More than.. Kms.	1 New Model of 2005-06 2 New Model 2009-10

The number of vehicles present is inadequate for managing Sanctuary activities. These vehicles are very old and on verge of condemnation. The old vehicles should be replaced by new vehicles. Besides this adequate number of driver are not available.

Following is the requirement of the vehicles for the sanctuary :

REQUIREMENT :

S.No.	Category of Vehicle	No.	Cost (in Lac.)
1	**2**	**3**	**4**
1	Jeep	1	5.00
2	Motor Cycle	4	2.50
3	Moped	2	0.80

ANNEXURE – 23

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

INFORMATION REGARDING WEAPONS

S. No.	Name of Office	Number of Weapons					
		Revolver		Rifle		Gun (DBBL 12 Bor)	
		Existing	Proposed	Existing	Proposed	Existing	Proposed
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Sajjangarh	Nil	1	Nil	2	Nil	4
	Total	Nil	**1**	**Nil**	**2**	**Nil**	**4**
	Cost	-	2.50	-	3.00	-	4.50

Proposed : The weapons / ammunition are inadequate. It is proposed that every Range officer should have one revolver issued. Every ACF should have one revolver. At every range office there should be two double barrel (DBBL) guns. As per the govt order adequate safety and security measures should be ensured.

ANNEXURE – 24

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

INFORMATION REGARDING WIRELESS STATIONS

S.No.	Name of Office	Number of Station / Setts		
		Fixed	Mobile	Hand
1	**2**	**3**	**4**	**5**
1	Sajjangarh	3 (Range Office, Sajjangarh Fort, Gorella	-	3 (With R.O., Main Entry, I/C Gorella)

ANNEXURE – 25

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

INFORMATION REGARDING EXISTING & PROPOSED FIXED / MOBILE / HAND WIRELESS SETS

S.No.	Name of Office	Existing	Proposed
1	**2**	**3**	**4**
1	Sajjangarh	Fix set Gorella	4 Set
		Fix set Range Office	1. Main Entry
		Fixed set Sajjangarh	2. Badi
			3. Jhar
			4. Hawala
		Hand set With R.O.	3 Set
		Hand set at Main Entry	1. Forester
		Hand set With I/C Gorella	2. Asstt. Forester
		Mobile	6 Set
			1. Ranger 2. Forester 3. Asst. Forester 4. Main Gate 5. Sajjan Garh Fort 6. Range Office

Number of wireless sets present in the P.A. is getting out dated partly because of non repairable mechanical faults and partly because of non availability of spares of "Punwire" sets. In place of obsolete and unserviceable sets, it is an immense need that modern and advance sets are replaced. Besides this wireless sets are proposed for new Naka's and barrier buildings.

ANNEXURE – 26

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

INFORMATION REGARDING EXISTING AND PROPOSED CHECK POINTS & BARRIERS

S.No.	Name of Office	Existing Barrier & Checkpoints	Proposed Barrier & Checkpoints
1	**2**	**3**	**4**
1	Sajjangarh	1. Main Entry of the Sanctuary, 2. Gorella View Point 3. Watch Tower	Badi Jhar Badi lake- 2

ANNEXURE – 27

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

INFORMATION REGARDING EXISTING & PROPOSED CHOWLIS / NAKAS / RANGE BUILDING

1. CHOWKI'S

S.No.	Name of Office	Existing Chowki's	Proposed Chowki's	Cost of proposed each
1	**2**	**3**	**4**	**5**
1	Sajjangarh	Gorella Kedi Sajjangarh Badi Makrada Maharana Pratap Eco Trail Out point Badi Lake	-	-

2. NAKA'S

S.No.	Name of Range Office	Existing Naka's	Proposed Nakas	Cost of proposed each
1	**2**	**3**	**4**	**5**
1	Sajjangarh	Sajjangarh	OCR	20.00

3. RANGE BUILDING

S.No.	Name of Range Office	Existing Head Quarter (Yes/No)	Proposed Range Building	Cost of proposed each
1	**2**	**3**	**4**	**5**
1	Sajjangarh	Yes	OCR	30.00

4. OTHER BUILDING'S (Residential)

S.No.	Name of Range Office	Category	Head Quarters		Proposed		Cost of proposed each
			Existing	No's	Existing	No's	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Sajjangarh	Barracks	Nil	Nil	Nil	1	8.00

ANNEXURE – 28

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF EXISTING & PROPOSED ROAD

1. *EXISTING*

S.No.	Name of Office (Range)	Name of Road	Distance (in Kms)	Nature of Road (Kachha / Pacca)
1	**2**	**3**	**4**	**5**
1	Sajjangarh	• Main Gate to Sajjangarh Palace	3	Pucca
		• Sajjangarh Naka to Hawala Hill	1.5	Kachha
		• Gorella view point to Badi Lake	2	Kachha

2. *PROPOSED*

S.No.	Name of Office (Range)	Name of Road	Distance (in Kms)	Nature of Road (Kachha / Pacca)	Cost (Rs. in Lac.)
1	**2**	**3**	**4**	**5**	**6**
1	NIL				

ANNEXURE – 29

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

STATEMENT OF RAINFALL IN SANCTUARY AREAS

S.No.	Year	Total Rainfall (in MM)	Remark
1	**2**	**3**	**4**
1	2015-16	428	
2	2016-17	584	
3	2017-18	698	
4	2018-19	633	
5	2019-20	410	
6	2020-21	486	
7	2021-22	533	
8	2022-23	600	
9	2023-24	708	
10	2024-25	690	

ANNEXURE-30

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

STATEMENT OF TEMPERATURE IN SANCTUARY AREA

S.No	Year	Summer		Winter		Remark
		Max. (^{0}C)	Min. (^{0}C)	Max. (^{0}C)	Min. (^{0}C)	
1	2	3	4	5	6	7
1	2015-16	45	30	31	7	
2	2016-17	43	32	30	7	
3	2017-18	45	32	31	7	
4	2018-19	42	28	29	7	
5	2019-20	44	30	28	8	
6	2020-21	43	29	27	6	
7	2021-22	42	32	28	6	
8	2022-23	45	30	29	8	
9	2023-24	46	32	28	7	
10	2024-25	47	32	27	8	

ANNEXURE – 31

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

INFORMATION REGARDING CATTLE POPULATION IN VILLAGE WITHIN SANCTUARY AREA & WITHIN 5 Kms LIMITS OF SANCTUARY AREA

1. WITHIN SANCTUARY AREA

S. No	Name of Range	Name of Village	Panchayat samiti	Tehsil	No of Cattle				
					Cow	Buffalow	Sheeps / Goat	Camel	Total
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Sajjangarh	**No village is there inside the Sanctuary**							

2. WITHIN 5 Kms PERIPHERY OF SANCTUARY

S. No	Name of Range	Name of Village	Pancha-yat samiti	Tehsil	No of Cattle				
					Cow	Buffalow	Sheeps / Goats	Camel	Total
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Sajjangarh	Hawala	Badgaon	Girwa	258	350	729	-	1337
2	Sajjangarh	Badi	Badgaon	Girwa	350	389	558	-	1297
3	Sajjangarh	Gorella	Girwa	Girwa	458	513	848	-	1819
4	Sajjangarh	Sisarma	Girwa	Girwa	393	418	769	-	1580
5	Sajjangarh	Kodiyat	Girwa	Girwa	409	537	867	-	1813
6	Sajjangarh	Rampuria	Girwa	Girwa	217	186	319	-	722
7	Sajjangarh	Morwania	Girwa	Girwa	387	489	678	-	1554
8	Sajjangarh	Barda	Girva	Girwa	408	562	794	-	1764
			TOTAL		**2880**	**3444**	**5562**	**-**	**11886**

ANNEXURE – 32

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF VILLAGES WITHIN THE BOUNDARY OF SANCTUARY & EXISTING INFRASTRUCTURE FACILITIES

S. No	Name of Village	No. of Families	Population	Area of Village	Status of Infrastructure Facilities				
					School	Light	Water	Hospital	Roads
1	2	3	4	5	6	7	8	9	10
	No Village is within the boundary of Sanctuary								

ANNEXURE – 33

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF VILLAGES WITHIN 5 Kms FROM THE BOUNDARY OF SANCTUARY & EXISTING INFRASTRUCTURE FACILITIES

S. No	Name of Village	No. of Families	Population	Distance from Sanctuary Boundary	Status of Infrastructure Facilities				
					School	Light	Water	Hospital	Roads
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Hawala	1012	5828	On the Boundary	+	+	+	-	+
2	Gorella	987	4924	On the Boundary	+	+	+	-	+
3	Badi	1325	6923	On the Boundary	+	+	+	+	+
4	Sisarma	1067	5018	5	+	+	+	+	+
5	Kodiyat	1013	4869	4	+	+	+	-	+
6	Rampuria	1587	7832	1	+	+	+	+	+
7	Barda	1211	5896	5	+	+	+	+	+
8	Morwania	1189	5987	5	+	+	+	-	+

INDEX: (+ = Facility Available, - = Facility Not Available)

ANNEXURE – 34

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF PLACES OF PILGRIMAGE IN SANCTUARY AREA

S. No.	Name of Place	Situation (Name of Forest Block)	Name of Range	Distance from nearest Bus stop Parking
1	**2**	**3**	**4**	**5**
1	Mosque of Peer Baba	Near palace, at top of Sajjangarh Hill	Sajjangarh	0.25 Kms
2	Mosque of Peer Baba	Near Safari Gate	Sajjangarh	1 Kms
3	Radaji	Safari Park	Sajjangarh	0.5 Kms
4	Hanuman Temple	Near “Jhar”	Sajjangarh	0.25 Kms
5	Jhar Mahadev	Near “Jhar”	Sajjangarh	0.5 Kms
6	Hanuman Temple	Near Safari Gate	Sajjangarh	0.25 Kms

ANNEXURE – 35

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF BUILDING IN SANCTUARY AREA (OFFICE / RESIDENTIAL BUILDINGS)

S. No.	Name of Range	Name of Building	Purpose of Use	Area in Sq.Mtr.	When Constructed	Present Condition
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Sajjangarh	Monsoon Palace	Tourism, Wireless Center, Interpretation Center.	2000	1899 A.D	Need Repair
2	Sajjangarh	Jhar Odhi	-	25	-	Need Repair
3	Sajjangarh	Odhi Safari park	-	25	-	Need Repair
4	Sajjangarh	Odhi Near Anicut Gorella	-	25	-	Need Repair
5	Sajjangarh	Forest Naka Sajjangarh	Office of Forester	30	-	Need Repair
6	Sajjangarh	Forester Residence	Residence of Forester	30	-	Need Repair
7	Sajjangarh	Main Entry	Booking Office	4	-	Good Condition
8	Sajjangarh	Range Office Cum Residence of R.O.	Office cum Residence	90	2002	Good Condition
9	Sajjangarh	Forest Guard Chowki, Gorella	Residence of Forest Guard	30	-	Good Condition
10	Sajjangarh	Fire Watch tower	Dection of fire	-	-	Good condition

ANNEXURE – 36

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF VAID ARM LICENSES

S.No.	Name of District	Name of Tehsil	Nature of Arm to be Held i.e. 12 Bore BL Gun/ Rifle / SBML / Revolver / Pistol	No. of Licencees
1	**2**	**3**	**4**	**5**
1	Udaipur	Girva	12 Bore Bl Gun/ Rifil / SBML / Revolver / Pistal	1279

ANNEXURE – 37

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF VETERINARY HOSPITAL IN AND AROUND SANCTUARY

S.No.	Name of Veterinary Hospital	Distance from Sanctuary Head Quarter
1	**2**	**3**
1	Government Hospital, Chetak Circle, Udaipur	5 Kms
2	Government Hospital, Badi (Sub Hospital)	4 Kms

ANNEXURE – 38

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

FUNDS RELEASED UNDER CSS & OTHER SCHEMES & THEIR UTILISATION

S.No.	Financial year	Release of Funds		Utilization on of Funds Amount	Purpose for which Utilized	
		Name of Scheme	Amount		Nature of Activity	Physical Achievement
1	2	3	4	5	6	7
1	2014-15	CSS	14.670	14.664	• Construction of Kuccha Check Dams for soil and water conservation at Makerada 800 cum • Desilting of Nadi at Gorella • Eradication of invasive weeds at Gorella through opening of area and planting of fruits bearing species and grass land development 25 Ha	100% 100% 100%
2	2014-15	FPM	0.40	0.40	Creation of Fireline	100%
1	2015-16	RFBP	2.00	1.998	Entry Point Activity	100 %
2	2015-16	RFBP	0.71	0.71	Raising of Plants 25000	100 %
3	2015-16	CSS	19.72	19.71	• Construction of kuccha check dam • Habitat Improvement Khedi • Repair of Patrolling Path	100 %
1	2016-17	CAMPA	4.00	3.98	Infrastructure development of Nursery	100%
2	2016-17	CSS	19.120	15.30	• Construction of wall near Hawala village to protects from encroachment 80 mtr • Construction of loose stone Check Dams 500 cum • Repair of old wall Badi Makreda	100% 100% 100%
1	2017-18	CAMPA	6.00	6.00	Creation of Rescue Centre Chetak Circle	100%
2	2017-18	CAMPA	1.535	1.515	Creation of Plants 50000 Plants	100%
3	2017-18	CSS	23.95	22.631	• Kuchha Checkdam (Badi Markeda) • Habitat Improvement at Gorela Chowki • Maintenance of fire line Sajjangarh gate to fort (4.5 km) Sajjangarh Fort (0.5 km.) Sajjangarh fort to electric line Gorela Chowki (2km) Gorela View Point to Bari Gate (3km.)	100% 100% 100%

1	2018-19	TAD	89.4	79.323	Renovation of Sajjangarh	100%
2	2018-19	TAD	5.00	3.8	DPR of Renovation of Sajjangarh	100%
3	2018-19	FPM	1.14	1.14	Creation of Fireline 15 km	100%
4	2018-19	FPM	0.40	0.396	Awareness Camp	100%
5	2018-19	CSS	29.70	19.632	Habitat Improvement like drainage line treatment, contour trenching, v-dithes and sowing of grass and fodder seeds planting of fruit bearing trees & lanatana removal etc at Kala Data	100%
1	2019-20	CAMPA	0.50	0.498	Nursery Infrastructure Upgradation	100%
2	2019-20	CSS	15.87	6.387	• Maintenance of water hole, electric motor, electricity bill payment (whole sanctuary) • Maintenance of fireline : 1. Gorella Chowki 2. Sajjjangarh gate to fort 3. Sajjjangarh fort (0.5 km) 4. Sajjjangarh fort to electricline gorella 5. Gorella view point to Badi gate 3 km	100%
1	2020-21	CAMPA	1.6	1.43	Nursery Infrastructure Upgradation	100%
2		FPM	0.228	0.228	Creation of Fireline	100%
3		CSS	25.366	11.303	• Visitor facilities at Sajjangarh Fort • Eradication of lantana and other invasive weeds • Purchasing of patrolling kit and fire fighting equipments for staff and amenities	100% 100% 100%
1	2021-22	CAMPA	21.9445	14.527	ANR Advance Work 50 Ha	100%
		CSS	32.862	22.895	• Maintenance of garden at Sajjangarh Fort • Chowki maintenance - Khedi and Badi Chowki • Nature Trail Maintenance Maharana Pratap Nature trail Maintenance 2.7 km from Gorella view point to Badi Chowki • Eradication of lantana and other invasive weeds • De-silting of ramp well -Rayan	100% 100% 100% 100%
	2022-23	CAMPA	5.6885	5.6885	ANR Plantation Work 50 Ha	100%
		State Plan	1.404	1.404	Raising of 3000 Plants	100%
		CSS	10.386	2.597	Eradication of lantana and other invasive weeds	100%

	2023-24	CAMPA	0.129	0.1269	Amount for creation & maintenance of fireline (Khedi Chowki to Kundal)	100%
		NABARD	53.0480	44.1444	RDF- I Advance Work 50 HA & ANR Advance Work 50 Ha	100% 100%
		NABARD	18.8870	17.6972	RDF- I Advance Work 50 HA & ANR Advance Work 50 Ha	100%
		State Plan	10.00	10.00	Grassland Development Advance Work & Plantation 25 Ha	100%
	2024-25	RPAC	5.65	5.6321	Purchase of solar power system and installation	100%
		RPAC	3.00	2.99	Construction of borewell, laying pipelines, purchase of motor etc	100%
		RPAC	32.72	25.04	Habitat Improvement Radaji Bavji, Badi Chowki, (eradication of juliflora, lantena and other weeds)	100%
		RPAC	28.50	24.998	Construction of patrolling track Gorella Chowki to Gorella view Point 10 KM	100%
		STATE PLAN	1.776	1.5333	Raising of 30000 new Plants	100%
		STATE PLAN	50.9320	38.17295	RDF- II Advance Work 100	100%
		STATE PLAN	6.00	5.2126	Grassland Development Advance Work & Plantation 25 Ha	100%

ANNEXURE – 39

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

CONSTRUCTION OF BUILDINGS, ROADS, ANICUTS, CAUSE WAY & TALAI

S.No	Year	Building	Building Repair	Ramp well	Bridge	Anicut	Anicut Repair	Cause way	Talai	Road
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1	2015-2016	-	-	-	-	-	-	-	1	-
2	2016-2017	-	-	-	-	-	-	-	-	-
3	2017-2018	-	-	-	-	-	-	-	-	-
4	2018-2019	-	-	-	-	-	-	-	-	-
5	2019-2020	-	-	-	-	-	-	-	-	-
6	2020-2021	-	-	-	-	-	-	-	-	-
7	2021-2022		1	-	-	-	-	-	-	-
8	2022-2023	-	-	-	-	-	-	-	1	-
9	2023-2024		1							
10	2024-2025		1			2				1

ANNEXURE – 40

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

TOURIST POSITION & REVENUE REALIZED

TOURISTS VISITED THE SANCTUARY

Year	Indian Tourists	Foreign Tourists	Total	Income
2015-16	282606	567	283173	8549480
2016-17	327958	783	328741	9726095
2017-18	313045	884	313929	10267635
2018-19	316589	990	317579	10646615
2019-20	225585	786	226371	7640655
2020-21	74919	13	74932	2633165
2021-22	99428	47	99475	3454660
2022-23	198229	502	198731	6940245
2023-24	239827	754	240581	8691240
2024-25	502123	8210	510333	10611715

ANNEXURE – 41

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

EXISTING PATTERN OF STAFF BY HIERAREHIAL LEVELS AND SCALES OF PAY

S. No.	Designation	Number of Posts	Pay Scale	Grade pay	Duties assigned
1	**2**	**3**	**4**	**5**	**6**
1.	ACF	1	15600-39100	5400	Over all incharge
1	Range Forest Officer	1	9300-34800	3600	In charge Sanctuary
2	Forester	1	5200-20200	2400	Protection & Development
3	Asstt. Forester	1	5200 – 20200	2000	Protection & Development
4	Forest Guard	11	5200 – 20200	1800	Protection & Development
5	Cattle Guard	6	4750-7440	1300	Protection & Development

ANNEXURE – 42

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF SURVEY OF INDIA TOPOSHEETS WITH SCALE COVERING MANAGEMENT JURISDICTION

S. No.	Scale	Survey of India Topo sheet No.	Forest Blocks covered by the sheet
1	**2**	**3**	**4**
1	1: 50000	45 H / 10	Sajjangarh
2	1:250000	45 H	Sajjangarh

ANNEXURE – 43

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF PLANTATIONS CARRIED OUT IN THE SANCTUARY AREA

S. No.	Name of Plantation	Year of Establishment	Name of Scheme	Area Covered	No. of Plants Planted	
					Species	Total Plant
1	2	3	4	5	6	7
1	Baghdarrah Nature Park	2016-17	State Plan	-	Throney Plants	1000
2	Biological Park	2016-17	RFBP	-	Throney Plants	1000
3	Baghdarrah Nature Park	2018-19	DMFT	-	Throney Plants	1500
3	Biological Park	2018-19	DMFT	-	Throney Plants	2000
4	Biological Park	2019-20	DMFT	-	Throney Plants	3500
5	Magzine gate Baghdarrah Range Sajjangarh	2022-23	CAMPA	50 Ha	Throney Plants	10000
6	Navli	2023-24	NABARD	50 Ha	Throney Plants	25000
7	Baghdarrah Range Sajjangarh	2023-24	NABARD	50 Ha	Throney Plants	10000
8	-	2024-25	-	-	-	-

ANNEXURE – 44

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF SENSITIVE AREAS WITH LOCATION BY COMPARTMENT NUMBERS

S.No.	Name of Sensitive Area	Location	Name of Forest Block	Compart-ment No.	Remarks Causes of Sensitiveness
1	**2**	**3**	**4**	**5**	**6**
1	Hawala	On Periphery of Sanctuary	Sajjangarh	2	Grazing Prone Area
2	Main Entry	On Periphery of Sanctuary	Sajjangarh	2	Encroachment Prone Area
3	Badi	On Periphery of Sanctuary	Sajjangarh	3	Grazing & Encroachment Prone Area

ANNEXURE – 45

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

DETAILS OF CATTLE KILLING BY CARNIVORES & COMPENSATION PAID

S.No.	Year	Name of Village in which Killing reported	Kind of Animal Killed	Number of Animals Killed	Compensation Paid (if any)
1	**2**	**3**	**4**	**5**	**6**
No Case of Cattle Killing By Carnivores has been reported in the Sanctuary Area					

ANNEXURE – 46

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

DETAILS OF ILLEGAL HUNTING OF WILD LIFE INCLUDING POISONING CASES

S.No.	Year	**No. of Cases**	**Related to which wild Animal**	**Action Taken**
1	**2**	**3**	**4**	**5**
No Case of Illegal Hunting of Wild Life including Poisoning Cases has been reported in the Sanctuary Area				

ANNEXURE – 47

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

NUMBER OF OFFENCE CASES RELATING TO ILLEGAL TRADE IN WILD ANIMALS AND ANIMAL PRODUCTS BY SPECIES

S. No.	Year	No. of Cases	Related to which wild Animal	Action Taken		
				Compounded	Court Challaned	Compounding Amount
1	2	3	4	5	6	7
No Case of Offence relating to Illegal Trade in Wild Animals and Animal Products has been reported in the Sanctuary Area						

ANNEXURE – 48

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF ANNUAL FIRES

S.No.	Year	No. of Fire Incidences	Name of Forest Block	Area Affected	Reasons
1	**2**	**3**	**4**	**5**	**6**
1	2015-16	2	Sajjangarh	10 Hactare	Unknown
2	2016-17	1	Sajjangarh	70 Hactare	Unknown
3	2017-18	1	Sajjangarh	1 Hectare	Unknown
4	2018-19	3	Sajjangarh	5 Hectare	Unknown
5	2019-20	2	Sajjangarh	30 Hectare	Unknown
6	2020-21	1	Sajjangarh	10 Hactare	Unknown
7	2021-22	2	Sajjangarh	11 Hectare	Unknown
8	2022-23	1	Sajjangarh	2 Hactare	
9	2023-24	1	Sajjangarh	10 Hactare	Unknown
10	2024-25	4	Sajjangarh	100 Hactare	Short circuit

ANNEXURE – 49

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

LIST OF ENCROACHMENTS

Prior to 1980

S.No.	No. of encroachment cases registered	Disposal of Cases		Present status of Disallowed cases whether the encroacher has still the land in his possession or evicted	
		Sent for Approval	Disallowed by Committee	No. of Encroachers still having land in there possession	No. of encroachers those evicted the land
1	2	3	4	5	6
No Encroachment has been reported in the Sanctuary Area					

After 1980

S.No.	No. of encroachment cases registered	Action Taken	Present Status
1	2	3	4
No Encroachment has been reported in the Sanctuary Area			

ANNEXURE – 50

SAJJANGARH WILD LIFE SANCTUARY, RAJASTHAN

DISTRIBUTION OF VERTEBRATES IN SANCTUARY AREA, HABITAT ORIENTATION & MICRO HABITAT

S.No.	Name of Animal	Macro Hebitate	Micro Hebitate
1	**2**	**3**	**4**
1	Panther	Dense Forest & Outskirts	Area Full of Forest Crops & Crags
2	Common Langur	Semi Dense Forest Area	Green Area of Foothills, Road Sides
3	Striped Hyaena	Dense Forest	Undulating Terrain full of Nallaha's
4	Jungle Cat	Outskirts of Forest	Open Scrubs, Agriculture Fields, Grassy Areas dotted with Shrubs & Trees
5	Indian Fox	Open Areas within Forest	Near human habitation, Open fields
6	Common Mangoose	Open Areas within Forest	Loose stone fencing walls
7	Hare	Open Areas	Gassy Patches, Rizka fields
8	Indian Python	Dense Forest	Foothill Zone
9	Parrots	Denser Forest	Villages
10	Peafowl	Denser Areas	Area having dense Bushes, hilly interior tredes
11	Grey Partridge	Open Areas	Bushy foothill zone
12	Painted Partridge	Denser Areas	Tall Grass land zone with out crops
13	Koel	Denser Areas	Groves of Villages
14	Martins, Swallows	Open Areas	Area full of crages
15	Crested Tree swift	Open Areas	Vicinity of water holes

Annexure - 51

THE BUDGET REQUIREMENT
(FINANCIAL FORECAST FROM 2025-2026 to 2034-2035)

S.No.	Item	2025-2026		2026-27		2027-2028		2028-2029		2029-2030		2030-2031		2031-2032		2032-2033		2033-2034		2034-2035	
		PHY.	FIN.	PHY.	FIN.	PHY.	FIN.	PHY.	FIN.	PHY.	FIN.	PHY.	FIN.	PHY.	FIN.	PHY.	FIN.	PHY.	FIN.	PHY.	FIN.
1-MAINTENANCE OF SANCTUARY ASSETS : RECURRING EXPENDITURE)																					
i	Buildings	L.S.	0.25	L.S.	0.27	L.S.	0.30	L.S.	0.32	L.S.	0.35	L.S.	0.40	L.S.	0.40	L.S.	0.45	L.S.	0.45	L.S.	0.50
ii	Nature Trails	L.S.	0.25	L.S.	0.28	L.S.	0.31	L.S.	0.34	L.S.	0.38	L.S.	0.42	L.S.	0.46	L.S.	0.51	L.S.	0.56	L.S.	0.62
iii	Motor Vehicles	L.S.	0.25	L.S.	0.28	L.S.	0.31	L.S.	0.34	L.S.	0.38	L.S.	0.42	L.S.	0.46	L.S.	0.51	L.S.	0.56	L.S.	0.62
iv	Wireless Network	L.S.	0.30	L.S.	0.33	L.S.	0.37	L.S.	0.40	L.S.	0.44	L.S.	0.48	L.S.	0.57	L.S.	0.58	L.S.	0.64	L.S.	0.70
v	Water Facilities	L.S.	0.25	L.S.	0.28	L.S.	0.31	L.S.	0.34	L.S.	0.38	L.S.	0.42	L.S.	0.46	L.S.	0.51	L.S.	0.56	L.S.	0.62
vi	Fire Protection	L.S.	0.25	L.S.	0.28	L.S.	0.31	L.S.	0.34	L.S.	0.38	L.S.	0.42	L.S.	0.46	L.S.	0.51	L.S.	0.56	L.S.	0.62
vii	Maintenance of Forest Boundary	L.S.	0.25	L.S.	0.27	L.S.	0.28	L.S.	0.30	L.S.	0.32	L.S.	0.34	L.S.	0.37	L.S.	0.40	L.S.	0.45	L.S.	0.50
viii	Maintenance of Anicut & other Structures	L.S.	0.40	L.S.	0.44	L.S.	0.48	L.S.	0.50	L.S.	0.52	L.S.	0.55	L.S.	0.60	L.S.	0.65	L.S.	0.70	L.S.	0.75
ix	Maintenance of Equipments	L.S.	0.25	L.S.	0.28	L.S.	0.31	L.S.	0.34	L.S.	0.38	L.S.	0.42	L.S.	0.46	L.S.	0.51	L.S.	0.56	L.S.	0.62

TOTAL (Maintenance of Assets)			**2.45**		**2.71**		**2.98**		**3.22**		**3.53**		**3.87**		**4.24**		**4.63**		**5.04**		**5.55**
	NON RECURRING EXPENDITURE																				
2-SANCTUARY MANAGEMENT																					
i	Survey & Demarcation	L.S.	0.10	L.S.	0.11	L.S.	0.12	L.S.	0.13	L.S.	0.15	L.S.	0.15	L.S.	0.15	L.S.	0.15	L.S.	0.15	L.S.	0.15
ii	Nature Trails	-	-	5 Km	7.00	5 Km	7.00	3 Km	4.00	-	-	-	-	-	-	-	-	-	-	-	-
iii	Buildings	-	-	2 Nos	6.00	2 Nos	6.00	1 Nos	5.00	1 Nos	6.00	-	-	-	-	-	-	-	-	-	-
iv	Soil & Water Conservation (Construction of Kuchhas-Pucca Check Dems	1000 Cmt.	10.00	1000 Cmt.	11.00	1000 Cmt.	12.00	1000 Cmt.	13.00	1000 Cmt.	14.00	1000 Cmt.	15.00	1000 Cmt.	17.00	1000 Cmt.	18.00	1000 Cmt.	20.00	1000 Cmt.	22.00
v	Drainage line treatment	-	-	L.S.	1.50	L.S.	1.60	L.S.	1.70	L.S.	1.80	L.S.	1.90	L.S.	2.00	L.S.	2.10	L.S.	2.20	L.S.	2.25
v	Habitat Inprovements	-	-	50 Ha	6.00	50 Ha	7.00	50 Ha	7.00	50 Ha	7.00	L.S.	1.00	L.S.	2.00	L.S.	2.00	L.S.	2.00	L.S.	2.00
vi	Construction of Pucca Stone Wall	-	-	1000 Mtr	11.00	1000 Mtr	12.00	1000 Mtr	13.00	1000 Mtr	14.00	1000 Mtr	15.00	1000 Mtr	16.00	-	-	-	-	-	-
vii	Solar Power Fencing	-	-	2000 Mtr	12.00	2000 Mtr	13.00	2000 Mtr	14.00	1000 Mtr	7.50	-	-	-	-	-	-	-	-	-	-

	of Core Area																			
viii	Live hedge Fencing	-	-	2000 Mtr	3.00	2000 Mtr	3.50	2000 Mtr	3.75	1000 Mtr	1.75	-	-	-	-	-	-	-	-	-	-
ix	Secret Information System	-	-	L.S.	0.06	L.S.	0.07	L.S.	0.08	L.S.	0.09	L.S.	0.10	L.S.	0.11	L.S.	0.12	L.S.	0.13	L.S.	0.15
x	Reward to Staff	-	-	L.S.	0.06	L.S.	0.07	L.S.	0.08	L.S.	0.09	L.S.	0.10	L.S.	0.11	L.S.	0.12	L.S.	0.13	L.S.	0.15
xi	Compensation for Cattle kill & loss to Human life	-	-	L.S.	0.06	L.S.	0.07	L.S.	0.08	L.S.	0.09	L.S.	0.10	L.S.	0.11	L.S.	0.12	L.S.	0.13	L.S.	0.15
xii	Fire Arms	-	-	L.S.	1.50	L.S.	2.00	L.S.	2.50	L.S.	3.00	L.S.	0.50	L.S.	0.50	L.S.	0.50	L.S.	0.50	L.S.	0.50
xiii	Checkpoints & Barriers	-	-	1 Nos	3.50	1 Nos	3.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
xiv	Research & Training	L.S.	0.40	L.S.	0.44	L.S.	0.48	L.S.	0.53	L.S.	0.58	L.S.	0.64	L.S.	0.70	L.S.	0.77	L.S.	0.85	L.S.	0.94
xv	Publicity & Extension	L.S.	0.25	L.S.	0.28	L.S.	0.31	L.S.	0.34	L.S.	0.38	L.S.	0.42	L.S.	0.46	L.S.	0.51	L.S.	0.56	L.S.	0.62
TOTAL (Sanctuary Management)			**10.75**		**63.51**		**68.72**		**65.19**		**56.43**		**34.91**		**39.14**		**24.39**		**26.65**		**28.91**
3-INFRASTRUCTURE DEVELOPMENTS																					
i	Vehicles	-	-	Jeep 1 Trac. 1	10.00	Truck 1 Motor Cycle 3	6.80	Moped 4	1.50	Moped 4	1.50	-	-	-	-	-	-	-	-	-	-

ii	Wireless Systems	1 with Repeater	2.50	4 Fixed Sets	3.00	4 Hand Sets	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-
iii	Office Equpements	-	-	L.S.	0.50	L.S.	0.55	L.S.	0.60	L.S.	0.65	L.S.	0.70	L.S.	0.75	L.S.	0.80	L.S.	0.85	L.S.	0.90
iv	Specialised filed Equpements for Protection & Fire Fighting	-	-	L.S.	1.00	L.S.	1.10	L.S.	1.20	L.S.	1.30	L.S.	1.40	L.S.	1.50	L.S.	1.60	L.S.	1.70	L.S.	1.80
v	Construction of Guzzler & Water Points	1 No. Guzzler	1.50	3Hp ump 1 Tube well	4.00	Water hole 2 Guzzler2	3.85	1 Tube well	3.00	2 No. Guzzler	3.25	2 No. Guzzler	3.50	-	-	-	-	-	-	-	-
vi	Construction of Anicut	-	-	-	-	-	-	1 Nos	5.50	1 Nos	6.00	-	-	-	-	-	-	-	-	-	-
vii	Construction of Earthen Dams	-	-	-	-	1 Nos	2.00	1 Nos	2.00	-	-	1 Nos	2.50	1 Nos	3.00	-	-	-	-	-	-
viii	Creation of Fire lines	-	-	5 Km	1.00	5 Km	1.25	5 Km	1.50	-	-	-	-	-	-	-	-	-	-	-	-
ix	Repair of existing Ohdi's to use as watch towers	-	-	1 No.	1.50	1 No.	1.75	1 No.	2.00	1 No.	2.25	L.S.	0.25	-	-	L.S.	0.25	L.S.	0.25	-	-

TOTAL (Infrastructure Development)			**4.00**		**21.00**		**18.30**		**17.30**		**14.95**		**8.35**		**5.25**		**2.65**		**2.80**		**2.70**
4-AMMENITIES FOR FIELD STAFF																				
(i)	Basic ammenities	-	-	L.S.	0.44	L.S.	0.48	L.S.	0.52	L.S.	0.57	L.S.	0.62	L.S.	0.68	L.S.	0.75	L.S.	0.82	L.S.	0.90
(ii)	Camping Equipments	-	-	L.S.	0.33	L.S.	0.36	L.S.	0.40	L.S.	0.44	L.S.	0.49	L.S.	0.54	L.S.	0.59	L.S.	0.65	L.S.	0.72
TOTAL (Ammenities for Field Staff)			**0.00**		**0.77**		**0.84**		**0.92**		**1.01**		**1.11**		**1.22**		**1.34**		**1.47**		**1.62**
5-TOURISM MANAGEMENT																				
(i)	Tourism Facilities	-	-	L.S.	2.00	L.S.	2.20	L.S.	2.40	L.S.	2.60	L.S.	2.80	L.S.	1.75	L.S.	1.90	L.S.	2.05	L.S.	2.25
(ii)	Pumplets Brochures etc.	-	-	L.S.	0.30	L.S.	0.30	L.S.	0.33	L.S.	0.36	L.S.	0.40	L.S.	0.20	L.S.	0.20	L.S.	0.20	L.S.	0.20
(iii)	Interpretation Center	-	-	L.S.	15.00	L.S.	10.00	L.S.	1.00	L.S.	1.00	L.S.	1.00	L.S.	1.00	L.S.	1.25	L.S.	1.25	L.S.	1.25
(iv)	Eco tourism Development	-	-	L.S.	1.50	L.S.	1.50	L.S.	1.50	L.S.	1.50	L.S.	1.50	-	-	-	-	-	-	-	-
(v)	Signages	-	-	L.S.	1.00	L.S.	1.00	L.S.	1.00	L.S.	0.50	L.S.	0.50	L.S.	0.50	L.S.	0.50	L.S.	0.50	L.S.	0.50
(vi)	Training to guides for nature Interpretation	-	-	L.S.	0.30	L.S.	0.30	L.S.	0.30	L.S.	0.30	-	-	-	-	-	-	-	-	-	-
TOTAL (Tourism Management)			**0.00**		**20.10**		**15.30**		**6.53**		**6.26**		**6.20**		**3.45**		**3.85**		**4.00**		**4.20**

6-INFORMATION TECHNOLOGY																					
(i)	Computers	-	-	-	-	-	-	-	-	-	-	1No.	0.80	-	-	-	-	-	-	1 No.	0.75
(ii)	Survey Equipments	-	-	L.S.	0.40	L.S.	0.40	-	-	L.S.	0.35	L.S.	0.35	-	-	L.S.	0.35	-	-	L.S.	0.40
TOTAL (Information Technology)			**0.00**		**0.40**		**0.40**		**0.00**		**0.35**		**1.15**		**0.00**		**0.35**		**0.00**		**1.15**
7-VILLAGE ECO - DEVELOPMENT																					
(i)	Entry Point Activities	-	-	1 No.	5.50	L.S.	6.00	L.S.	6.50	L.S.	7.00	-	-	-	-	-	-	-	-	-	-
(ii)	Eco Development Activities (LPG connection at subsidised rate)	-	-	200 Conne.	2.00	100 Conne.	1.00	100 Conne.	1.00	100 Conne.	1.00	100 Conne.	1.00	100 Conne.	1.00	100 Conne.	1.00	100 Conne.	1.00	100 Conne.	1.00
(iii)	Eco Development Activities (Improved crematorium)	-	-	1 Nos	0.30	1 Nos	0.30	1 Nos	0.35	1 Nos	0.35	1 Nos	0.40	1 Nos	0.40	1 Nos	0.40	1 Nos	0.40	-	-
(iv)	Eco Development Activities (Improved chullahas)	-	-	400 Nos	1.00	800 Nos	2.00	400 Nos	1.00	400 Nos	1.10	400 Nos	1.10	400 Nos	1.20	400 Nos	1.20	400 Nos	1.30	400 Nos	1.30
(v)	Pasture	-	-	100	12.0	100	13.0	100	14.0	100	15.0	100	15.0	50	7.50	-	-	-	-	-	-

	Development in Z.I.			Ha	0	Ha	0	Ha	0	Ha	0	Ha	0	Ha						
TOTAL (Village Eco-Development)			**0.00**		**20.80**		**22.30**		**22.85**		**24.45**		**17.50**		**10.10**		**2.60**		**2.70**		**2.30**
8-ENVIRONMENTEL AWARENESS PROGRAMME																				
(i)	Development & procurement of Education Material	-	-	LS	0.25	L.S.	0.30	L.S.	0.35	L.S.	0.35	L.S.	0.40	L.S.	0.40	L.S.	0.45	L.S.	0.45	L.S.	0.50
(ii)	Awarenes s Programmes	-	-	L.S.	0.30	L.S.	0.35	L.S.	0.35	L.S.	0.40	L.S.	0.40	L.S.	0.45	L.S.	0.45	L.S.	0.50	L.S.	0.50
TOTAL (Environmental A Programme)			**0.00**		**0.55**		**0.65**		**0.70**		**0.75**		**0.80**		**0.85**		**0.90**		**0.95**		**1.00**
9-RESEARCH & MONITORING																				
(i)	Research Studies	-	-	L.S.	0.40	L.S.	0.40	L.S.	0.40	L.S.	0.45	L.S.	0.45	L.S.	0.45	L.S.	0.50	L.S.	0.50	L.S.	0.50
(ii)	Monitorin g Studies	-	-	L.S.	0.25	L.S.	0.25	L.S.	0.25	L.S.	0.28	L.S.	0.28	L.S.	0.30	L.S.	0.30	L.S.	0.33	L.S.	0.35
(iii)	Census	-	-	-	-	L.S.	0.50	-	-	L.S.	0.50	-	-	L.S.	0.50	-	-	L.S.	0.50	-	-
(iv)	Training	-	-	L.S.	0.35	L.S.	0.30	L.S.	0.30	L.S.	0.30	L.S.	0.35	L.S.	0.35	L.S.	0.35	L.S.	0.40	L.S.	0.40
TOTAL (Research & Monitoring)			**0.00**		**0.35**		**0.80**		**0.30**		**0.80**		**0.35**		**0.85**		**0.35**		**0.90**		**0.40**