

# CHAPTER-I

## INTRODUCTION

### 1.1 Introduction

Gujarat has wide variations in geophysical and eco-climatic conditions ranging from hot saline deserts to humid hilly tracts and from coast to high hills, which have resulted in the formation of various types of forests. The State has vast grasslands and scrub forests in Kachchh, Central Gujarat, and Saurashtra regions while coastal ecosystems such as mangroves, coral reefs, and seagrasses are located in western parts of the State. Further, saline deserts are located in the north, while moist deciduous tropical forests are found in southern areas. Hilly forests are found in the eastern parts and Saurashtra regions. As per the Champion and Seth Classification system, out of 16 major forest types found in the country, four main types of forest ecosystems<sup>1</sup> are found in Gujarat. Gujarat has a total geographical area of 1,96,244 sq. km. Of this, 21,870.35 sq. km. (11.14 *per cent*) geographical area is declared as forest. It comprises 14,574.30 sq. km. Reserve Forest (RF); 2,898.25 sq. km. Protected Forest (PF), and 4,397.80 sq. km. Unclassed Forest.

Wildlife refers to living organisms (flora and fauna) in their natural habitats. Like forests, wildlife is also a national resource that not only helps in maintaining the ecological balance but also is beneficial from economic, recreational, and aesthetic points of view. Gujarat is rich in faunal diversity being home to a wide variety of wildlife species. It is the only home of Asiatic Lion and Indian Wild Ass.

Over the years due to uncontrolled developmental activities, many species of flora and fauna have been pronounced extinct and several others are on the verge of extinction. Deforestation is also one of the main reasons for the loss of wildlife. Further, illegal hunting, habitat reduction (due to development activities) and its degradation has threatened the biodiversity of the regions where these are rampant. As such the need for wildlife conservation has become a necessity.

The Wildlife (Protection) Act, 1972 (WPA) empowers the State Government to notify an area of adequate ecological, faunal, floral, geomorphological, natural, or zoological significance as a Protected Area (PA). As per WPA, Protected Area can consist of Wildlife Sanctuary (Sanctuary), National Park (NP), Conservation Reserve and Community Reserve.

Wildlife Sanctuary is reserved for the conservation of wildlife wherein human activities like harvesting timber, collecting minor forest products, and private ownership rights are allowed as long as those do not interfere with the well-being of wildlife. National Parks are strictly reserved for the betterment of the

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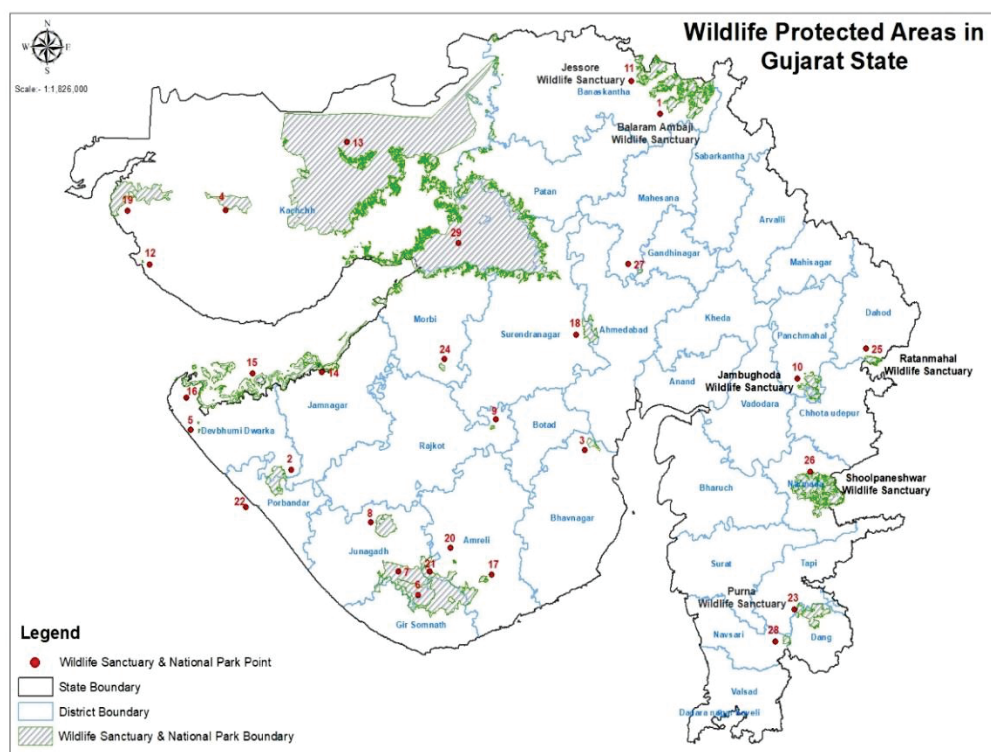
<sup>1</sup> (1) Tropical Moist Deciduous Forests (2) Littoral and Swamp Forests (3) Tropical Dry Deciduous Forests (4) Tropical Thorn Forests.

wildlife and biodiversity where activities like development, forestry, poaching, hunting, and grazing or cultivation are not permitted.

## 1.2 Wildlife Sanctuaries and National Parks in Gujarat

As on September 2022, there are 28 PAs (as shown in Map below) in Gujarat which comprises four NPs, one Conservation Reserve<sup>2</sup> (CR), and 23 Wildlife Sanctuaries. The total area under PAs is 17,099.93 Sq. Km. of which 4,640.58 Sq. Km (27.45 per cent) is forest land and the remaining belongs to non-forest ecosystems which mainly consist of Kachchh Desert Sanctuary.

Map 1.1: Protected Areas<sup>3</sup> in Gujarat as on September 2022



Source: Map furnished by GIS Cell, Gujarat Forest Department.

## 1.3 Authorities for the regulation of activities in PAs

Regulation of the activities in the PAs is governed by the WPA, which is further complemented by the Forest Conservation Act (FCA), 1980 and the Environment (Protection) Act (EPA), 1986. The following authorities have important role in ensuring compliance with the provisions of the above Acts.

<sup>2</sup> Conservation Reserve is a type of PA, which is declared so by the State Government for protecting landscapes, seascapes, flora and fauna and their habitat. These areas are owned by the Government and lie adjacent to National Parks and Sanctuaries and include those areas which link one PA with another.

<sup>3</sup> 1) Balam Ambaji 2) Barda 3) Black Buck National Park 4) Chharidhandh Conservation Reserve 5) Gaga Bird Sanctuary 6) Gir 7) Gir National Park 8) Girnar 9) Hingolghadh 10) Jambughoda 11) Jessore 12) Kachchh Bustard Sanctuary 13) Kachchh Desert Sanctuary 14) Khijadiya Bird Sanctuary 15) Marine National Park 16) Marine Sanctuary 17) Mitiyala 18) Nalsarovar Bird Sanctuary 19) Narayan Sarovar 21) Paniya 22) Porbandar Bird Sanctuary 23) Purna 24) Rampara 25) Ratanmahal 26) Shoolpaneshwar 27) Thol Bird Sanctuary 28) Vansda National Park 29) Wild Ass Sanctuary.

**National Board of Wildlife (NBWL):** It is a statutory Board constituted under Section 5 of the WPA and is headed by the Prime Minister as Chairperson. The role of NBWL *inter alia* includes to make recommendations on the matters relating to restriction of activities in the PA.

**State Board of Wildlife (SBWL):** It is constituted under Section 6 of the WPA and is headed by the Chief Minister of the State as Chairperson. The duty of SBWL is to advise the State Government in selection of areas to be declared as PA, deciding line of action for protection of PA and wildlife, etc.

#### 1.4 Organizational setup

The Forests and Environment Department (F&ED), Government of Gujarat (GoG) has Environment Wing and Forest Wing. The F&ED is headed by the Additional Chief Secretary. The Forest Wing (henceforth called the Department in this report) is entrusted with the prime responsibility of protection, conservation and development of forests and wildlife of the State. While the Principal Chief Conservator of Forests and Head of Forest Force (PCCF & HoFF) is the functional head of the Department; the Principal Chief Conservator of Forests (Wildlife) (herein after called PCCF (WL)) is responsible for control, management and maintenance of the PAs, and deals with all wildlife related activities. PCCF(WL) also acts as the Chief Wildlife Warden of the State under Section 4 of the WPA. The PCCF (WL) is assisted by the Additional PCCF (WL), Chief Conservators of Forests (CCFs) at the Circle level, and Deputy Conservators of Forests (DCFs), at the Divisional level. The DCF of the respective Sanctuary acts as the Sanctuary Superintendent.

#### 1.5 Audit Objectives

The Performance Audit of ‘Protection, Conservation and Management of Wildlife Sanctuaries in Gujarat’ was conducted to get a reasonable assurance that

1. planning for the protection, conservation, and management of the Sanctuaries was adequate;
2. measures adopted for conservation and protection of the Sanctuaries were adequate,
3. allocation and release of funds were adequate and timely, and subsequent utilisation of financial resources was economical and efficient; and,
4. the required human and infrastructure resources were available and optimally utilised.

## 1.6 Audit Coverage

The Performance Audit covered six Wildlife Sanctuaries. Jurisdictional control of the six selected Sanctuaries is as under:

**Table 1.1: Notification and jurisdictional geographical area of the six wildlife Sanctuaries as on November 2022**

Sl. No.	Name of Sanctuary	Year of notification	Area in Sq. Km.	Jurisdiction Division	Circle
<b>North Gujarat</b>					
1	Balaram Ambaji	1989	544.78	Banaskantha Forest Division, Palanpur	Gandhinagar Wildlife Circle
2	Jessore	1978	180.66	Banaskantha Forest Division, Palanpur	
<b>Central Gujarat</b>					
3	Jambughoda	1990	130.38	Vadodara Wildlife Division, Vadodara	Wildlife Circle Kevadiya*
4	Ratanmahal	1982	55.65	Vadodara Wildlife Division, Vadodara	
<b>South Gujarat</b>					
5	Shoolpaneshwar <sup>4</sup>	1982	607.70	Narmada Forest Division, Rajpipla	Wildlife Circle Kevadiya*
6	Purna	1990	160.84	Dangs (North) Forest Division, Ahwa	Valsad Forest Circle

Source: Records maintained by the Forests Department.

\*Erstwhile Vadodara Wildlife Circle.

A brief introduction of the selected Sanctuaries is as under.

### ***Balaram Ambaji and Jessore Sanctuaries:***

Balaram Ambaji and Jessore Sanctuaries harbour several species of rare medicinal herbs and shrubs together with rare and endangered species of wildlife. The flagship species of both Sanctuaries is the Sloth Bear. The major carnivore at the apex of the food chain is Leopard and other vertebrates inhabiting the area include the Striped Hyena, Jungle Cat, Jackal, Wolf, Indian Fox, Common Langur, Blue Bull, Indian Hare, and Wild Boar.

### ***Jambughoda Sanctuary:***

Jambughoda Sanctuary is home to 33 species of mammals and about 215 species of birds. The major mammals are Leopard, Hyena, Sloth bear, Blue bull, Common Langoor, Indian hare, etc.

***Ratanmahal Sanctuary:*** The Sloth Bear is the flagship species of this area and 28 mammal species belonging to 14 families are recorded within the Sanctuary area.

<sup>4</sup> One Range namely "Gora Range" had been transferred under the jurisdiction of the newly established Kevadiya Forest Division (KFD) with effect from 01 January 2020. KFD is working under the control of Statue of Unity Area Development and Tourism Governance Authority (the Kevadiya Authority).

**Shoolpaneshwar Sanctuary:** The Sanctuary has 309 vertebrate species belonging to fishes, amphibians, reptiles, birds, and mammals. Leopard is the top predator and Jungle Cat, Rusty-spotted Cat, Common Jackal, Indian Fox are other important predators. Barking deer and Four-horned Antelope are important herbivores.

**Purna Sanctuary:** This Sanctuary harbours 24 species of mammals, 18 species of reptiles, 142 species of birds, and more than 3,000 species of insects. The main carnivores are Leopard, Hyena, Rusty-spotted Cat, Jungle Cat, Jackal, and Fox. Chital, Barking Deer, and Four-horned Antelope are major herbivores.

## 1.7 Audit methodology

The audit was conducted by test check of the records for the period 2016-17 to 2020-21 in respect of six selected Sanctuaries at the field level offices having jurisdiction over the selected Sanctuaries and at the office of PCCF (WL). Data was collected through analysis of documents and responses to audit queries/questionnaires. The Audit party also made joint site visits of all the six selected Sanctuaries along with concerned forest officials.

A satellite-based ‘Land Use Land Cover’ (LULC)<sup>5</sup> analysis in and around selected Sanctuaries was conducted with the help of Space Application Centre (SAC), Ahmedabad (a centre of Indian Space Research Organisation (ISRO)). For this purpose, maps, and Keyhole Markup Language (KML) files were obtained from the Geographic Information System (GIS) cell of the Department.

An Entry Conference was held with the PCCF & HoFF, PCCF (WL), and other senior officers on 5 January 2021, wherein the audit objectives, audit methodology, scope, and criteria were explained. The audit findings were discussed in the Exit Conference held with the PCCF & HoFF, PCCF (WL), and jurisdictional DCFs on 20 October 2022. Government/ Department responses, wherever furnished, have been suitably incorporated in this report.

## 1.8 Audit criteria

The Performance Audit was conducted using the following Audit criteria:

- 1) The Wildlife (Protection) Act 1972,
- 2) The Indian Forest Act 1927,
- 3) The Forest (Conservation) Act 1980,
- 4) National Wildlife Action Plan 2002-16 and 2017-31,
- 5) National Forest Policy 1988,
- 6) National Bear Conservation and Welfare Action Plan 2012-17,
- 7) Wildlife Conservation Strategy 2002, MoEF&CC,
- 8) Forest Rights Act, 2006,

<sup>5</sup> Land Use Land Cover (LULC) is an important indicator of changes happening in and around the protected areas which have a bearing on the conservation and protection of wildlife and their habitat. Changes in LULC were analysed over a period of 1980 to 2020 with regard to the eight parameters (i) Very Dense Forest, (ii) Moderately Dense Forest, (iii) Open Forest, (iv) Degraded Forest, (v) Highly Degraded Forest, (vi) Water Body, (vii) Agriculture and (viii) Built up area including Roads and Railways.



- 9) Notification of Eco-Sensitive Zones around wildlife Sanctuaries and NPs under the Environment (Protection) Act 1986,
- 10) Guidelines/ Instructions issued by the Central/ State Government,
- 11) Management Plan and Annual Plan of Operation of the six selected Sanctuaries,
- 12) A Guide for Planning Wildlife Management in Protected Areas and Managed Landscapes published by Wildlife Institute of India (WII),
- 13) Various Court Verdicts,
- 14) Research/ study reports/ guidelines of the WII, International Union for Conservation of Nature (IUCN), etc.

## 1.9 Budget Provision and Expenditure

The Wildlife Conservation Strategy 2002 of MoEF prescribes that the Wildlife and Forests shall be declared priority sector at the national level for which funds should be earmarked. The details of the budget provision in respect of F&ED as against the total budget provision of the Government of Gujarat during the years 2016-17 to 2020-21 is as under:

**Table 1.2: Budget provision for F&ED vis-a-vis total budget of the Government**

(₹ in crore)		
Year	Total provision in Budget for F&ED	Total provision in Budget for all the Departments of Gujarat
2016-17	1,000	85,557.78
2017-18	1,225.86	1,72,179.24
2018-19	1,287.15	1,83,666.38
2019-20	1,454.14	2,04,815.00
2020-21	1,780.98	2,17,287.24
<b>Total</b>	<b>6,748.13</b>	<b>8,63,505.64</b>

Source: Annual financial statement of Government of Gujarat.

Thus, it can be seen from **Table 1.2** that the total budget provision for the F&ED during 2016-21 was less than one *per cent* (only 0.78 *per cent*) of the total budget provision of the State Government.

Against the above budget provision of ₹ 6,748.13 crore, allocation of ₹ 6,163.69 crore was made to the Department out of which, the Department released ₹ 6,120.46 crore to the Office of the PCCF and HOFF. Against this, expenditure of ₹ 6,005.23 crore was incurred on various schemes/ activities, which included expenditure of ₹ 823.02 crore on protection, conservation, and management of protected areas. This amounted to only 13.71 *per cent* of the total expenditure incurred by the PCCF and HOFF. The details are shown in the following table.

Table 1.3: Details of budget provision, funds released and actual expenditure

(₹ in crore)

Year	Total Budget and expenditure of the Department			Protection, conservation, and management of protected areas			Percentage of funds released for protected areas vis-à-vis total funds released by the Department (8)= (6)/(3) x 100
	Budget Provision	Funds Released	Expenditure incurred	Budget Provision	Funds Released	Expenditure incurred	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
2016-17	1,099.00	1,076.66	1,069.67	145.59	142.61	142.00	13.25
2017-18	1,173.97	1,160.79	1,151.94	133.42	127.61	123.60	10.99
2018-19	1,257.95	1,253.27	1,237.38	174.81	173.17	165.00	13.82
2019-20	1,376.95	1,374.60	1,293.75	286.87	286.87	218.68	20.87
2020-21	1,255.82	1,255.14	1,252.49	173.71	173.71	173.74	13.84
<b>Total</b>	<b>6,163.69</b>	<b>6,120.46</b>	<b>6,005.23</b>	<b>914.40</b>	<b>903.97</b>	<b>823.02</b>	<b>14.77</b>

Source: Information provided by the Department.

Thus, between 2016-17 and 2020-21, the funds released for protection, conservation and management of protected areas ranged between 11 to 21 *per cent* of the total funds released to the Department.

Thus, despite the MoEF prescribing the wildlife as a priority sector, the allocation of funds by the State Government to the F&ED continued to be meagre.

## 1.10 Acknowledgement

Audit acknowledges the co-operation extended by the office of the PCCF (WL), jurisdictional divisions and Space Application Centre, Ahmedabad in the conduct of this Performance Audit. Further, Audit also acknowledges the expert views of Dr. Nishith Dharaiya, Associate Professor (Environment Science) at Department of Life Sciences, Hemchandracharya North Gujarat University, Patan (Gujarat) for providing his expert views and guidance on the topic.

