

DRAFT
OF
RAJASTHAN STATE FOREST
POLICY

Version - 2

Introduction

The National Forest Policy of 1988 has the ultimate objective of increasing tree cover to 33 percent of India's geographical area. It also enshrines strategies of achieving the same. In this document, it was also mentioned that states should have their own Forest Policies.

From 1947 onwards, the forests in the country have been subjected to a diverse set of biotic and other pressures and have shrunk both in quality and quantity. Rajasthan is no exception.

Over the years, for a multitude of reasons, the very core of forest management has shifted from production to conservation. In most states between 1980 and present, significantly large plantation and productivity enhancement programs have been taken up. However, the quantum of inputs is still very low compared to the magnitude of the problem. The 1990's saw a nationwide focus on participatory management of forestry resources, stimulated by an experiment in southern West Bengal and constituting village forest protection and management committees became fashionable. In the decade starting 2000, drawing cue from rural development programs, Forest Departments started community mobilization through the constitution of self - help groups. However, as on date, the efforts in community mobilization in a manner of speaking have lost their way.

There was a time when appreciation of forest as a resource was directed by it being a source of fuelwood and fodder. Similarly, a forest area was fair game for extracting mining produce, creating habitations or many other non - forestry activities. The latter part has been however controlled to an extent by the Forest Conservation Act of 1980.

Since the 1960's green activism has been a growing global movement. With advances in science, a better understanding of how anthropogenic activities impact the environment has percolated to all levels. India is a signatory to a number of international treaties and conventions all of which are aimed at protection and conservation of natural resources, reducing human impact on the environment and the sustainable management of natural resources. In recent years, components relating to rights of indigenous communities have also been a part of management preferences.

In today's context, it would be myopic to look at forest resources as mere stands of trees or sources of fuelwood/ fodder for domestic consumption and income supplementation of local communities. It is important to understand the ecological services provided by forests and grasslands and also why nature should not be manipulated beyond a point. The Covid-19 Pandemic serves a lesson here for all development managers.

Rajasthan is India's largest state with 10 percent of the geographical area. Rajasthan is home to over 5 percent of India's population and nearly 7 percent of the country's livestock. An arid state, Rajasthan is limited in its development opportunities especially in manufacturing because of low surface and ground water resources. On the other hand, services and certain aspects of agriculture and animal husbandry are strengths of the State. If the national level predictions for climate change are taken into account Rajasthan's vulnerability to even slight increase in temperature is very high. Lesser rainy days, more rain per day, lesser agriculture productivity, higher incidences of vector borne diseases are some of the primary predictions. It needs to be appreciated that any catastrophic change in climate is likely to impact negatively the most vulnerable segments of society – children, women, the aged, the ailing and the poor. It is here that the role of natural ecosystems becomes important. The Forest of Rajasthan contribute handsomely in modulating climate, ground water recharge and sequestering carbon thereby acting as a buffer between human vulnerability and climate distortion.

Rajasthan State Forest Policy 2010

Drawing strength from National Forest Policy, 1988, the Government of Rajasthan notified the State Forest Policy in 2010. This document accepted that at 9.56 percent, the forest area in the State was low and translated to only 0.06 hectares per capita. This document aimed at protection, conservation and development of the natural forests through community participation, massive afforestation to meet timber, fuel wood and other demands, combating desertification, conserving floral and faunal diversity, research and its translation to the field and human resource development. As a document, this policy had the most noble of intentions but did not spell out the operational mechanism for achieving the objectives.

It is in this backdrop that the State Forest Policy is being recast.

Overview of Forests of Rajasthan*

Rajasthan has geographical area of 3,42,239 sq km, which is 10.40% of geographical area of the country. The State has 4 distinct regions namely, western dessert with barren hills, level rocky and sandy planes, Aravali Hills and South–Eastern plateau. The climate of the state varies from semi–arid to arid. Western part of the state, including Thar Desert, is relatively dry and infertile whereas in the south-western part, the land is wetter, hilly, and more fertile. The average annual temperature ranges between 0°C to 50°C and the average annual rainfall is in the range of 500 mm to about 750 mm. The State is drained by a number of rivers which include Banas, Chambal, Luni and Mahi. The State has 33 districts. As per the 2011 Census, Rajasthan has a population of 68.55 million accounting to 5.66 percent of India's population. The rural and urban population constitute 75.10% and 24.90% respectively. The population density is 200 per sq km which is much lower than the national average of 382 persons per sq km. The 19th Livestock census 2012 has reported a total livestock population of 57.73 million in the State.

TABLE - Land Use Pattern

Land Use Types	Area (in 000' ha)	Percentage
Geographical Area	34,224	
Reporting area for land utilization	34,267	100.00
Forests	2,740	8.00
Not available for land cultivation	4,343	12.67
Permanent pastures and other grazing lands	1,674	4.88
Land under misc. tree crops and groves	26	0.08
Culturable wasteland	4,038	11.78
Fallow land other than current fallows	2,069	6.04
Current fallows	1,856	5.42
Net area sown	17,521	51.13

Source: Land Use Statistics, Ministry of Agriculture, GOI, (2014-15)

1 A Brief Overview of Forestry Scenario

Rajasthan, the largest State of India according to geographical area, ranks 15th in terms of the RFA, is a forest deficient State. As per the Champion & Seth Classification

of Forest Types (1968), the forests in Rajasthan belong to two Type groups i.e. Tropical Dry Deciduous and Tropical Thorn Forests which are further divided into 20 Forest Types.

The State has the examples of some of the best afforestation practices along the Indira Gandhi Canal. Under Joint Forest Management, there are 6,377 VFMCs/EDC operational in the State.

Recorded Forest Area (RFA) in the State is 32,737 sq km of which 12,475 sq km is Reserved Forest, 18,217 sq km is Protected Forest and 2,045 sq km is Unclassed Forests. In Rajasthan, during the period 1st January 2015 to 5th February 2019, a total of 2,834 hectares of forest land was diverted for non-forestry purposes under the Forest Conservation Act, 1980 (MoEF & CC, 2019). As per the information received from the State during the last two years, a total of 42,633 ha of plantations were raised.

3 National Parks, 27 Wildlife Sanctuaries and 13 Conservation Reserves constitute the Protected Area network of the State covering 2.92% of its geographical area. There are 3 Project Tiger (Ranthambhore, Sariska and Mukundra Hills) and two Ramsar (Keoladeo Ghana sanctuary and Sambhar lake) sites.

2 Forest Cover

Based on the interpretation of IRS Resourcesat-2 LISS III satellite data of the period Oct to Dec 2017, the Forest Cover in the State is 16,629.51 sq km which is 4.86 % of the State's geographical area. In terms of forest canopy density classes, the State has 77.81 sq km under Very Dense Forest (VDF), 4,341.90 sq km under Moderately Dense Forest (MDF) and 12,209.80 sq km under Open Forest (OF). Forest Cover in the State has increased by 57.51 sq km as compared to the previous assessment reported in ISFR 2017.

TABLE - Forest Cover of Rajasthan (in sq km)

Class	Area	% of GA
VDF	77.81	0.02
MDF	4,341.90	1.27
OF	12,209.80	3.57
Total	16,629.51	4.86

Scrub	4,760.04	1.39
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2.1 Forest Cover inside and outside Recorded Forest Area (or Green Wash)

The State has reported extent of recorded forest area (RFA) 32,737 sq km which is 9.57% of its geographical area. The reserved, protected and unclassed forests are 38.11%, 55.64% and 6.25% of the recorded forest area in the State respectively. However, as the digitized boundary of recorded forest area from the State covers 33,072.12 sq km, the analysis of forest cover inside and outside this area is given below.

TABLE - Forest Cover inside and outside Recorded Forest Area in Rajasthan (in sq km)

Forest Cover inside the Recorded Forest Area (or Green Wash)				Forest Cover outside the Recorded Forest Area (or Green Wash)			
VDF	MDF	OF	Total	VDF	MDF	OF	Total
72	3,931	8,279	12,282	6	411	3,931	4,348
0.59%	32.00%	67.41%		0.13%	9.45%	90.42%	

**in case of Rajasthan RFA boundaries have been used.*

TABLE - District- wise Forest Cover in Rajasthan (in sq km)

District	Geographical Area(GA)	2019 Assessment				% of GA	Change wrt 2017 assessment	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Ajmer	8481	0.00	43.00	262.11	305.11	3.60	6.11	204.64
Alwar	8380	59.00	334.96	802.70	1196.66	14.28	-0.34	245.66
Banswara	4522	0.00	38.57	229.85	268.42	5.94	7.42	63.45
Baran	6992	0.00	154.89	856.10	1010.99	14.46	-2.01	106.56
Barmer	28387	0.00	3.85	285.94	289.79	1.02	16.79	234.23
Bharatpur	5066	0.00	22.00	208.27	230.27	4.55	1.27	77.93
Bhilwara	10455	0.00	31.00	193.19	224.19	2.14	3.19	176.39
Bikaner	30239	0.88	27.23	227.50	255.61	0.85	8.61	51.85
Bundi	5776	1.00	137.93	418.25	557.18	9.65	-0.82	151.62
Chittorgarh	7822	0.00	220.55	768.25	988.80	12.04	-0.20	100.09
Churu	13835	0.00	3.00	79.00	82.00	0.59	0.00	22.00
Dausa	3432	0.00	12.00	105.00	117.00	3.41	0.00	99.00
Dhaulpur	3033	0.00	80.00	339.00	419.00	13.81	0.00	75.40
Dungarpur	3770	0.00	42.71	259.59	302.30	8.02	11.30	75.35
Ganganagar	10978	0.00	10.00	102.92	112.92	1.03	-0.08	13.00

Hanumang arh	965	1.00	7.00	81.96	89.96	0.93	-0.04	1.00
Jaipur	11143	12.00	97.11	443.65	552.76	4.96	0.76	285.39
Jaisalmer	38401	3.93	51.13	270.71	325.77	0.85	12.77	213.27
Jalore	10640	0.00	18.91	249.16	268.07	2.52	-6.93	250.89
Jhalawar	6219	0.00	83.02	352.56	435.58	7.00	-3.42	102.34
Jhunjhunu	5928	0.00	21.00	179.77	200.77	3.39	4.77	186.72
Jodhpur	22850	0.00	4.55	103.23	107.78	0.47	2.78	172.71
Karauli	5524	0.00	95.00	775.00	870.00	15.75	0.00	273.00
Kota	5217	0.00	153.62	393.11	546.73	10.48	-3.27	135.17
Nagaur	17718	0.00	15.00	132.04	147.04	0.83	4.04	102.32
Pali	12387	0.00	209.94	464.91	674.85	5.45	0.85	323.64
Pratapgarh	4449	0.00	562.54	475.37	1037.91	23.33	-6.09	58.73
Rajsamand	4655	0.00	134.91	386.88	521.79	11.21	10.79	124.23
SawaiMadh opur	4498	0.00	153.92	308.77	462.69	10.29	-3.31	119.67
Sikar	7732	0.00	31.00	162.06	193.06	2.50	1.06	202.34
Sirohi	5136	0.00	300.74	611.17	911.91	17.76	-2.09	229.36
Tonk	7194	0.00	26.94	138.12	165.06	2.29	0.06	57.73
Udaipur	11724	0.00	1213.88	1543.66	2757.54	23.51	-6.46	224.36
Total	342239	77.81	4341.90	12209.80	16629.51	4.86	57.51	4760.04

TABLE - Forest Cover Change Matrix for Rajasthan

(in sq km)

Class	2019 Assessment					Total ISFR 2017
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	78	0	0	0	0	78
Moderately Dense Forest	0	4,309	13	2	16	4,340
Open Forest	0	28	11708	88	330	12154
Scrub	0	0	107	4140	329	4579
Non Forest	0	5	382	527	320174	321088
Total ISFR 2019	78	4342	12210	4760	320849	342239
Net Change	0	2	56	181	-239	

Main reasons for the increase in forest cover in the State are plantation and conservation activities as well as improvement in interpretation

TABLE - Altitude-wise Forest Cover in Rajasthan

Altitude Zone (m)	Geographical Area	VDF	MDF	OF	Total	Scrub
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0-500	3,24,954	27	2,538	9,383	11,948 (71.84%)	4016
500-1000	17,070	51	1,690	2,777	4,518 (27.17%)	740
1000-2000	215	0	114	50	164 (0.99%)	4
Total	3,42,239	78	4,342	12,210	16,630	4,760

(based on SRTM, Digital Elevation Model, 30 m, 2016)

TABLE - Forest Cover in different slope classes in Rajasthan

Slope(in degrees)	Geographical Area	VDF	MDF	OF	Total	Scrub
0-5	3,15,978	21	1,563	7,253	8,837 (53.13%)	3,410
5-10	15,796	15	846	1,912	2,773 (16.68%)	586
10-15	4,729	12	669	1,163	1,844 (11.09%)	295
15-20	2,656	11	537	814	1,362 (8.19%)	200
20-25	1,650	9	379	560	948 (5.70%)	140
25-30	901	6	215	321	542 (3.26%)	82
>30	529	4	133	187	324 (1.95%)	47
Total	3,42,239	78	4,342	12,210	16,630	4,760

(based on SRTM, Digital Elevation Model, 30 m, 2016)

TABLE - Wetlands inside the Recorded Forest Area (or Green Wash) in Rajasthan (in ha)

Wetland Category	No. of Wetlands	Toatal Wetland Area
Inland Wetlands – Natural		
Lake/Pond	20	1,177
Waterlogged	5	1,195
River/Stream	259	19,147
Sub - Total	284	21,519

Inland Wetlands -Man-made		
Reservoir/Barrage	219	16,401
Tank/Pond	1038	7,697
Waterlogged	16	3,037
Salt Pan	2	929
Sub - Total	1,275	28,064
Coastal Wetlands – Natural		
Intertidal mud flat	1	4,386
Salt Marsh	3	109
Sub -Total	4	4,495
Wetlands (<2.25 ha)	2263	2263
Total	3,826	56,341
Total Recorded Forest (or Green Wash) Area (in ha) 33,07,212		
% of Wetland area inside Recorded Forest (or Green Wash) Area		1.70%

(analysis based on the National Wetland Atlas: India, 2011)

3 Forest Types & Biodiversity

Forest Type Maps of 2011 have been refined in the recently completed exercise by FSI. Percentage area under different forest types of Rajasthan as per the Champion & Seth classification (1968), according to the latest exercise are presented in the following table.

TABLE - Percentage area under different forest types of Rajasthan

Sl.No.	Forest Type	% of Forest Cover
1	5A/C1a Very Dry Teak Forest	5.63
2	5A/C1b Dry Teak Forest	0.21
3	5B/c2 Northern Dry Mixed Deciduous Forest	40.07
4	5/E1/DS1 Dry Deciduous Scrub	10.96

5	5/DS2 Dry savannah Forest	0.02
6	5/E1 Anogeissus pendula Forest	15.21
7	5/E1/DS1/ Anogeissus pendula Scrub	2.94
8	5/E2 Boswellia Foest	0.79
9	5/E5 Butea Forest	0.30
10	5/E6 Aegle Forest	0.01
11	5/E8a Phoenix Savannah Forest	0.01
12	5/1S1 Dry Tropical Riverain Forest	0.26
13	5/1S2 Khair-Sissu Forest	1.52
14	6B/C1 Desert Thorn Forest	6.17
15	6B/C2 Ravine Thorn Forest	1.93
16	6B/DS1 Zizyphus Scrub	0.94
17	6B/DS2 Tropical Euphorbia Scrub	0.19
18	6/E1 (Euphorbia scrub)	0.85
19	6/E2 Acacia senegal Forest	0.23
20	6/1S1 Desert Dune Scrub	6.62
21	Plantation/TOF	5.14
	Total	100.00

3.1 Assessment of Biodiversity Findings of the Rapid Assessment of Biodiversity carried out at the national level for natural forests during September 2018 to May 2019 as part of the forest type mapping exercise is summarized below in tables below.

TABLE - No. of species observed during the rapid assessment

Plant Type	Number of Species
Tree	65
Shrub	30

Herb	8
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TABLE - Shannon-Wiener Index of Tree, Shrub and Herb species in different Type Groups of Rajasthan

Sl. No.	Forest Type Group	Shannon-Wiener Index		
		Tree	Shrub	Herb
1	Group 5- Tropical Dry Deciduous Forests	2.59	2.63	2.01
2	Group 6- Tropical Thorn Forests	1.86	1.69	

adequate number of sample plots were not available

4 Fire Prone Forest Areas

Geographical area under different classes of forest fire proneness is given in the following table.

TABLE - Forest Fire Prone Classes (In sq km)

Sl No.	Forest Fire Prone Classes	Geographical Area	% of Total forest cover
1	Extremely Fire Prone	0.00	0.00
2	Very highly fire Prone	5.01	0.32
3	Highly fire prone	450.08	2.48
4	Moderately fire prone	803.51	3.62
5	Less fire prone	1,20,580.88	93.58
		1,21,884.48	100.00

5 Tree Cover

Forest cover accounts for tree patches of size 1 ha and more having canopy density more than 10%. However, trees occurring in patches of size less than 1 ha including scattered trees are assessed through sampling based methodology. Tree cover in Rajasthan has been estimated as given in table below.

TABLE - Tree Cover in Rajasthan (in sq km)

Tree Cover	Area
	8,112

Tree cover of Rajasthan has decreased by 154 sq km as compared to the previous assessment reported in ISFR 2017.

6 Extent of Trees Outside Forest (TOF)

Trees outside Forests (TOF) refer to tree resources found outside the forests as defined in the Government records. FSI maps forest cover using satellite data and assesses tree cover outside forests using sampling based method. Forest Cover outside the recorded forest area is derived using boundaries of RFA or Green Wash. Extent of TOF therefore may be estimated as the sum of extent of forest cover outside the recorded forest areas (RFA) and tree cover as given in the preceding section.

TABLE - Extent of TOF in Rajasthan (in sq km)

Forest Cover outside the RFA/GW	Tree Cover	Extent of TOF
4,348	8,112	12,460

7 Growing Stock in Forest

Growing stock in the recorded forest areas (RFA) in Rajasthan is given in the table below.

TABLE - Growing Stock in Rajasthan

Growing Stock (GS)		% of Country's GS
Growing Stock in Recorded Forest Area	24.39	0.57
Growing Stock in TOF	89.07	5.42

8 Carbon Stock in Forest

The total Carbon stock of forests in the State including the TOF patches which are more than 1 ha in size is 108.36 million tonnes (397.32 million tonnes of CO₂

equivalent) which is 1.52% of total forest carbon of the country. Pool wise forest carbon in Rajasthan is given in the following table.

TABLE - Forest Carbon in Rajasthan in different pools

AGB	BGB	Dead wood	Litter	SOC	Total
26,155	10,865	191	928	70,224	1,08,363

9 Growing Stock of Bamboo

Bamboo bearing area and growing stock inside the recorded forest area (RFA)/ Green Wash which include culms of 1 year age and above are given in the table below.

TABLE - Growing Stock of Bamboo in Rajasthan

Growing Stock(GS)		% of Country's GS of Bamboo
Bamboo bearing area inside RFA/Green Wash (in sq km)	1674	1.17
Total number of culms (in million)	527	1.34
Total equivalent green weight (in 000' tonnes)	2520	0.91

10 Dominant tree species in Trees Outside Forests (TOF)

Top five species in numbers in Trees Outside Forests in Rajasthan in Rural and Urban areas are given in the table below.

TABLE - Top five tree species in TOF (Rural) in Rajasthan

SI No.	Species	Relative Abundance (%)
1	Prosopis cineraria	20.25
2	Acacia arabica	8.87
3	Azadirachta indica	8.12

4	Prosopis juliflora	7.57
5	Zizyphus jujuba	6.78

TABLE - Top five tree species in TOF (Urban) in Rajasthan

SI No.	Species	Relative Abundance(%)
1	Azadirachta indica	24.28
2	Prosopis juliflora	15.83
3	Acacia arabica	5.11
4	Acacia lenticularis	4.23
5	Dalbergia sissoo	3.66

11 Major NTFP and Invasive Species

Major NTFP and invasive species as assessed from forest inventory data are presented in the table below.

TABLE - Major NTFP species in the State of Rajasthan

SI No.	Species	Plant Type	Relative Abundance (%)
1	Butea monosperma	Tree	51.03
2	Boswellia serrata	Tree	22.74
3	Diospyros melanoxylon	Tree	12.27
4	Aegle marmelos	Tree	6.33
5	Wrightia arborea	Tree	3.75

TABLE - Major invasive species in the state inside the RFA/Green Wash in Rajasthan

SI No.	Species	Estimated Extent
1	Cassia tora	373
2	Lantana camara	210
3	Senna occidentalis	194

4	Prosopis juliflora	162
5	Triumfetta rhomboidea	55

Major NTFP species are given in terms of relative abundance whereas invasive species are given in terms of their estimated extent.

12 Quantified estimation of Dependence of People living in forest fringe villages on forests in Rajasthan

Through a nation-wide study, FSI has done estimation of dependence of people living in the villages close to forest for fuel wood, fodder, small timber and bamboo in quantified terms for each State & UT of the country. The estimated quantities of the four produce for Rajasthan is given in the table below.

TABLE - Estimation of Dependence of People in Forest Fringe Villages on Forests in Rajasthan

Fuelwood(tonnes)	Fodder(tonnes)	Bamboo(tonnes)	Small Timber(cum)
85,59,582	11,27,07,814	3,698	82,433

* - This chapter is based on SFR,2019 FSI, Dehradun, Gol report.

Vision

Rajasthan is committed to conserving its rich biodiversity both insitu and exsitu, natural habitats and also committed to protecting, restoring and promoting sustainable use of terrestrial ecosystems in the interest of sustainable growth and inclusive development. It envisions sustainable use of natural resources like forests and water bodies and also aims at reversing environmental degradation by restoring the degraded ecosystems thus ensuring their availability for future generations. The state is also committed to prevent the introduction and spread of invasive alien species. The benefits of conservation efforts should reach to all sections of society. The state also

envisages strengthening the capacities of the agents of change both at institutional as well as at grass-root level.

Objectives

In Rajasthan there are regional variations in areas under forest cover. Increasing biotic pressure has caused denudation and degradation of forest and its land. This has certainly widened the gap between demand and supply of forest produce. Under the circumstances there is a strong need to preserve the rich biodiversity of natural forest and to safeguard the eco sensitive natural forest areas and ecologically fragile areas of Thar Desert. Also there is a strong need to increase the productivity of our forest resources. This policy is dedicated to achieve the sustainable management of forest and wildlife.

As per the Forest Survey of India reports, in 2006 the forest cover of the State was 4.69%. The forest cover has increased to 4.86% in year 2017. There has been an increase of 0.17% over 11 years. Taking a cue from the present trends there is an urgent need to focus more inputs for increasing the forest and tree cover, and consolidating/ improving the natural forests.

The objective of the present policy is to safeguard the ecological security for all times to come, based on sustainable management of the forests so that the flow of ecosystem services is in order. Taking cue from the present rate of growth of forest cover, to achieve the objective of eco-security, the State should have a minimum of 6 percent of the total land area under forest cover and tree cover.

The following objectives shall be guiding the Forest Policy.

- 1 Conserve and sustainably manage forests to ensure continuous flow of ecosystem Services.
- 2 Manage protected areas and other wildlife rich areas with the primary objective of biodiversity conservation.
- 3 Maintenance of environmental stability and landscapes through preservation and conservation of natural forests.

4 Reverse the degradation of forest by taking up rehabilitation without compromising its natural profile.

5 Increasing the forest/tree cover in the State through afforestation and reforestation programmes, especially on degraded forest areas and area outside forests.

6 Checking soil erosion in the catchments of rivers and the wetlands through integrated watershed management techniques and practices.

7 Maintenance of the health of forest vegetation and forest soils for augmenting water supplies through recharge of underground aquifers and regulation of surface water flows.

8 Valuation of ecosystem services and climate change concerns and retrofitting them into the planning and management of forests, urban areas, human habitation and in the exploitative use of land.

9 Integrate climate change mitigation and adaptation measures and mechanism of REDD+ (Reducing Emissions from Deforestation and Forest Degradation plus), so that the impacts of the climate change is minimized.

10 Managing and expanding green spaces in urban areas.

11 Improvement in livelihoods for people based on sustainable use of ecosystem services.

12 Safeguard forest land by exercising strict restraint on diversion for non-forestry purpose.

13. Ensure effective translation of policy into action by establishing credible measuring, monitoring and evaluation framework, providing commensurate financial support and developing an implementation framework with periodic review.

14 To build essential legal environment and to provide facilities for the expeditious implementation of the policy.

Strategy

The following strategies will be adopted to achieve the objectives of this policy.

Working Plans as the Bible for Forest Management

1 Working plans for the forest management of all types of forest areas shall be prepared on scientific basis. All activities in the forest should be in accordance to the approved working plan. If needed the working plans shall be revised as per the laid down procedures.

2 Management of the entire forest area shall be done only as per the approved working plans by scientific management for sustainable use of forest resources.

3 For the rehabilitation, degraded forest areas of good site quality shall be selected. Local and indigenous species shall be accorded priority in the natural forest areas.

4 Micro plans of the areas under joint forest management shall be prepared within the ambit of the working plans.

5 Modern techniques available from time to time shall be used extensively in the forest management. Also e-enablement of all processes will be ensured along with simplification of processes of the forest department.

6 All the disputes regarding boundaries of forest areas will be settled under a time-bound programme and demarcation of forest blocks will be ensured. After demarcation of forest areas and other revenue forests under a time-bound programme, unclassified forest areas will be notified.

7 Settlement of the forest areas shall be done as soon as possible.

8 A special campaign shall be carried out for the consolidation of records of the forest land and separate arrangements shall be ensured for this purpose.

Biodiversity Conservation and Development of Forest Areas through Planation Forestry

1 Most of the forest area of the state comprises degraded forests with alarming levels of soil erosion and decreasing regeneration. An accelerated and time-bound programme aimed at rehabilitating the existing forests would be carried out after proper identification of such areas with the help of comprehensive surveys and treating the affected areas according to site specific needs.

2 Treatment of catchment areas of rivers of the state and areas sensitive to soil erosion is essential for the purpose of water and soil conservation. Hence, through soil conservation and catchment area treatment, these areas will be tree covered as far as possible.

3 Efforts will be made to increase tree cover on private and community lands in a planned way through peoples' participation, improvement of forest in degraded forest areas and wastelands, irrigated plantations in suitable areas and farm-forestry & agro-forestry under social forestry. Agro-forestry will be largely promoted on large land holdings.

4 Large scale afforestation work will be taken up with the help of local communities including the women in the degraded forest areas, which will help in establishing ecological balance, checking desertification and providing employment to local communities, especially the women.

5 Trees planted on the road side, canals, railway lines and the fallow land would be properly managed and trees would be planted on vacant land. With a view to protecting the trees planted in such areas, the 'Tree Protection Legislation' will be introduced and enforced.

6 In urban and industrial areas green belts of suitable trees to act as carbon sinks shall be created to mitigate environmental pollution, to establish environmental balance and the ground water recharging.

7 Management of the wildlife protected areas will be strengthened and measures will be taken for the biodiversity conservation in the forest areas outside these also. Areas under territorial divisions shall be included under PA network to create corridors/ expand habitats

8 Conservation of environment and the ecological stability would be ensured on the entire forest area and the area outside also under the provisions of the 'Environment (Protection) Act, 1986'.

9 Many of forest ecosystems have been significantly altered and degraded due to change in land use, pollution, over exploitation, deforestation and degradation etc. with adverse impacts on biological diversity and livelihoods of the local population. Protection and enrichment of dense and moderately forests will be a top priority.

10 Degraded forests will be rehabilitated by promoting natural regeneration, by taking strict protection measures and also by planting locally suitable indigenous species for assisting the existing regeneration.

11 Productivity of the forest plantations are poor in most part of the States. This will be addressed by intensive scientific management of canal side forest plantations of commercially important species like sisham etc. The lands available with the forest department alongside canal will be managed to produce quality timber with scientific interventions.

12. For biodiversity conservation the state forest department should work in consultation with environment department to ensure the application of provisions of the biodiversity act and rules there under so that asses and benefit sharing with community is ensured.

Productivity Enhancement and Management of Natural Forest

1 Recorded Forest Area in the State is 32,737 Sq.Km which is 9.57 % of the State's geographical area. However, Forest Cover in the State is 16,629 Sq.Km i.e. around 4.86 % of State's geographical area (FSI Report 2019). Sixty-seven per cent of this forest cover is Open Forests.

2. Appropriate interventions like Assisted Natural Regeneration activities, cultural operations and other eco-restoration activities shall be carried out to improve the existing natural forests.

3.Total growing stock of the country is estimated as 5,915.76 million cum comprising 4,273.47 million cum inside forest areas and 1642.29 million cum outside recorded Forest areas with an average growing stock of 55.69 cum per hectare. Against this, the State has recorded 24.39 million cum in recorded forest area and 89.07 million cum outside forest area which 0.57 % and 5.42 % of country's growing stock respectively.

4.The total Carbon stock of forests in the State including the Trees Outside Forests(TOF) is 108.36 million tonnes (397.32 million tonnes of CO2 equivalent) which is 1.52 % of total forest carbon stock of the Country.

5. There is a serious need to enhance the productivity of natural forest through suitable silviculture interventions at large scale.

Nursery and Planting Stock Management

1 High quality seeds, plantation material and modern plantation techniques shall be the focus.

2 There should be a hi-tech centralized nursery with ample capacity for forestry plants in every district. This centralized nursery should have all modern nursery essentials like a shade nets, poly-houses, solar power plant irrigation arrangements, skilled manpower...etc to produce quality planting stock.

3 Farmers shall be encouraged and trained to set up their own nurseries and grow plants. Plants and seeds shall also be supplied by the forest department.

4- Emphasis shall be on collecting and identifying seed trees and stands and to the collection of local seed. Nursery techniques shall be re-standardized, keeping in mind need to identifying one or more replacements of the existing practice of using polythene bags. Similarly, use of bio fertilizers and compost shall be given a priority over chemical fertilizers.

Grassland Management

1. Most of the western dessert in Rajasthan is an annual grassland. For over 5 decades, we have attempted to plant up the desert with easy to grow tree species. The results of which have been mixed. The desert grassland/ scurb is a climatic climax, that houses unique biodiversity and has its own role in climate stabilization, carbon sequestration and conservation of biodiversity. In the next decade, the focus of this department shall be on managing natural grasslands and creating new grasslands. These grasslands will also have an important role in drought proofing and supplying fodder for livestock to local communities in the pinch period.

2. Nursery techniques for raising the carefully selecting the local species of grasses and scrub vegetation shall be standardized. Exotic species of trees such as *Acacia tortillis* shall not be planted in desert any more, except for technical plantations such

as sand dune stabilization. Shelter belts along the canal shall however be continued but with the ultimate objective of commercial exploitation.

Forest Management and Protection

1 Forest Protection remains the backbone of managing the forest real estate. Without appropriate policing, it is difficult to control illegal offtake of forest produce (illegal mining, illegal felling, hunting, poaching, and habitat destruction) and encroachments. The overall shortage of field staff and supervisory officers has led to a situation today where regular patrolling of forest areas, areas vulnerable to mining and encroachment does not really happen in the manner it should. Moreover, with ever improving road network, persons committing illegalities are able to get away easily since most ranges either do not have vehicles or budgets to ply the vehicles they have. Enabling legal provisions to exercise force commensurate to offence do not exist and existing rules and available infrastructure regarding fire arms and their use are empirically weak.

2 In order to make forest offence management more effective, in recent times, some e-enabled structures have been created and legacy data regarding forest offences have been put together in form of a database. However, this present system needs to evolve further into a proper enterprise solution with block chain in the back office. A database appropriately designed should be able to talk such other databases e.g. transport departments database on the registered vehicles, police database on registered fire arms etc. so that decisions making can be prompt and objective. Efforts to arrive at this goal early shall be made. Further, the decision support system shall be recast so that the status of the disposal of forest offence cases, whether by the department or by a court of law shall be monitored and appropriate alerts issued to concerned officers.

3 Since the mobile phone shall continue to grow into a powerful tool beyond mere communication, and serve as a multipurpose hand held device, field personnel shall be provided with phones, power banks and digital storage devices so that their communication, data storage and data transfer requirements are catered to.

4 All sources of financing, including externally aided projects and funds available through CAMPA shall have provisions for repair maintenance and running of existing vehicles in the ranges and replacements/ enhancements of vehicles. Similarly, every

range would have appropriate computer infrastructure and capacity building inputs for their use.

5 The existing set of acts and rules shall be revisited with the aim of strengthening forest protection and at the same time be in tune with the national practice of decriminalizing petty offences.

6 In order to make the G2C interface smoother, the first step shall be accurate digital mapping of the forest real estate in Rajasthan. To achieve this, the forest department shall engage in the earnest with revenue department. Digitized cadastral maps that are likely to form basis of revenue land management in the State shall also be used by the forest department. The maps of forest areas shall be in the same scale and format as possible as the revenue maps. This department shall strive towards creating digital map interface which will be made available to the citizens, specially to the project proponent seeking clearance related to non-forest land and proposing projects that involves diversion of forest land protected areas or projects that required any environment clearances. For this purpose, appropriate digital databases shall be created within the forest departments and capacities to access and interpret remote sensing data – satellite imagery, aerial photographs, photography/ videography by UAV (Unmanned Arial Vehicle), LIDAR and other emerging technologies. Commensurate capabilities in terms of human resources shall be created within the forest department and at the circle and division level. In each of these modules young officers shall be tasked as permanent mentors, which will be posting neutral with the expectations that these officers shall mentor these projects over at least 5 years period/ or completion, whichever is earlier.

A Encroachment

1 Encroachment in the forest areas shall be checked effectively and in future no encroachments of any kind shall be allowed on the forest land.

2 Apart from forest encroachers, provision for stern action against their abettors will also be made.

3 In order to check increase in the area under encroachment, the existing settled encroached areas shall be permanently demarcated as soon as possible.

4 Tree plantation shall be undertaken in the encroachment sensitive areas.

5 Efforts shall be made to provide suitable opportunities of employment in the villages adjacent to the encroachment sensitive areas.

B Mining and other non-forestry activities

1 For effective protection of forest from organized criminals forest staff shall be adequately equipped with telecommunication network. Forest staff shall be provided with necessary wireless, mobiles, vehicles, firearms. Forest personnel shall be empowered to use force and firearms within permissible rules against organized criminals. Secret fund shall be created to deal with organized forest crimes and illegal mining and be used to award whistle blowers/ informers.

2 Mining will be permitted in the forest areas only with the permission from the competent authority. Mining against rules shall not be permitted and the illegal mining shall be strictly prohibited and acted against.

3 In case, the forest land is used for the purpose of mining, reforestation of such area shall have to be sought from the concerned agency as per the requirements of the area concerned.

4 In general, non-forest activities shall not be permitted on the forest land. Permission for using the forest land for non-forest activities could be granted under unavoidable circumstances only as per the provisions of the Forest (Conservation) Act, 1980.

5 Plantation of indigenous species and quality afforestation will be ensured for reforestation of all the mined area as well as compensatory afforestation in lieu of change of land use for non– forestry purposes.

6 Apart from persons indulging in illicit mining in forests, provision for stern action against their abettors will also be made.

7 Provision in respect of the management and treatment of the mining areas in the degraded forests shall be included in the working plans.

C Illegal felling

1 Existing system, rules, acts and procedures pertaining to the forest protection, especially to the checking of illicit felling, shall be reviewed and made more effective. For this purpose, the forest officials shall be delegated sufficient powers as per requirement.

2 Wireless network and other communication facilities shall be expanded with a view to strengthen the forest protection system.

3 All the officers engaged in the protection of forests upto the range level shall be provided vehicles and other resources.

4 Organization of Special Protection Force shall be set into place for the sensitive areas and wildlife areas.

5 Arms shall be provided to the forest officials for the protection of forests and they will be trained to use them. Rules shall be modified so that the use of fire arms to prevent an offence does not act as a deterrent to the official

6 A system of forest posts shall be developed in sensitive areas and efforts shall be made for group patrolling.

7 Maximum participation of local communities shall be ensured in the forest protection.

8 Establishment of special courts at district level for speedy disposal of forest offences will be initiated.

9 Apart from the persons engaged in illicit felling from forests, provision for stern action against their abettors will also be made.

10 Efforts will be made to provide suitable employment opportunities to the villagers living around areas sensitive for illicit felling in the village itself, so that they do not depend much on forests.

11 The persons informing about illicit felling will be encouraged by rewarding them, keeping their identity confidential.

12 The persons, organizations, local communities, forest and police officials doing courageous work and making outstanding contribution toward protection of forests will be honoured by rewarding them.

13 Special schemes pertaining to the employees' welfare at field level shall be introduced to help the forest officials engaged in the protection of forests.

Conservation of medicinal and aromatic plants

1 In view of increasing importance of medicinal plant species and their excessive demand for indigenous therapy, their conservation, development and non-destructive harvesting will be done in government forests and increasing their ex-situ production on private lands also will be encouraged to expand their plantation area.

2 Medicinal plant species shall be enlisted for its conservation and a detailed scheme shall be chalked out for the conservation of its habitat and its sustainable harvesting.

3 Initiative shall be taken to attract private investment for planting medicinal species on a large scale in the private area.

4 Efforts will be made for value addition in the products of medicinal and aromatic plants by improving the quality of their constituents through modern and traditional techniques of biotechnology.

5 Persons having traditional knowledge about medicinal plants shall be enlisted and their traditional knowledge shall be documented and incorporated in public health security programmes and a knowledge bank needs to be developed.

Conservation of landscape and skyline

1 The semi-arid and arid ecosystems of Rajasthan including Thar desert are unique ecosystems of the Indian subcontinent. There is a urgent need to conserve these ecosystems. The holistic approach for the conservation of the biodiversity and ecosystem, the existing landscape including the skyline has to be preserved in totality. This approach will certainly help in enhancing the tourism in the state. To ensure this, a suitable regulatory framework shall be put in place, in consultation with other stake holders.

2 Suitable legislation need to be promulgated and implemented for this purpose.

Management of Invasive Species

Invasive alien plants are non-native organisms and they harm environment, economics and human health. Invasive alien species are one of the most significant drivers of environmental transformation worldwide. An invasive plant is an alien species which establishes in natural or semi natural ecosystems, an agent of change

and threatens native biological diversity. In the 1970s and early 1980s, concern about deforestation, desertification and fuelwood shortages prompted a wave of projects that introduced *Prosopis juliflora*. During its introduction from its native South America, Central America and the Caribbean, the indigenous knowledge of its management and use have rarely followed leading to *Prosopis juliflora* remaining under-utilized and unmanaged. In Rajasthan, the invasive species present are, *Prosopis juliflora*, *Lantana camara*, *Parthenium hysterophorus* and have severely invaded into the ecosystem in many places even in the Tiger Reserve. This has reduced the native floral composition and fodder availability to herbivores during the critical dry season. Large herbivores such as Blue bull and bird communities play a major role in dispersing the seeds of those alien invasive species.

1 It is necessary to investigate the dynamic processes of the invasive weed seed dispersal by animals and also eliminate plant weeds in a slow phase to re-establish native plant species.

2 Due to firm establishment of noxious weed *Prosopis juliflora* in most of the forest areas, the population of vegetation including native plants has reduced, the animals that depend upon terrestrial forage lack feed, suffer to toxicity from excessive pod consumption and get physical injuries during shelter. The suppression of grass and other native species has resulted in enormous economic and ecological impacts on biodiversity. To address such broad dimensions of the problem adequate research has not been conducted so far, particularly the impact assessment of invasive *Prosopis juliflora* towards biodiversity, changes in vegetation composition, mammalian diversity and soil conditions. Detailed studies are proposed to be undertaken and its suggestions needs to be implemented.

3 *Lantana camara*, as another invasive species creates problems in the management of natural forests, especially wild life habitats. Out of seven territorial circles, five territorial circles are badly infested with Lantana. It is estimated that 3169 sq KM of forest land is infested with Lantana.

4 *Lantana* is a very hardy species and its seeds are dispersed by wild birds and animals. It is a light demander and colonizes aggressively open blanks inside forest. It is often observed that forest areas which are subjected to biotic pressure like grazing, is more susceptible to *Lantana* infestation. *Lantana* itself is reasonably resistant to fire

but negatively impacts the fuel load inside forest eco-systems and in case of a forest fire, magnifies the damage caused by fire. *Lantana* is not grazed or browsed by domestic or wild animals.

5 In Rajasthan no systematic study on *Lantana* and its impact on forest eco-systems has yet been carried out. Subject to availability of financial resources, local efforts (district level) are made to remove *Lantana*. However, such efforts are hyper-local and reactive at best.

6 In order to tackle the problem, there is a need to estimate the extent of infestation in detail and draw up a sustained plan of action for eradication. This would entail physical removal of *Lantana* shrubs prior to their flowering and simultaneous soil work and planting/sowing. Putting in place effective protection measures like stone wall/fence to prevent grazing is a must. While some physical removal can certainly be done manually, as per as possible removal should be mechanical.

Joint Forest Management and Extension Forestry

1 Villagers in all the villages within a radius of 5 km from the boundaries of forests will be encouraged to constitute VFPM committees and the existing VFPM committees will be strengthened for better conservation and management of forests and to fulfil the forest based needs of the villagers.

2 Rural development works will be coordinated with various departments related with rural development according to the micro-plans of VFPM committees.

3 System of alternative employment and imparting required skills for this purpose will be developed from the income earned by the committees.

4 Necessary training shall be imparted for the empowerment of the committees.

5 For use and development of traditional knowledge and methods regarding bio-resources of rural communities, a partnership will be established amongst these communities, the forest committees and research institutions, and their contribution towards forest management will be encouraged.

6 The VFPM committees will be given required legal powers along-with delegation of responsibilities to prevent forest offences.

7 Ordinarily VFPMCs for EDCs shall entrusted with maintenance and upkeep of forestry works. While execution so required, shall be carried out by contractor. All EDCs and VFPMCs are required to be registered under the proper act/rules and they shall be treated at par with contractors. These institutions should have registered PAN and should have been sensitized to deposit all taxes under law. This will help in avoiding the litigation with taxation authority.

8 In order to reduce pressure on government forests, forestry on private land and revenue forest land should be practiced and encouraged along with its scientific management.

9 Villagers / farmers will be motivated to plant trees on the boundary mounds of their fields and private wastelands to meet the requirement of wood from outside the forests as far as possible. For this purpose, appropriate scheme will be implemented for rewarding the farmers doing notable work in this regard. To encourage small holding farmers for forestry, provision for special grant will be made however, it will be ensured that this does not adversely affect the agricultural production.

10 Farmers shall be encouraged to grow medicinal plants on their private land.

11 In order to reduce the demand of fuelwood, use of alternative sources of energy such as solar energy, bio-gas and improved stoves will be encouraged. For this purpose, to motivate people dependent on forests, these communities, especially women, will be provided cooking gas, solar/gobar-gas plants and other alternative sources of energy on concessional rates for a limited period.

Silviculture, Research and Extension

1 Continuous research work shall be undertaken in order to improve the techniques of forest management and also to increase the forest productivity.

2 New inventions in the field of bio-technology shall be used to increase the productivity of the forests. Cooperation of various agricultural universities shall also be sought for this purpose.

3 Research shall be conducted to develop methods of regeneration of local multipurpose species.

4 High quality seeds, plantation material and modern plantation techniques shall be developed.

5 In order to augment the productivity of forests on private areas modern techniques like tissue culture, improved variety of seeds and plants shall be used. While selecting species priority shall be accorded to the requirement of farmers and forest-based industries.

6 Silviculture wing shall be strengthened and it's earning by selling improved plants, seeds etc. and providing technical knowledge and training to the forest-based industries and the farmers shall be used to make it self-reliant.

7 Site-specific techniques will be developed for appropriate use of ravines, wastelands and areas of steep slopes.

8 Comprehensive research shall be carried out to determine the carrying capacity of grazing in the forest areas.

9 Fire management guide shall be prepared for various forest areas after studying the impact of fire on the forests.

Wildlife and Biodiversity Conservation

1 Rajasthan is globally known for its iconic wildlife diversity. The total geographical area in the state that is under protected area network is less than 10000 square kilometers (a mere 2.9 % of the state's geographical area. While this needs to go up, appropriate managements practices shall have to be devised for managing wildlife outside protected areas. This will require manpower as well as financial resources. In the next 10-year period the department shall to move closure to the 5% target of area under PA network. At this point of time 3.5% of Rajasthan geographical area should be attempted to be brought under PA network. This will involve transferring productive forest areas to wildlife protected areas, consolidating and stabilizing existing protected areas, creation and management of corridors, creation of conservation and community reserves and if possible, declaration of new sanctuary and national parks.

2 In wildlife management, the management plan for the protected area shall be the master document that shall dictate all managerial inputs. Priority shall be accorded to protection of wildlife and habitats, habitat improvement, reducing man animal conflict,

generating awareness about importance of wildlife, research, wildlife disease surveillance and healthcare and also ex situ conservation of important animals and plants.

3 With increase growth of population and habitat fragmentation, the interaction of humans with wildlife has been increasing. Such increased interaction needs to higher numbers of conflict situations and more importantly the exposure of humans to unknown dynamic of zoonosis. This assumes special significance in the context of covid-19 pandemic. Traditionally wildlife health management has been limited to healthcare of wild animals in captivity and to a lesser extent, treating wild animals in situ. Today there is immense need for rehabilitation of displaced/ rescued animals, surveillance for endemic and emerging infectious as well as zoonotic diseases.

4 To achieve these fundamentals, the department appropriate training and capacity building of all officers and staff and also work towards the creation of dedicated veterinary cadre within the department. The wildlife management processes shall be supported by strong information system backup including geographical information systems. The departments shall strive to establish properly equipped mobile units which would serve as quick response teams. The latest drugs for chemical immobilization of wild animals shall be procured and used. Research in disease ecology of free ranging animals shall be a priority. The department shall also work in partnership with other state government agencies in prophylaxis against Canine Distemper virus and various disease carried by domestic animals in the fringe of protected areas.

6 An important component of wildlife management is the generation of eco awareness among communities. For effective community communication professional communicators shall be engaged to work to support field staff in engaging with communities.

7 As on date, protected areas in the state are largely dependent on budgetary support from central and state governments. Given the high productivity and importance of protected areas, appropriate/ proportional financial support for infrastructure, HRD shall be provided from Externally Aided Projects also.

8 Cadre of well-trained veterinarians shall be developed within the forest department by imparting them is specialized training for treating the wild animals.

9 There should be an appropriate infrastructure of labs to identify the infectious diseases in wild animals and for proper wildlife health monitoring, disease diagnostic and research on wildlife.

10 There should be appropriate emphasis on research in wildlife. This should be done through uniquely designed projects suited for tactile needs.

11 Revenue generated from protected areas shall be utilised for management and development of same area and also for the benefit of the communities residing adjacent to such protected area.

12 Special anti-poaching is squads need to be established and implemented in sensitive wildlife areas.

13 For obtaining secret information about illicit wildlife trade, secret fund shall be created and in this context other related measures should be taken.

14 Rehabilitation and relocation of villages located in protected areas shall be done on priority and in consultation with villagers.

15 Action shall be taken to compensate for the loss of cattle, crop and humans suitably and expeditiously.

16 Boundaries of protected area may have to be ready marketed suitably in some cases without compromising with the biodiversity conservation.

17 In order to ensure continuity of protected areas and the genetic stability of wild animals corridor between the protected areas shall be identified and managed rationally.

18 Also the overall management of the Pas shall be in congruence of National Wildlife Action Plan.

Budget Finance and Planning

1 Efforts shall be made to augment financial provisions in the budget of the state in consonance with the importance of the forestry and ecosystem services.

2 A 'natural resource accounting system' shall be developed to determine the contribution of the forests towards the gross domestic product by evaluating the direct

and indirect benefits accruing from the forests. Efforts shall be made on its basis to get proportionate allocations from the government in the budget for conservation and management of forests of the state.

3 Efforts shall be made to converge the development schemes of various state departments and the central government, which are helpful in the conservation and development of forests, in the forests or nearby areas.

4 Suitable efforts shall be made to seek financial assistance from the national and the international institutions.

5 In order to obtain funds from private individuals / organisations for development of forests of the state, 'Green Rajasthan Fund' will be established. Efforts will be made to get introduced provision of Income Tax exemption on contribution towards this fund by private individuals / organisations.

6 Allocation of resources to a particular district should be in accordance to the forestry importance of that district. Resource allocation under all schemes should be done in accordance to the forestry importance of the district/area.

7 Earnings from eco-tourism shall be re-channeled for the purpose of eco-development, forests and the wildlife management and the interpretation works.

Human Resources/ Administration

Resource Allocation for Forest Management

1 The man power in a forest division should be allocated as per the forestry importance in the division and area.

2 No forest staff involved in management of forests should be transferred before 2 years.

3 Transfers of forest staff should be done with the recommendation of forestry services board only. Also the staff recruited in a forest division/ unit should serve for first 10 years of the service in the recruitment division/unit with no exceptions.

4 Forest staff up to the post of Range Forest Officer should mandatorily serve for 5 years in wildlife area in first 15 years of service.

5 If any forest staff/official dies or gets disabled while performing forest and wildlife protection duty, such persons or their relative shall be given compensation and financial help as is admissible to police personnel.

6 All the forestry training institutes shall be upgraded to enable them to impart training to the forest officials, members of the forest committees, farmers and personnel of the forest-based industries.

7 Online Training System shall be used more and more to train the forest officials, members of the forest committees and the people in various aspects of forestry.

8 Necessary changes will be made from time to time in the training programmes being conducted after carrying out 'Training Needs Analysis' for forest officials.

9 Forest officials of various levels shall be provided specific knowledge and skills of information technology and a positive attitude shall be inculcated in them to use the same.

10 'Human Resource Development Information System' shall be developed in order to prepare a database of training institutes, subject specialists, training material and training needs of the trainees to organize training in various subjects.

11 In order to boost the morale of the lower rung personnel of the department, to provide them a fear-free work environment and to enable them realize their importance in the administration, more and more interaction and dialogue shall be ensured between officers and the employees at various levels.

12 In order to maintain the spirit of working with full efficiency and zeal among the officers and the employees of various cadres of the department, suitable arrangements shall be made for regular recruitment and timely promotions in all the cadres.

13 Forest officials doing outstanding and courageous work in the field of forest and wildlife protection and development will be encouraged by giving them out of turn promotions.