

CHAPTER THREE



BIODIVERSITY

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3.1 The term biodiversity encompasses the variety of life on Earth. It is defined as the variability among living organisms and the ecological complexes of which they are part, including diversity within and between species and ecosystems. Biodiversity manifests at species genetic and ecosystem levels. Biodiversity has direct consumptive value in food, agriculture, medicine, industry, etc. It also has aesthetic and recreational value.

3.2 India is one of the 12 mega-biodiversity countries of the world. From about 70% of the total geographical area surveyed so far, 46,000 plant species and 81,000 animal species representing about 7% of the world's flora and 6.5% of the world's fauna, respectively, have been described. Out of the total twelve biodiversity hot spots in the world, India has two; one is the north east region and other the western ghats.

3.3 Though more than one-fifth of India's geographic area is recorded as forest area, it is not known with certainty how much forest area actually bears forest cover. The National Forest Policy (1952 and 1988) aim at having one third of country's land area under forest and tree cover. As per the latest State of Forest Report 2009, the forest cover in the country is 690,889 kmsq. and constitutes 21.02 percent of its geographic area. There is a increase of 728 kmsq in forest cover in year 2007 as compared to revised assessment made in 2005. The total tree cover of the country has been estimated as 92,769 km sq. or about 2.82 percent of the country's geographic area.

3.4 Plant biodiversity as a national and global resource is extremely valuable but is poorly understood, inadequately documented and often wasted. The

preservation of biodiversity is both a matter of investment and insurance to a) sustain and improve agricultural, forestry and fisheries production, b) act as a buffer against harmful environmental changes, c) provide raw materials for scientific and industrial innovations, and d) safe guard transferring biological richness to future generations.

3.5 Biodiversity the world over is in peril because the habitats are threatened due to such development programmes as creation of reservoirs, mining, forest clearing, laying of transport and communication networks, etc. It is estimated that in the world wide perspective, slightly over 1000 animal species and sub-species are threatened with an extinction rate of one per year, while 20,000 flowering plants are thought to be at risk.

Conservation Measures

Biospheres:

3.6 Areas rich in biodiversity and encompassing unique and representative ecosystems are identified and designated as Biosphere Reserves. The goal is to facilitate conservation of representative landscape and India's immense biological diversity as described above. Till date, 15 Biosphere Reserves have been set up. The last one was set up in 29.01.2008 at Kachchh covering parts of Kachchh, Rajkot, Surendranagar and Patan civil districts of Gujarat State.

Project Tiger

3.7 As per the recommendations of a special task-force of the Indian Board of Wildlife, Project Tiger was launched in 1973 with the following objectives:-

- To ensure maintenance of available population of tiger in India for scientific, economic, aesthetic, cultural and ecological value.
- To preserve, for all times, the areas of such biological importance as a national heritage for the benefit, education and enjoyment of the people.
- Undertaking afforestation in non-forest and degraded lands, preferably contiguous to forest blocks.

3.8 At present, there are 28 Tiger Reserves spreading over 14 states and covering an area of about 37,118 sq. kms. The population of tigers is estimated through tiger census conducted once in 4 to 6 years. The last such census was conducted in 2001-02.

National Parks and Wild life Sanctuaries

The wild life Act provided for setting up National parks and sanctuaries for wild life. The basic idea in trying to encourage wild life is that human welfare is initially linked with it. The Government of India has pledged for all out efforts to conserve which not only seeks to protect and preserve what remains of wild fauna and flora but also seeks to augment this priceless national heritage.

3.9 Multipronged pressures on forests come from population, cattle grazing, fuel and fodder collection, industry and forest fires, etc. The remaining good forest cover is, therefore, estimated to be just 11% against the desirable 33% of the total land area as per the National Forest Policy. Up to the late seventies, forest land was a prime target for diversion for resettlement, agriculture and industrialization, and this trend was contained only by the Forest (Conservation) Act, 1980.

3.10 A two pronged strategy to increase forest cover essentially comprises

- Improving canopy cover in the forest land; and

3.11 Realising the role of forests in controlling soil erosion, moderation of floods, recharging of ground aquifers, as habitat for wildlife, conservation of bio-diversity and gene pool, etc., programmes were launched as early as the Second Five Year Plan for extensive Watershed Management followed later by establishment of a Protected Areas Network, under the Wildlife (Protection) Act, 1972, comprising of Biosphere Reserves, National Parks and Sanctuaries- both terrestrial and aquatic. This Network comprised of 14 Biosphere Reserves, 95 National Parks, 500 Wildlife Sanctuaries, along with such dedicated conservation programmes as Project Tiger, Crocodile Rehabilitation and Project Elephant. The Central Zoo Authority caters to the ex-situ conservation of wildlife through 275 zoos, deer parks, safari parks and aquaria, etc. India is also signatory to several International Conventions like CITES, International Whaling Convention (IWC); Convention on Migratory Species (CMS), World Heritage Convention (WHC), etc. India has recently taken the lead in the formation of the Global Tiger Forum.

Agro Biodiversity

3.12 The National Bureau of Plant Genetic Resources (NBGR) established in 1976 as an institution under Indian Council of Agricultural Research (ICAR) emerged as an important organization dealing with various establishments of plant genetic resources. The organization is entrusted with the vital responsibility of germ plasm, exchange with appropriate quarantine measures, survey exploration, their organization, planning and coordination, comprising evaluation, documentation and conservation of diverse plant genetic resources. The National Gene Bank has also been established within the complex. Within

the new trade related intellectual property rights (TRIPS) within World Trade Organisation related agreements, documentation of our genetic resources is very important. The documentation of fish genetic resources is the responsibility of National Bureau of Fish Genetic Resources,

Lucknow also an institution under ICAR. The National Bureau of Animal Genetic Resources located at Karnal maintains the germ plasm of Indian Cattle and Buffalo breeds. This organization is also an institution of ICAR umbrella.

TABLE 3.1.1 : NUMBER AND STATUS OF PLANT SPECIES IN INDIA

Sl. No.	Type	No. of Known Species in the World	No. of Known Species in India	Percentage of Occurrence in India	No. of Species Endemic	No. of Species Endangered	No. of Species Extinct
1	2	3	4	5	6	7	8
I	Flowering Plants						
1	Gymnosperm	650	48	7.38	8*	7*	Not Known
2	Angiosperm	250000	17672	7.00	5725*	1700*	28
II	Non-flowering Plants						
1	Fern & Fernallics	10000	1135	11.35	193*	113*	Not Known
2	Algae	40000	6500	16.25	1100*	120*	Not Known
3	Fungi	70000	14500	20.71	3500*	140*	Not Known
4	Lichens	13500	2021	14.97	417*	400*	Not Known
5	Liverworts	7500	852	11.26	260*	100*	Not Known
6	Mosses	7000	2000	28.6	608*	115	Not Known

Source : Botanical Survey of India, Kolkata.

* : Approximate

India has a rich heritage of species and genetic strains of flora. Overall about six percent of world species are found in India. It is estimated that India is tenth among the plant rich countries of the world and sixth among the centres of diversity and origin of agrodiversity. Out of the total twelve biodiversity hot-spots in the world, India has two, one is the north east region and other is western ghats (Khoshoo, T.N., 1995). The growing urbanization and industrialization causes the decrease of Natural habitats, which further results in the loss to biological diversity. Biodiversity, once lost cannot be recovered.

**TABLE 3.1.2 : RARE AND THREATENED SPECIES
(VASCULAR PLANTS)**

Sl. No.	Category	Approximate Number
1	2	3
1	Rare	287
2	Vulnerable	167
3	Endangered	1366
4	Possibly Extinct	40
5	Extinct	28

Source : Botanical Survey of India, Kolkata.

CHART 3.1: RARE AND THREATENED SPECIES

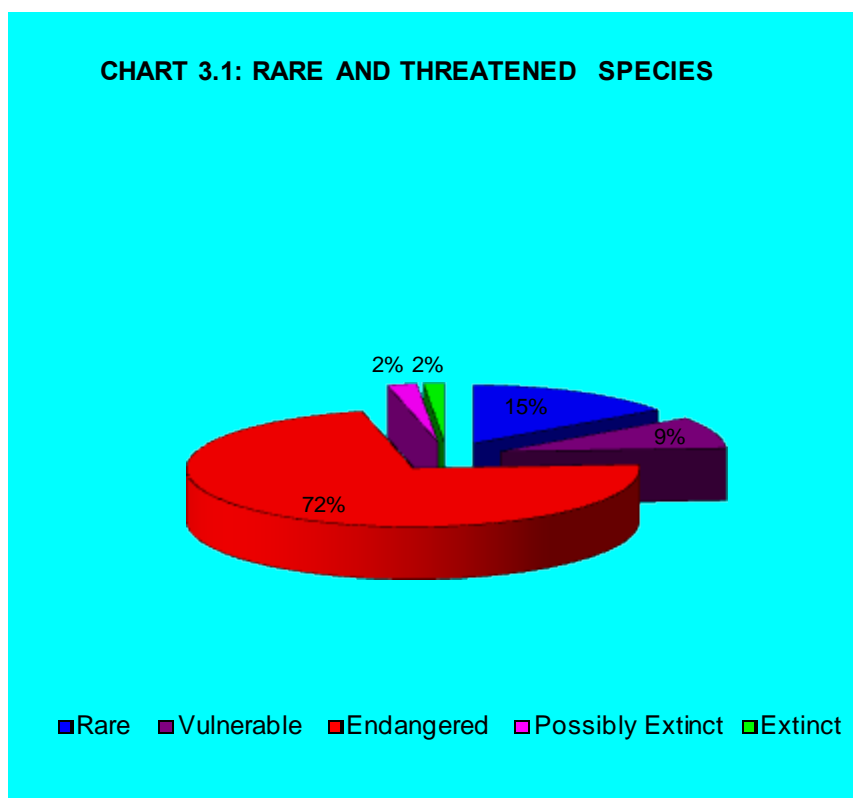


TABLE 3.1.3 : REFERENCE COLLECTIONS OF FLORA

Sl. No.	Category	Total Number	Total Holdings of Collections and Specimens
1	2	3	4
1	Herbarium	51	4594795
2	Museums	18	60100

Source : Botanical Survey of India, Kolkata.

TABLE 3.1.4 : CONSERVATION MEASURES

Sl. No.	Category	Number	Total Geographical Area (Sq. Km.)
1	2	3	4
I	Within Habitats (insitu)		
1	Biosphere Reserves	13	53849
2	National Parks	89	40631
3	Sanctuaries	484	115374
4	Reserve Forests	NA	416547
5	Protected Forests	19	223321
II	Outside Habitats (ex situ)		
1	Botanical Gardens	120	26.24
2	Gene Banks	NA	NA

Source : Botanical Survey of India, Kolkata.

TABLE 3.1.5 : BIOSPHERE RESERVES SETUP IN INDIA

Sl. No.	Name of Biosphere Reserve	Area (in sq.km.)	Date of Notification	Location (State) and Bio-Geographic Zones
1	2	3	4	5
1	Nilgiri	5520.00	01.08.1986	Part of Wynad, Nagarhole, Bandipur and Mudumalai, Nilambur, Silent Valley and Siruvani hills (Tamil Nadu, Kerala and Karnataka)-Western Ghats
2	Nanda Devi	6497.03	18.01.1988	Part of Chamoli, Pithoragarh & Almora Districts and valley of flowers (Uttanchal)-West Himalayas
3	Nokrek	820.00	01.09.1988	Part of Garo Hills (Meghalaya)-East Himalayas
4	Manas	2837.00	14.03.1989	Part of Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup and Darang districts (Assam)-East Himalayas
5	Sunderbans	9630.00	29.03.1989	Part of Delta of Ganges & Barahmaputra river system (West Bengal)-Gigantic Delta
6	Gulf of Mannar	10500.00	18.02.1989	Indian part of Gulf of Mannar between India and Sri Lanka (Tamil Nadu)-Coasts
7	Great Nicobar	885.00	06.01.1989	Southern Most Islands of Andaman and Nicobar (A&N Islands)-Islands
8	Similipal	4374.00	21.06.1994	Part of Mayurbhanj district (Orissa)-Deccan Peninsula
9	Dibru-Saikhowa	765.00	28.07.1997	Part of Dibrugarh and Tinsukhia districts (Assam)-East Himalayas
10	Dehang Debang	5111.50	02.09.1998	Part of Siang and Debang Valley in Arunachal Pradesh-East Himalayas
11	Pachmarhi	4926.28	03.03.1999	Part of Betul, Hoshangabad and Chindwara Districts of Madhya Pradesh-Semi-Arid-Gujarat Rajputana
12	Kanchanjunga	2619.92	07.02.2000	Parts of North and West Sikkim
13	Agasthyamalai	3500.36	12.11.2001 (area expanded on)	Part of Thirunelveli and Kanya kumari Districts in Tamil Nadu and Thiruvananthapuram, Kollam and Pathanmthita of Kerala
14	Achankmar-Amarkantak	3835.31	30.3.2005	Part of Anupur and Dindori Distt., of MP, part of Bilaspur distts., of Chhattisgarh State
15	Kachchh	12454.00	29.01.2008	Parts of Kachchh, Rajkot, Surendranagar and Patan Civil Districts of Gujarat State

Source: Ministry of Environment and Forests, Annual Report-2008-09

**TABLE 3.1.6 : STATUS OF EX-SITU CONSERVATION (BASE COLLECTION)
OF ORTHODOX SEEDS, AT -20° C**

(As on 31st December, 2008)

Sl. No.	Crop Group	Species	Accessions*
1	2	3	4
1	Cereals	89	143830
2	Milletts & Forages	178	52261
3	Pseudo Cereals	26	6170
4	Grain Legumes	68	56099
5	Oilseeds	57	53319
6	Fibre Crops	46	10502
7	Vegetables	148	23685
8	Fruits	35	382
9	Medicinal & Aromatic Plants & Narcotics	625	6123
10	Spices & Condiments	15	2410
11	Agro-Forestry	229	2403
12	Duplicate Safety Samples	-	10235
Total		1516	367419*

Source : National Bureau of Plant Genetic Resources

* : The figure includes 3349 released varieties and 1593 genetic stocks
No. of crop species conserved - 1516

TABLE 3.1.7 : STATUS OF IN-VITRO CONSERVATION

(As on 31st December, 2008)

SI. No.	Crop groups/Crops	Storage Temp. (°C)	Optimum Subculture Interval (Months)	No. of Accessions in Culture
1	2	3	4	5
I	Fruits			
1	Musa spp.	25	8-12	411
2	Actinidia spp	25	10--12	3
3	Aegle marmelos	25	12	1
4	Fragaria spp	25	8-10	80
5	Prunus spp.	25	4--6	2
6	Rubus spp.	25	8--10	55
7	Malus spp.	25	4--6	4
8	Morus sp.	25	8--10	61
9	Vitis vinifera	25	3--4	3
	Vaccinium	25	4--6	19
	Pyrus	25	4--6	65
				704
II	Bulbous Crops			
1	Allium sativum	25, 4	6-12	152
2	Allium spp.	25, 4	4-23	19
3	Dahlia			5
4	Gladiolous cv.			5
				181
III	Tuber Crops			
1	Alocasia spp.	25	10	3
2	Colocasia esculenta	25	8-10	181
3	Dioscorea spp.	25	8-12	114
4	Ipomoea batatas	25	8-12	255
5	Xanthosoma sagittifolium	25	10	9
				562
IV	Medicinal and Aromatic Plants			
1	Bacopa monnieri	25	6	21
2	Centella asiatica	-	-	11
3	Coleus forskohlii	25	12	17
4	Kaempferia spp	25	-	11
5	Mentha sp.	4	12	24
6	Picrorhiza kurroa	4	12	11
7	Plumbago zeylanica	25	6--10	18
8	Rauvolfia spp.	25	12	14
9	Rheum spp.	4	12	5
10	Tylophora indica	25	6--12	10
11	Valeriana wallichii	4	12	13
12	Others	25	4--12	63
				218
V	Spices			
1	Curcuma spp.	25	6--10	152
2	Elettaria spp	25	15	5
3	Piper spp.	10--22	10	7
4	Zingiber spp.	25	8-24	184
5	Vanilla planifolia	25	6	4
				352
VI	Industrial Plants			
1	Humulus lupulus	25	-	8
2	Simmondsia chinensis	25	6	12
				20
VII	Others			
	Cicer microphyllum	-	-	1
				1
Total				2038

Source : National Bureau of Plant Genetic Resources

TABLE 3.1.8 : STATUS OF GERMLASM AT NATIONAL CRYOBANK*(As on 31st December, 2008)*

Sl. No.	Category	No. of Accession
1	2	3
I	Intermediate & Recalcitrant	
1	Fruits & Nuts	2384
2	Spices & Condiments	137
3	Plantation Crops	19
4	Agroforestry & Forestry species	1639
5	Industrial crops	973
II	Orthodox	
1	Cereals	240
2	Milletts and Forages	287
3	Pseudocereals	76
4	Grain Legumes	632
5	Oilseeds	470
6	Fibres	64
7	Vegetables	437
8	Medicinal & Aromatic Plants	849
9	Narcotics & dyes	34
10	Miscellaneous	15
Total		8256

Source : National Bureau of Plant Genetic Resources

TABLE 3.1.9 : STATUS OF CRYOPRESERVATION OF DORMANT BUDS & POLLEN GRAINS*(As on 31st December, 2008)*

Dormant Buds	238
Pollen grains	310
Wild spp*	942
Varieties*	653
Rare & Endangered spp*	78
Registered germplasm*	22
Elite*	4
Number of Species	722

Source : National Bureau of Plant Genetic Resources

* included in respective Categories stored as orthodox seeds.

TABLE 3.2.1 : STATE/UT WISE FOREST AREA*(Sq.km)*

Sl. No.	State/UT	Geographic Area	Recorded Forest Area, 2007				Percentage of Forest to Geo. Area
			Reserved Forest	Protected Forest	Unclassed Forest	Total Forest Area	
1	2	3	4	5	6	7	8
1	Andhra Pradesh	275069	61210	1967	637	63814	23.20
2	Arunachal Pradesh	83743	10546	9528	31466	51540	61.55
3	Assam	78438	17864	-	8968	26832	34.21
4	Bihar	94163	693	5779	1	6473	6.87
5	Chhattisgarh	135191	25782	24036	9954	59772	44.21
6	Delhi	1483	78	7	-	85	5.73
7	Goa	3702	253	845	126	1224	33.06
8	Gujarat	196022	14122	479	4326	18927	9.66
9	Haryana	44212	249	1158	152	1559	3.53
10	Himachal Pradesh	55673	1898	33060	2075	37033	66.52
11	Jammu & Kashmir	222236	17643	2551	36	20230	9.10
12	Jharkhand	79714	4387	19185	33	23605	29.61
13	Karnataka	191791	28690	3931	5663	38284	19.96
14	Kerala	38863	11123	142	-	11265	28.99
15	Madhya Pradesh	308245	61886	31098	1705	94689	30.72
16	Maharashtra	307713	49226	8195	4518	61939	20.13
17	Manipur	22327	1467	4171	11780	17418	78.01
18	Meghalaya	22429	1113	12	8371	9496	42.34
19	Mizoram	21081	7909	3568	5240	16717	79.30
20	Nagaland	16579	86	508	8628	9222	55.62
21	Orissa	155707	26329	15525	16282	58136	37.34
22	Punjab	50362	44	1153	1861	3058	6.07
23	Rajasthan	342239	12454	17416	2769	32639	9.54
24	Sikkim	7096	5452	389	-	5841	82.31
25	Tamil Nadu	130058	19388	2183	1306	22877	17.59
26	Tripura	10486	4175	2	2117	6294	60.02
27	Uttar Pradesh	240928	11660	1420	3503	16583	6.88
28	Uttarakhand	53483	24638	9882	131	34651	64.79
29	West Bengal	88752	7054	3772	1053	11879	13.38
30	Union Territories	9478	3163	4257	10	7430	78.39
Total		3287263	430582	206219	132711	769512	23.41

Source : State of Forest Report 2009

India has 76.96 million hectares of recorded forest area in March 2007. This accounts for 23.41% of total geographic area. Per Capita availability of forests in India is 0.06 ha which is much lower than the world average of 0.8 ha.

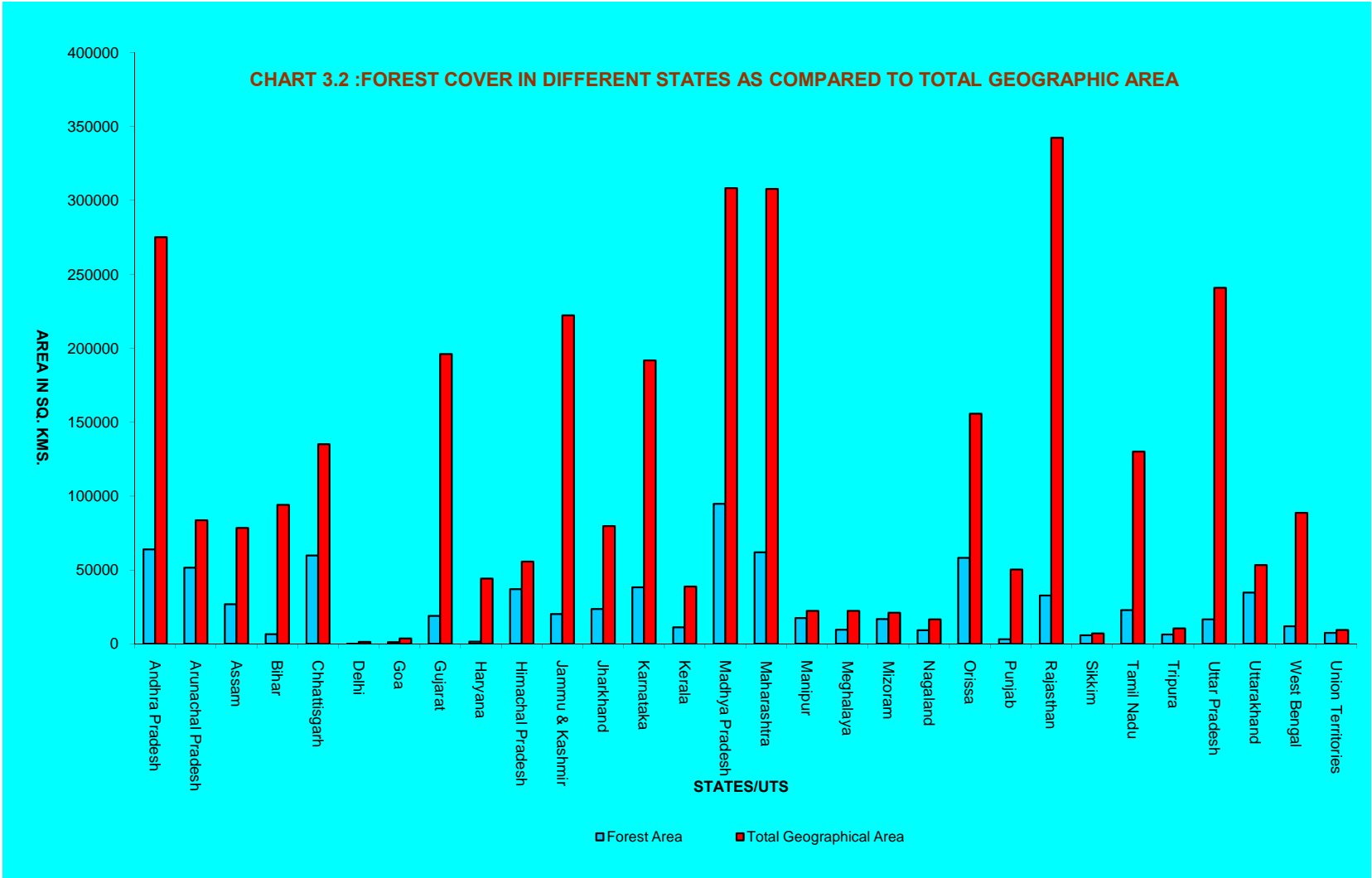


TABLE 3.2.2 : FOREST COVER IN INDIA 2007

Class	Area (Sq. Km)	Percentage of Geographic Area
1	2	3
Forest Cover		
Very Dense Forest	83510	2.54
Moderately Dense Forest	319012	9.70
Open Forest	288377	8.77
Total Forest Cover*	690899	21.02
Non-Forest Cover		
Scrub	41525	1.26
Non-forest**	2554839	77.72
Total Geographic Area	3287263	100.00

Source : State of Forest Report, 2009

* : Includes 4639 km² under mangroves.

** : Excludes scrubs and includes water bodies

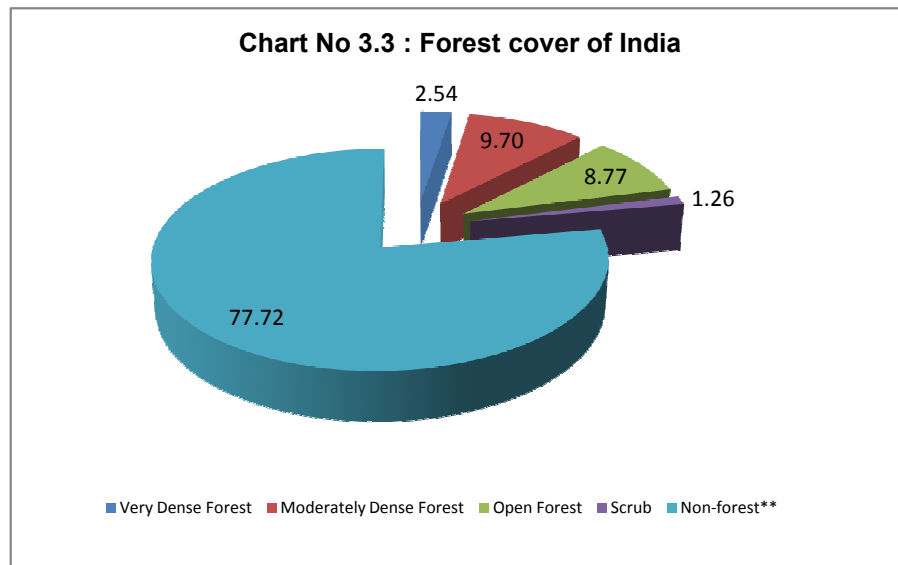


TABLE 3.2.3(a) : FOREST AREA BY OWNERSHIP(during 2005-06)

(Sq.km)

Sl. No.	State/ Union Territory	Forest Department				Others			
		Reserved	Protected	Unclassed	Total	Area Under Sanctioned Working Plans	Revenue Department Forests	Corporate Bodies Forest/ Community Ownership	Private Forest
1	2	3	4	5	6	7	8	9	10
1	A&N Islands								
2	Andhra Pradesh	50478.63	12365.34	969.76	63813.73	63813.73	0.00	0.00	0.00
3	Arunachal Pradesh	10537.94	9535.79	31466.27	51540.00	15699.24	0.00	0.00	0.00
4	Assam	13870.00	3925.00	5865.00	23660.00	13870.00	0.00	0.00	0.00
5	Bihar								
6	Chandigarh								
7	Chhattisgarh	25782.17	24036.10	9954.13	59772.40	0.00	NA	NA	NA
8	Dadra & Nagar Haveli	198.76	4.82	0.00	203.58	198.76	0.00	0.00	0.00
9	Daman & Diu								
10	Delhi								
11	Goa								
12	Gujarat	14122.20	375.67	4426.65	18924.52	15497.76	NA	NA	NA
13	Haryana	249.07	1158.17	18.96	1426.20	1463.12	-	-	132.75
14	Himachal Pradesh	1896.00	33043.00	2094.00	37033.00	24909.00	NA	NA	NA
15	Jammu & Kashmir	20194.00	36.00	NA	20230.00	20230.00	NA	NA	NA
16	Jharkhand								
17	Karnataka								
18	Kerala								
19	Lakshadweep								
20	Madhya Pradesh	61886.00	31098.00	1704.00	94689.00	NA	NA	0.00	NA
21	Maharashtra	44476.00	7992.00	3459.00	55927.00	50590.00	2449.00	3563.00	NA
22	Manipur								
23	Meghalaya	712.74	12.39	399.48	1124.61	0.00	0.00	0.00	0.00
24	Mizoram	1657.28	2126.95	5834.44	9618.67	0.00	0.00	0.00	0.00
25	Nagaland	85.83	513.55	191.62	791.00	0.00	0.00	0.00	7621.07
26	Orissa	26329.12	15525.22	20.55	41874.89	877.81	16261.34	0.00	12.29
27	pondicherry								
28	Punjab	436.33	114929.96	19019.03	138285.32	305533.96	0.00	0.00	167320.07
29	Rajasthan	12801.32	17020.94	2805.68	32627.94	4710.18	NA	NA	NA
30	Sikkim								
31	Tamil Nadu								
32	Tripura	3588.18	589.23	2116.87	6294.29	1427.83	0.00	0.00	0.00
33	Uttar Pradesh	11609.00	1434.00	3411.00	16454.00	NA	-	72.65	14.31
34	Uttaranchal	24261.56	98.61	53.01	24413.19	0.00	4768.70	5449.64	158.69
35	West Bengal	7054.00	3772.00	1053.00	11879.00	395.29	0.00	0.00	0.00

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FOREST

Source : Indian Council of Forestry Research and Education

Note: Blank cell indicates information is not available

TABLE 3.2.3(b) : FOREST AREA BY COMPOSITION (during 2005-06)

FORESTS

Sl. No.	State/ Union Territory	Coniferous forest			Non-coniferous Forest				Coniferous & Non-coniferous mixed	Total
		Chir	Deodar	Others Conifers	Sal	Teak	Mangrove	Others		
1	2	3	4	5	6	7	8	9	10	11
1	A & N Islands									
2	Andhra Pradesh	0.00	0.00	0.00	47.16	9145.00	0.00	54621.57	0.00	63813.73
3	Arunachal Pradesh	243.00	NA	35.30	0.00	0.00	0.00	47767.00	0.00	51540.00
4	Assam	0.00	0.00	0.00	529.00	0.00	NA	NA	NA	529.00
5	Bihar									
6	Chandigarh									
7	Chhattisgarh	0.00	0.00	0.00	24244.88	5633.13	0.00	29894.39	0.00	59772.40
8	Dadra & Nagar Haveli	0.00	0.00	0.00	0.00	0.00	0.00	203.58	0.00	203.58
9	Daman & Diu									
10	Delhi									
11	Goa									
12	Gujarat	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Haryana									
14	Himachal Pradesh	1364.00	1310.00	6328.00	190.00	0.00	0.00	7178.00	20663.00	37033.00
15	Jammu & Kashmir	1825.00	1075.00	5368.00	0.00	0.00	0.00	1885.00	10075.00	20230.00
16	Jharkhand									
17	Karnataka									
18	Kerala									
19	Lakshadweep									
20	Madhya Pradesh	0.00	0.00	0.00	NA	NA	NA	NA	0.00	94689.00
21	Maharashtra	0.00	0.00	0.00	0.00	10002.00	116.00	45809.00	0.00	55927.00
22	Manipur									
23	Meghalaya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
24	Mizoram	0.00	0.00	0.00	0.00	150.00	0.00	3036.75	21.30	3208.05
25	Nagaland									
26	Orissa	0.00	0.00	0.00	16938.25	2030.64	203.00	38974.72	0.00	58146.61
27	Pondicherry									
28	Punjab	0.00	0.00	1090.25	0.00	0.00	0.00	3045150.14	305605.00	305605.39
29	Rajasthan	-	-	-	-	942.24	-	31685.70	-	32627.94
30	Sikkim									
31	Tamil Nadu									
32	Tripura	0.00	0.00	0.00	271.90	1567.51	0.00	4454.80	0.00	6294.29
33	Uttar Pradesh	-	-	-	173764.00	25967.00	-	1116698.00	-	1645406.00
34	Uttaranchal	3993.30	192.65	1205.87	3151.13	200.93	0.00	3420.24	12249.07	24413.19
35	West Bengal	-	-	89.00	-	-	1909.00	-	9881.00	11879.00

Source : Indian Council of Forestry Research and Education

Note: Blank cell indicates information is not available

Nonresponding States A & N Island, Assam, Bihar, Delhi, Manipur, Mizoram and Nagaland.

TABLE 3.2.4(a) : COMPARATIVE SITUATION OF FOREST COVER IN INDIA

Sl. No.	States/Uts	Assessment					Change in			
		2007	2005*	2003	2001	1999	2001	2003	2005	2007#
1	2	3	4	5	6	7	8	9	10	11
1	Andhra Pradesh	45102	45231	44412	43195	44229	-1034	1217	819	-129
2	Arunachal Pradesh	67353	67472	67692	69760	68847	913	-2068	-220	-119
3	Assam	27692	27758	27735	25290	23688	1602	2445	23	-66
4	Bihar	6804	6807	5573	5375	4830	545	198	1234	-3
5	Chhatisgarh	55870	55929	55992	57730	56693	1037	-1738	-63	-59
6	Delhi	177	177	174	125	88	37	49	3	0
7	Goa	2151	2156	2164	1565	1251	314	599	-8	-5
8	Gujarat	14620	14604	14814	12913	12965	-52	1901	-210	16
9	Haryana	1594	1604	1576	1135	964	171	441	28	-10
10	Himachal Pradesh	14668	14666	14359	12907	13082	-175	1452	307	2
11	Jammu & Kashmir	22686	22689	21273	19886	20441	-555	1387	1416	-3
12	Jharkhand	22894	22722	22569	22531	21644	887	38	153	172
13	Karnataka	36190	36200	35246	33296	32467	829	1950	954	-10
14	Kerala	17324	17284	15595	13417	10323	3094	2178	1689	40
15	Madhya Pradesh	77700	77739	76145	75282	75137	145	863	1594	-39
16	Maharashtra	50650	50661	47514	45040	46672	-1632	2474	3147	-11
17	Manipur	17280	16952	17259	17889	17384	505	-630	-307	328
18	Meghalaya	17321	17205	16925	16535	15633	902	390	280	116
19	Mizoram	19240	18600	18583	16397	18338	-1941	2186	17	640
20	Nagaland	13464	13665	14015	13980	14164	-184	35	-350	-201
21	Orissa	48855	48755	48353	49044	47033	2011	-691	402	100
22	Punjab	1664	1660	1545	1628	1412	216	-83	115	4
23	Rajasthan	16036	16012	15821	14542	13871	671	1279	191	24
24	Sikkim	3357	3357	3262	3164	3118	46	98	95	0
25	Tamil Nadu	23338	23314	23003	20992	17078	3914	2011	311	24
26	Tripura	8073	8173	8123	8869	5745	3124	-746	50	-100
27	Uttar Pradesh	14341	14346	14127	10778	10756	22	3349	219	-5
28	Uttaranchal	24495	24493	24460	23354	23260	94	1106	33	2
29	West Bengal	12994	12970	12389	10392	8362	2030	1997	581	24
30	A. & N. Islands	6662	6663	6807	6621	7606	-985	186	-144	-1
31	Chandigarh	17	17	15	13	7	6	2	2	0
32	Dadra & Nagar Haveli	211	216	221	217	202	15	4	-5	-5
33	Daman & Diu	6	6	8	6	3	3	2	-2	0
34	Lakshadweep	26	26	25	12	0	12	13	1	0
35	Pondicherry	44	42	42	18	0	18	24	0	2
Total		690899	690171	677816	653898	637293	16605	23918	728	728

Source : State of Forest Report, 2009

* Revised

: The change in the above table refers to change in the area with respect to revised assessment for 2005

A significant decrease in the forest covers is reported from Andhra Pradesh, Arunachal Pradesh, Assam, Chhatisgarh, Nagaland and Tripura whereas the states of Jharkhand, Manipur, Mizoram and Orissa have shown an increase in forest cover.

TABLE 3.2.4(b) : CHANGES IN FOREST COVER OF THE NORTH-EASTERN REGION

Sl. No.	States/Uts	Forest Cover 2007 Assessment	Change in Forest Cover over assessment years					
			1995-97	1997-99	2001	2003	2005	2007#
1	2	3	4	5	6	7	8	9
2	Arunachal Pradesh	67777	- 19	+ 245	913	-2068	-220	-119
3	Assam	27645	- 237	- 136	1602	2445	23	-66
17	Manipur	17086	- 140	- 34	505	-630	-307	328
18	Meghalaya	16988	- 57	- 24	902	390	280	116
19	Mizoram	18684	+ 199	- 437	-1941	2186	17	640
20	Nagaland	13719	- 70	- 57	-184	35	-350	-201
26	Tripura	8155	+ 8	+ 199	3124	-746	50	-100
Total		170054	- 316	- 244	4921	1612	-507	598

Source : State of Forest Report, 2009

Note: Column 6 to 10 indicates change in the forest cover with respect to previous assesment year (eg. Year X1 - X2 means Area in Year X2 - Area in Year X1)

The forest cover in the North-Eastern Region (NER) is about 66.81% of the Geographical Area.

There has been an increase in the forest cover in 2007 over the year 2005 by 598 sq. km.

TABLE 3.2.5 (a): STATE-WISE PRODUCTION OF FOREST PRODUCE (2004-05)

Sl. No.	State/ Union Territory	Round Wood		Wood Fuel	Saw logs & Veneer logs		Pulp wood		Other Industrial roundwood (poles & Posts)		Sawn wood		Chips & particles	Wood residues	Wood charcoal
		C	NC		C	NC	C	NC	C	NC	C	NC			
		(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	MT	MT	MT	MT
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	A & N Islands														
2	Andhra Pradesh	2308.00	0.00	0.00	0.00	0.00	0.00	432331.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Arunachal Pradesh	19967.46	0.00	13320.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	191.55
4	Assam	0.00	6419.00	365.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5	Bihar														
6	Chandigarh														
7	Chhattisgarh	0.00	0.00	97500MT	0.00	161000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Dadra & Nagar Haveli	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Daman & Diu														
10	Delhi														
11	Goa	0.00	17352.72	29132.44	0.00	0.00	0.00	0.00	0.00	2727.00	0.00	0.00	0.00	0.00	345384 kgs
12	Gujarat	0.00	18293.85	146553.34(mt)	NA	0.00	NA	NA	NA	18013.16	0	957.16 cm	NA	NA	NA
13	Haryana														
14	Himachal Pradesh	8731.24	103.43	36874.67	13533.85	4482.59	3888.50	728.00	2324.00	0.00	74972.16	2.00	0.00	0.00	10591.60
15	Jammu & Kashmir	35600.00	0.00	24337.00	0.00	0.00	0.00	0.00	0.00	0.00	60650.00	0.00	0.00	0.00	0.00
16	Jharkhand														
17	Karnataka														
18	Kerala														
19	Lakshadweep														
20	Madhya Pradesh	0.00	265000.00	271000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	Maharashtra	0.00	46000.00	130000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	Manipur														
23	Meghalaya														
24	Mizoram	200.00	0.00	236.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	140.03	0.00	236.32
25	Nagaland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
26	Orissa	0.00	10709.00	4798 MT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	Punducherry														
28	Punjab	-	91308.00	-	-	-	-	-	-	-	-	-	-	-	-
29	Rajasthan	27715.26	0.00	36752.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	Sikkim														
31	Tamil Nadu														
32	Tripura	0.00	759.49	3717.92	0.00	0.00	0.00	0.00	0.00	1693.80	0.00	0.00	0.00	0.00	0.00
33	Uttar Pradesh	-	133827.00	16269.00	-	-	-	-	-	-	-	-	-	-	-
34	Uttarakhand	62336.00	120311.00	54371.00	-	-	-	53085.00	=	=	21265.35	39.81	-	-	366.63
35	West Bengal	85993.00		167321.00	-	-	156771.00	-	-	-	-	-	-	-	-
	Total	220575.50	703664.48	770011.74	13533.85	4482.59	160659.50	53813.00	2324.00	22433.96	156887.51	41.81	140.03	0.00	11194.55

Source: Indian Council of Forestry Research and Education, Dehradun

C- Coniferous NC-coniferous

* 1 bag=10 to 15 kg.

TABLE 3.2.5 (b) : STATE-WISE PRODUCTION OF FOREST PRODUCE (2005-06)

Sl. No.	State/ Union Territory	Round Wood		Wood Fuel	Saw logs & Veneer logs		Pulp wood		Other Industrial roundwood (poles & Posts)		Sawn wood		Chips & particles	Wood residues	Wood charcoal
		C	NC		C	NC	C	NC	C	NC	C	NC			
		(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	(cum)	MT	MT	MT	MT
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	A & N Islands														
2	Andhra Pradesh	23028.00	0.00	0.00	0.00	0.00	43323.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Arunachal Pradesh	40656.43	0.00	12878.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Assam	0.00	12064.00	510.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5	Bihar														
6	Chandigarh														
7	Chhattisgarh	0.00	0.00	70000MT	0.00	123000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Dadra & Nagar Haveli	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Daman & Diu														
10	Delhi														
11	Goa														
12	Gujarat	NA	16661.52	62636.24MT	NA	NA	NA	NA	NA	10160.83	NA	630.97cum	NA	NA	NA
13	Haryana														
14	Himachal Pradesh	8089.46	66.00	22291.00	13423.06	3705.07	6430.50	0.00	2065.00	0.00	69259.49	0.00	0.00	0.00	7924.93
15	Jammu & Kashmir	51250.00	0.00	22924.00	0.00	0.00	0.00	0.00	0.00	0.00	35150.00	0.00	0.00	0.00	0.00
16	Jharkhand														
17	Karnataka														
18	Kerala														
19	Lakshadweep														
20	Madhya Pradesh	0.00	268000.00	296000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	Maharashtra	56049.00	74332.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	Manipur														
23	Meghalaya														
24	Mizoram	250.00	0.00	1203.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	170.02	0.00	26.37
25	Nagaland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
26	Orissa	0.00	15827.00	13216MT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	Puducherry														
28	Punjab	-	134553.00	-	-	-	-	-	-	-	-	-	-	-	-
29	Rajasthan	27125.47	0.00	38435.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	Sikkim														
31	Tamil Nadu														
32	Tripura	0.00	351.02	6462.36	0.00	0.00	0.00	0.00	0.00	2472.01	0.00	0.00	0.00	0.00	0.00
33	Uttar Pradesh	-	159837.00	10148.00	-	-	-	-	-	-	-	-	-	-	-
34	Uttarakhand	77775.00	168265.00	63898.00	-	-	-	85279.00	=	=	34262.42	75.52	-	-	353.30
35	West Bengal														
	Total	284223.36	849956.54	474750.31	13423.06	126705.07	49753.81	85279.00	2065.00	12632.84	138671.91	75.52	170.02	0.00	8304.60

TABLE 3.2.5 (c):STATE-WISE PRODUCTION OF FOREST PRODUCE --Contd.

Sl. No.	State/Union Territory	Sal Seed				Tendu/Kendu/Bidi Leaves			
		(M. Tonne)				(M. Tonne)			
		2002-03	2003-04	2004-05	2005-06	2002-03	2003-04	2004-05	2005-06
1	2	3	4	5	6	7	8	9	10
1	A & N Islands	0.00	0.00			0.00	0.00		
	Assam			NA	NA			NA	NA
2	Chandigarh	-	-			-	-		
3	Chhattisgarh	0.00		12478.84	94438.77	0	0.00	18.86 Std. bag	14.92 Std. bags
4	Gujarat	0.00	0.00	-	-	32934 stdnbag	154344 std bag	423504 Std. bags	266944 Std. bags
5	Himachal Pradesh	0	0			0.00	0	0	
6	Jammu &Kashmir	0	0			0	0	0	
7	Jharkhand	103.12	300.00			5.09	4.26		
8	Karnataka	0.00	0.00			507 cum	357 cum		
9	Orissa	23709.20	28700.30	2732 MT	9944 MT	477059.38	453783.61	46900 MT	37500MT
10	Rajasthan	0	0	NA	NA	464238.00	193276	303260.00	157273
11	Sikkim	0.00	0.00			0	0.00		
12	Tripura	0	0	0	-	0.00	0		
13	Uttar Pradesh					513251 std. bags	45450 std. bags	488984 MT	257035 MT
14	West Bebgal	-	-	1070.20	1176.70	367.00	642.00	347.22	1104.76

Source:Indian Council of Forestry Research and Education, Dehradun

Note: Blank cell indicates information is not available

C : Coniferous

NC : Non- consferous

1 Std.beg= 0.5 Quintals (Approximately)

TABLE 3.2.5 (c):STATE-WISE PRODUCTION OF FOREST PRODUCE --Concl.

FORESTS

Sl. No.	State/Union Territory	Gums (Metric Tonne)				Resins (Metric Tonne)			
		2002-03	2003-04	2004-05	2005-06	2002-03	2003-04	2004-05	2005-06
1	2	3	4	5	6	7	8	9	10
1	A & N Islands	NA	NA			NA	NA		
2	Andhra Pradesh	996.10	762.90	9546.00	6953.69	0.00	0.00	0.00	0.00
3	Arunachal Pradesh	0.00	0.00	0.00	0.00	8846.00	0.00	4040.00	141530.00
4	Assam	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Bihar								
6	Chandigarh	-	-			-	-		
7	Chhattisgarh			128.31	67.68			0.00	0.00
8	Dadra & Nagar Haveli	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Daman & Diu								
10	Delhi								
11	Goa	0.00	0.00	0.00		0.00	0.00	0.00	
12	Gujarat	67.94	65.1	66.54	78.63	0.00	0.00	-	-
13	Haryana	-	-	-	-	-	-	-	-
14	Himachal Pradesh	7322.4	7257.4	NA	NA	8494.40	84227.00	8797.00	8508.00
15	Jammu & Kashmir	0.00	0.00	0.00	0.00	10783.00	10284.00	3941.00	6748.00
16	Jharkhand	0.00	0.00			0.00	0.00		
17	Karnataka	1.90	1.70			0.00	0.00		
18	Kerala								
19	Lakshadweep								
20	Madhya Pradesh			Quintals 422.0	Quintals 333.9			0.00	0.00
21	Maharashtra	975.00	941.00	Quintals 6954	Quintals 11004	0.00	0.00	0.00	0.00
22	Manipur								
23	Meghalaya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	Mizoram	0.00	0.00	-	-	0.00	0.00	-	-
25	Nagaland			0.00	0.00			0.00	0.00
26	Orissa	0.07	6.10	0.00	0.00	0.00	0.00	0.00	0.00
27	Puducherry								
28	Punjab	0.00	0.00			0.00	0.00		
29	Rajasthan	0.00	0.00	NA	NA	0.00	0.00	NA	NA
30	Sikkim	0.00	0.00			0.00	0.00		
31	Tamil Nadu								
32	Tripura	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	Uttar Pradesh	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
34	Uttarakhand	0.00	0.00	-	-	15873.00	17146.00	17983.00	18349.00
35	West Bengal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 3.2.6 (a) :PHYSIOGRAPHIC ZONE WISE TREE COVER ESTIMATE

Sl. No.	Physiographic Zone	Geographic Area (Km ²)	Tree Cover	
			Area (Km ²)	% of Geog. Area
1	2	3	5	6
1	Western Himalayas	329255	8091	2.46
2	Eastern Himalayas	74618	324	0.43
3	North East	133990	2243	1.67
4	Northern Plains	295780	9473	3.20
5	Eastern Plains	223339	5444	2.44
6	Western Plains	319098	7497	2.35
7	Central Highlands	373675	9150	2.45
8	North Deccan	355988	7559	2.12
9	East Deccan	336289	11157	3.32
10	South Deccan	292416	8002	2.74
11	Western Ghats	72381	3847	5.31
12	Eastern Ghats	191698	4051	2.11
13	West Coast	121242	9427	7.78
14	East Coast	167494	6504	3.88
Total		3287263	92769	2.82
Source : State of Forest Report, 2009				

TABLE 3.2.6 (b):PHYSIOGRAPHIC ZONE WISE VOLUME OF GROWING STOCK

Sl. No.	Physiographic Zone	Area of Phy.Zone (Km ²)	Recorded Forest Area (Km ²)	Growing Stock (volume in million Cum)		
				In Forest	In Tree Outside Forest	Total
1	2	3	4	5	6	7
1	W. Himalayas	329255	91073	1021.94	191.09	1213.03
2	E. Himalayas	74618	47965	473.2	69.35	542.55
3	North East Ranges	133990	79431	341.14	102.85	443.99
4	Northern Plains	295780	13992	142.6	104.27	246.87
5	Eastern Plains	223339	31709	240.53	97.43	337.96
6	Western Plains	319098	13694	7.93	74.36	82.29
7	Central Highlands	373675	80788	109.37	110.86	220.23
8	North Deccan	355988	87260	281.07	83.47	364.54
9	East Deccan	336289	128757	622.18	198.74	820.92
10	South Deccan	292416	49451	224.42	134.28	358.70
11	Western Ghats	72381	32399	461.78	118.68	580.46
12	Eastern Ghats	191698	74418	360.65	75.26	435.91
13	West Coast	121242	20736	106.21	147.87	254.08
14	East Coast	167494	17839	105.63	91.06	196.69
Total		3287263	769512	4498.65	1599.57	6098.22
Source : State of Forest Report, 2009						

TABLE 3.2.7 :STATE/UT WISE TREE COVER ESTIMATES

Sl. No.	State/UT	Geographic Area (Km ²)	Tree Cover	
			Area (Km ²)	% of Geog. Area
1	2	3	5	6
1	Andhra Pradesh	275069	7191	2.61
2	Arunachal Pradesh	83743	592	0.71
3	Assam	78438	1590	2.03
4	Bihar	94163	2495	2.65
5	Chhattisgarh	135191	4027	2.98
6	Delhi	1483	123	8.29
7	Goa	3702	286	7.73
8	Gujarat	196022	8390	4.28
9	Haryana	44212	1409	3.19
10	Himachal Pradesh	55673	638	1.15
11	Jammu & Kashmir	222236	6764	3.04
12	Jharkhand	79714	3032	3.80
13	Karnataka	191791	5683	2.96
14	Kerala	38863	2801	7.21
15	Madhya Pradesh	308245	6871	2.23
16	Maharashtra	307713	9466	3.08
17	Manipur	22327	197	0.88
18	Meghalaya	22429	542	2.42
19	Mizoram	21081	172	0.82
20	Nagaland	16579	300	1.81
21	Orissa	155707	4435	2.85
22	Punjab	50362	1699	3.37
23	Rajasthan	342239	8274	2.42
24	Sikkim	7096	20	0.28
25	Tamil Nadu	130058	4968	3.82
26	Tripura	10486	171	1.63
27	Uttar Pradesh	240928	7381	3.06
28	Uttarakhand	53483	665	1.24
29	West Bengal	88752	2458	2.77
30	A. & N. Islands	8249	44	0.53
31	Chandigarh	114	11	9.65
32	Dadra & Nagar Haveli	491	27	5.50
33	Daman & Diu	112	9	8.04
34	Lakshadweep	32	4	12.50
35	Puducherry	480	34	7.08
Total		3287263	92769	2.82

Source : State of Forest Report, 2009

TABLE 3.2.8 : FOREST COVER IN STATES/UTs IN INDIA - 2007*(Area in Sq. km)*

Sl. No.	State/UT	Geographic Area	Forest Cover Area				Percent of G.A.	Scrub
			Very Dense Forest	Moderate Dense Forest	Open Forest	Total Forest		
1	2	3	4	5	6	7	8	
1	Andhra Pradesh	275069	820	24757	19525	45102	16.40	10372
2	Arunachal Pradesh	83743	20858	31556	14939	67353	80.43	111
3	Assam	78438	1461	11558	14673	27692	35.30	179
4	Bihar	94163	231	3248	3325	6804	7.23	134
5	Chhattisgarh	135191	4162	35038	16670	55870	41.33	107
6	Delhi	1483	7	50	120	177	11.94	1
7	Goa	3702	511	624	1016	2151	58.10	1
8	Gujarat	196022	376	5249	8995	14620	7.46	1463
9	Haryana	44212	27	463	1104	1594	3.61	145
10	Himachal Pradesh	55673	3224	6383	5061	14668	26.35	327
11	Jammu & Kashmir	222236	4298	8977	9411	22686	10.21	2036
12	Jharkhand	79714	2590	9899	10405	22894	28.72	683
13	Karnataka	191791	1777	20181	14232	36190	18.87	3176
14	Kerala	38863	1443	9410	6471	17324	44.58	58
15	Madhya Pradesh	308245	6647	35007	36046	77700	25.21	6401
16	Maharashtra	307713	8739	20834	21077	50650	16.46	4157
17	Manipur	22327	701	5474	11105	17280	77.40	1
18	Meghalaya	22429	410	9501	7410	17321	77.23	211
19	Mizoram	21081	134	6251	12855	19240	91.27	1
20	Nagaland	16579	1274	4897	7293	13464	81.21	2
21	Orissa	155707	7073	21394	20388	48855	31.38	4852
22	Punjab	50362	0	733	931	1664	3.30	20
23	Rajasthan	342239	72	4450	11514	16036	4.69	4347
24	Sikkim	7096	500	2161	696	3357	47.31	356
25	Tamil Nadu	130058	2926	10216	10196	23338	17.94	1206
26	Tripura	10486	111	4770	3192	8073	76.99	75
27	Uttar Pradesh	240928	1626	4563	8152	14341	5.95	745
28	Uttaranchal	53483	4762	14165	5568	24495	45.80	271
29	West Bengal	88752	2987	4644	5363	12994	14.64	29
30	A. & N. Islands	8249	3762	2405	495	6662	80.76	53
31	Chandigarh	114	1	10	6	17	14.91	1
32	Dadra & Nagar Haveli	491	0	114	97	211	42.97	1
33	Daman & Diu	112	0	1	5	6	5.36	3.0
34	Lakshadweep	32	0	16	10	26	81.25	0
35	Pondicherry	480	0	13	31	44	9.17	0
Total		3287263	83510	319012	288377	690899	21.02	41525

Source: State of Forest Report 2009

TABLE 3.2.9 : STATE/UT WISE FOREST COVER IN HILL DISTRICTS- 2007

Sl. No.	Name of State/UT	Number of Hill Districts	Geographic Area in Hill Districts	Forest Cover Area				Percent Forest Cover
				Very Dense Forest	Moderately Dense Forest	Open Forest	Total	
1	2	3	4	5	6	7	8	9
1	Arunachal Pradesh	13	83743	20858	31556	14939	67353	80.43
2	Assam	3	19153	755	5798	6450	13003	67.89
3	Himachal Pradesh	12	55673	3224	6383	5061	14668	26.35
4	Jammu & Kashmir	(a) 14	101388	2958	6507	6844	16309	16.09
		(b) *	120848	1340	2470	2567	6377	5.28
5	Karnataka	6	48046	1492	14922	6786	23200	48.29
6	Kerala	10	29572	1105	7314	5281	13700	46.33
7	Maharashtra	7	69905	319	7246	7943	15508	22.18
8	Manipur	9	22327	701	5474	11105	17280	77.40
9	Meghalaya	7	22429	410	9501	7410	17321	77.23
10	Mizoram	8	21081	134	6251	12855	19240	91.27
11	Nagaland	8	16579	1274	4897	7293	13464	81.21
12	Sikkim	4	7096	500	2161	696	3357	47.31
13	Tamil Nadu	5	22789	967	3244	1993	6204	27.22
14	Tripura	4	10486	111	4770	3192	8073	76.99
15	Uttaranchal	13	53483	4762	14165	5568	24495	45.80
16	West Bengal	1	3149	714	663	912	2289	72.69
Total		124	707747	41624	133322	106895	281841	39.82

Source: State of Forest Report, 2009

* : Area under illegal occupation of Pakistan and China.

TABLE 3.2.10 : STATE/UT WISE FOREST COVER IN TRIBAL DISTRICTS - 2007

(Sq. km)

Sl. No.	State/UT	Number of Tribal Districts	Geographic Area	Forest Cover				Percent Forest Cover
				Very Dense Forest	Moderately Dense Forest	Open Forest	Total	
1	2	3	4	5	6	7	8	9
1	Andhra Pradesh	8	87090	239	16745	8583	25567	29.36
2	Arunachal Pradesh	13	83743	20858	31556	14939	67353	80.43
3	Assam	16	50137	651	4666	6691	12008	23.95
4	Chhattisgarh	9	92656	3611	24573	12026	40210	43.40
5	Gujarat	8	48409	322	2949	3496	6767	13.98
6	Himachal Pradesh	3	26764	950	1068	1213	3231	12.07
7	Jharkhand	8	44413	1677	6057	6155	13889	31.27
8	Karnataka	5	26597	1248	7642	4249	13139	49.40
9	Kerala	9	27228	1073	7026	5010	13109	48.15
10	Madhya Pradesh	18	139448	5645	20291	16376	42312	30.34
11	Maharashtra	11	138272	7277	11397	10835	29509	21.34
12	Manipur	9	22327	701	5474	11105	17280	77.40
13	Meghalaya	7	22429	410	9501	7410	17321	77.23
14	Mizoram	8	21081	134	6251	12855	19240	91.27
15	Nagaland	8	16579	1274	4897	7293	13464	81.21
16	Orissa	12	86124	5279	14465	13555	33299	38.66
17	Rajasthan	5	38218	0	2444	3904	6348	16.61
18	Sikkim	4	7096	500	2161	696	3357	47.31
19	Tamil Nadu	6	30720	695	2396	3636	6727	21.90
20	Tripura	4	10486	111	4770	3192	8073	76.99
21	Uttar Pradesh	1	7680	409	475	436	1320	17.19
22	West Bengal	11	69403	2965	4473	4861	12299	17.72
23	Andaman & Nicobar	2	8249	3762	2405	495	6662	80.76
24	Dadra & Nagar Haveli	1	491	0	114	97	211	42.97
25	Daman & Diu	1	72	0	1	3	4	5.56
26	Lakshadweep	1	32	0	16	10	26	81.25
Total		188	1105744	59791	193813	159121	412725	37.33

Source: State of Forest Report 2009

TABLE 3.2.11 (a) : STATE/UT WISE MANGROVE COVER ASSESSMENT*(Sq. km)*

SI No.	State/UT									
		1989	1991	1993	1995	1997	1999	2001	2003	2005
1	2	4	5	6	7	8	9	10	10	11
1	Andhra Pradesh	405	399	378	383	383	397	333	329	354
2	Goa	3	3	3	3	5	5	5	16	16
3	Gujarat	412	397	419	689	901	1031	911	916	991
4	Karnataka	0	0	0	2	3	3	2	3	3
5	Maharashtra	114	113	155	155	124	108	118	158	186
6	Orissa	192	195	195	195	211	215	219	203	217
7	Tamil Nadu	47	47	21	21	21	21	23	35	36
8	West Bengal*	2109	2119	2119	2119	2123	2125	2081	2120	2136
9	Andaman & Nicobar	973	971	966	966	966	966	789	658	635
10	Puducherry	0	0	0	0	0	0	1	1	1
11	Kerala	0	0	0	0	0	0	0	8	5
12	Daman & Diu	0	0	0	0	0	0	0	1	1
Total		4255	4244	4256	4533	4737	4871	4482	4448	4581

Source: State of Forest Report 2009

*: As per the West Bengal Forest Department, mangrove area in Sunderban is 4200 sq. km. which is almost double of the area estimated by FSI.

TABLE 3.2.11 (b) : STATE/UT WISE MANGROVE COVER, 2007*(Sq. km)*

SI No.	State/UT	Very Dense Mangrove	Moderately Dense Mangrove	Open Mangrove	Total	Change w.r.t. 2005 assessment
1	2	3	4	5	6	7
1	Andhra Pradesh	0	126	227	353	-1
2	Goa	0	14	3	17	1
3	Gujarat	0	188	858	1046	55
4	Karnataka	0	3	0	3	0
5	Kerala	0	3	2	5	0
6	Maharashtra	0	69	117	186	0
7	Orissa	82	97	42	221	4
8	Tamil Nadu	0	16	23	39	3
9	West Bengal	1038	881	233	2152	16
10	Andaman & Nicobar	285	262	68	615	-20
11	Daman & Diu	0	0	1	1	0
12	Pudicherry	0	0	1	1	0
Total		1405	1659	1575	4639	58

Source: State of Forest Report 2009

TABLE 3.2.11(c) : STATE-WISE LIST OF MANGROVE AREAS

SI No.	State/UT	mangrove Area
1	2	3
1	West Bengal	Sunderbans.
2	Orissa	Bhaitarkanika, Mahandi, Subernarekha, Devi, Dharma, MGRC, Chilka
3	Andhra Pradesh	Coringa, East Godavari, Krishna
4	Tamil Nadu	Pichavaram, Muthupet, Ramnad, Pulicat, Kazhuveli
5	Andman & Nicobar	North Andamans, Nicobar
6	Kerala	Vembanad, Kannur
7	Karnataka	Coondapur, Dakshin Kannada/Honnar, Mangalore Forest Division, Karwar
8	Goa	Goa
9	Maharashtra	Achra-Ratnagiri, Devgarh-Vijay Durg, Veldur, Kundalika-Revdanda, Mumbra-Diva, Vikroli, Shreevardhan, Vaitarna, Vasasi-Manori, Malvan
10	Gujarat	Gulf of Kutch, Gulf of Khambat, Dumas-Ubhrat

Source : Annual Report 2008-2009, Ministry of Environment & Forests

TABLE 3.2.12 : STATE-WISE WASTE LANDS OF INDIA*(Area in Sq. Km.)*

Sl. No.	States/Uts.	Number of districts covered	Total Geog. Area of dist. Covered	Total Wasteland area in dists. Covered	% to total Geog. area
1	2	3	4	5	6
1	Andhra Pradesh	23	275068.00	51750.19	18.81
2	Arunachal Pradesh	13	83743.00	18326.25	21.88
3	Assam	23	78438.00	20019.17	25.52
4	Bihar	55	173877.00	20997.55	12.08
5	Goa	2	3702.00	613.27	16.57
6	Gujarat	25	196024.00	43021.28	21.95
7	Haryana	19	44212.00	3733.98	8.45
8	Himachal Pradesh	12	55673.00	31659.00	56.87
9	Jammu & Kashmir	14	101387.00	65444.24	64.55
10	Karnataka	27	191791.00	20839.28	10.87
11	Kerala	14	38863.00	1448.18	3.73
12	Madhya Pradesh	62	443446.00	69713.75	15.72
13	Maharashtra	32	307690.00	53489.08	17.38
14	Manipur	9	22327.00	12948.62	58.00
15	Meghalaya	7	22429.00	9904.38	44.16
16	Mizoram	3	21081.00	4071.68	19.31
17	Nagaland	7	16579.00	8404.10	50.69
18	Orissa	30	155707.00	21341.71	13.71
19	Punjab	17	50362.00	2228.40	4.42
20	Rajasthan	32	342239.00	105639.11	30.87
21	Sikkim	4	7096.00	3569.58	50.30
22	Tamilnadu	4	10486.00	1276.03	12.17
23	Tripura	29	130058.00	23013.90	17.70
24	Uttar Pradesh	83	294411.00	38772.80	13.17
25	West Bengal	18	88752.00	5718.48	6.44
26	UTs	20	10973.00	574.30	5.23
Total		584	3166414.00	638518.31	20.17
Un -Surveyed Area (J& K)			120849.00		
Total Geog. Area			3287263.00		
Source : Forestry Statistics in India, 2003					

TABLE 3.2.13 : STATE WISE AND CATEGORY WISE WASTE LANDS OF India (cont..)

(Sq.km)								
Sl. No.	States/UTs.	Gullied/ Ravinous land	Land with/without scrub	Waterlogged/ Marshy land	Saline/ alkaline area	Shifting cultivation area	Deg. Notified forest land	Deg. Pastures/o razing land
1	2	3	4	5	6	7	8	9
1	Andhra Pradesh	692.68	20256.64	1035.02	603.26	13.80	22237.78	709.29
2	Arunachal Pradesh	0.00	3326.78	41.47	0.00	3088.08	1416.67	2134.99
3	Assam	0.00	843.72	1633.56	0.00	8391.48	3112.71	2217.85
4	Bihar	559.17	4689.93	1198.87	0.51	45.45	13066.53	164.97
5	Goa	0.00	292.83	41.02	0.00	0.00	71.99	2.47
6	Gujarat	1013.39	21786.72	2656.26	7637.34	0.00	5443.02	387.45
7	Haryana	49.50	988.42	238.30	285.63	0.00	732.52	721.65
8	Himachal Pradesh	121.89	2056.50	15.69	1.36	0.00	4589.98	4278.17
9	Jammu & Kashmir	21.25	4495.30	246.50	0.00	0.00	2491.66	267.51
10	Karnataka	301.52	9087.68	32.76	125.11	0.00	8299.41	97.46
11	Kerala	0.00	357.93	136.00	0.00	0.00	609.30	3.99
12	Madhya Pradesh	7569.11	36977.87	51.72	162.81	0.00	20437.77	302.44
13	Maharashtra	1700.37	31386.91	527.57	251.66	0.00	13430.67	1349.40
14	Manipur	0.00	1.32	324.60	0.00	12014.06	608.64	0.00
15	Meghalaya	0.00	4190.63	14.87	0.00	2086.77	3612.11	0.00
16	Mizoram	0.00	0.00	0.00	0.00	3761.23	310.45	0.00
17	Nagaland	0.00	1596.46	0.00	0.00	5224.65	1582.99	0.00
18	Orissa	185.82	8358.68	379.10	51.49	115.25	10014.07	13.43
19	Punjab	168.52	339.44	352.01	173.29	0.00	353.29	113.71
20	Rajasthan	4952.77	27152.76	289.66	2722.99	0.00	12541.89	12208.44
21	Sikkim	0.00	1073.11	0.00	0.00	0.00	1060.57	0.00
22	Tamilnadu	0.00	286.87	0.11	0.00	400.88	588.18	0.00
23	Tripura	226.12	7697.91	415.80	2479.73	0.53	9634.25	168.94
24	Uttar Pradesh	2806.52	5498.99	4981.43	5811.94	0.00	3338.32	446.36
25	West Bengal	171.90	1245.16	1931.54	131.25	0.00	777.58	384.97
26	UTs	12.83	25.74	24.60	39.01	0.00	289.97	5.43
Total		20553.36	194014.30	16568.46	20477.38	35142.18	140652.32	25978.92

Source : Forestry Statistics in India, 2003

Note : 1,20,8849 sq kms in Jammu & Kashmir is not mapped and hence not considered for calculating per percentage

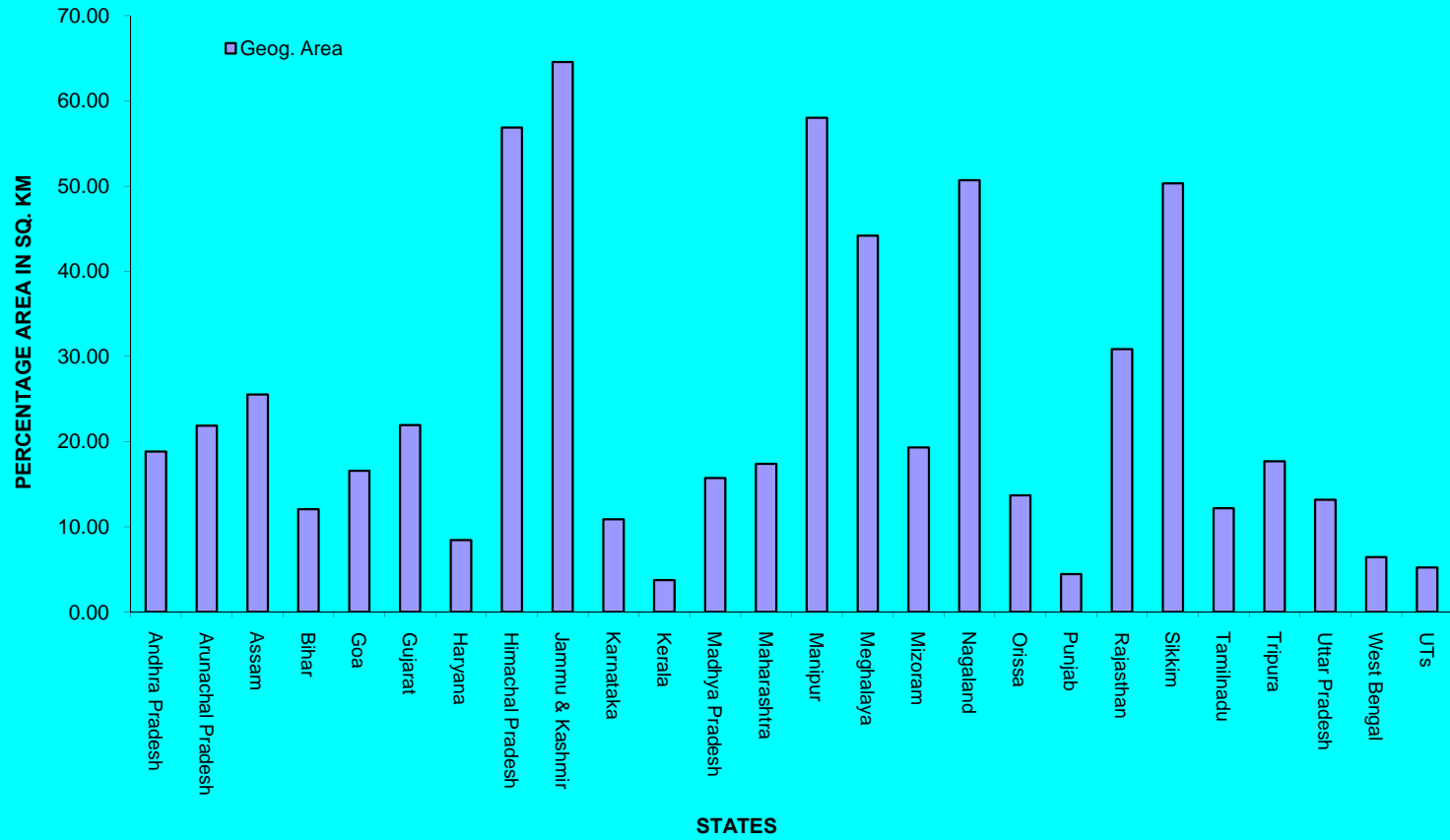
TABLE 3.2.13 : STATE WISE AND CATEGORY WISE WASTE LANDS OF INDIA..Concl.d.

(Sq Km)

States/UTs.	Deg. Land under plantation	Sands-inland/costal	Mining/Industrial wasterlands	Barren Rocky area	Steep Sloping area	Snow/Glacial area	Total Wasterland	Total Geog. Area	% to Total Geog. Area
1	10	11	12	13	14	15	16	17	18
Andhra Pradesh	52.91	464.70	98.88	5196.27	388.96	0.00	51750.19	275068.00	18.81
Arunachal Pradesh	6.07	309.43	0.30	1262.36	7.93	6732.17	18326.25	83743.00	21.88
Assam	0.00	3764.54	0.43	54.88	0.00	0.00	20019.17	78438.00	25.52
Bihar	79.80	222.08	184.23	688.91	97.10	0.00	20997.55	173877.00	12.08
Goa	32.19	0.00	110.73	58.55	3.49	0.00	613.27	3702.00	16.57
Gujarat	78.32	188.42	49.66	3293.39	487.31	0.00	43021.28	196024.00	21.95
Haryana	134.12	465.01	13.72	105.12	0.00	0.00	3733.98	44212.00	8.45
Himachal Pradesh	2457.59	105.04	85.66	3858.04	1529.67	12559.42	31659.00	55673.00	56.87
Jammu & Kashmir	640.56	869.26	0.31	32821.50	1685.42	21904.97	65444.24	101387.00	64.55
Karnataka	104.74	43.96	77.78	2627.89	40.97	0.00	20839.28	191791.00	10.87
Kerala	25.65	27.87	0.49	146.46	140.49	0.00	1448.18	38863.00	3.73
Madhya Pradesh	910.40	24.57	141.44	2950.97	184.65	0.00	69713.75	443446.00	15.72
Maharashtra	687.43	77.63	100.45	2587.42	1389.57	0.00	53489.08	307690.00	17.38
Manipur	0.00	0.00	0.00	0.00	0.00	0.00	12948.62	22327.00	58.00
Meghalaya	0.00	0.00	0.00	0.00	0.00	0.00	9904.38	22429.00	44.16
Mizoram	0.00	0.00	0.00	0.00	0.00	0.00	4071.68	21081.00	19.31
Nagaland	0.00	0.00	0.00	0.00	0.00	0.00	8404.10	16579.00	50.69
Orissa	193.93	212.49	35.45	1574.09	207.88	0.00	21341.71	155707.00	13.71
Punjab	81.58	619.67	26.89	0.00	0.00	0.00	2228.40	50362.00	4.42
Rajasthan	21.14	40639.51	128.65	4799.02	182.28	0.00	105639.11	342239.00	30.87
Sikkim	0.00	0.00	0.00	10.34	0.00	1425.56	3569.58	7096.00	50.30
Tamilnadu	0.00	0.00	0.00	0.00	0.00	0.00	1276.03	10486.00	12.17
Tripura	221.96	590.80	120.46	1155.92	301.50	0.00	23013.90	130058.00	17.70
Uttar Pradesh	50.44	470.21	29.26	1180.13	992.83	13166.37	38772.80	294411.00	13.17
West Bengal	2.93	879.13	47.34	130.46	16.24	0.00	5718.48	88752.00	6.44
UTs	46.34	47.33	0.00	83.05	0.00	0.00	574.30	10973.00	5.23
Total	5828.10	50021.65	1252.13	64584.77	7656.29	55788.49	638518.31	3166414.00	20.17

Source : Forestry Statistics in India, 2003

CHART 3.4 : STATE-WISE WASTELAND AS PERCENTAGE TO THE TOTAL GEOGRAPHICAL AREA



**TABLE 3.2.14 : DIVERSION OF FOREST LAND FOR NON FOREST USE
SINCE THE ENFORCEMENT OF FOREST CONSERVATION ACT,1980**

(Area in ha.)

Sl. No.	Year	Forest Area Diverted	Cummulative Area Diverted
1	1980	Nil	Nil
2	1981	1331.70	1331.70
3	1982	3674.32	5006.02
4	1983	5100.51	10106.53
5	1984	9348.90	19455.43
6	1985	7676.83	27132.26
7	1986	9310.45	36442.71
8	1987	25925.97	62368.68
9	1988	4868.71	67237.39
10	1989	66768.09	134005.48
11	1990	127361.79	261367.27
12	1991	5065.35	266432.62
13	1992	21756.77	288189.39
14	1993	16182.51	304371.90
15	1994	59962.02	364333.92
16	1995	51428.98	415762.90
17	1996	32862.55	448625.45
18	1997	24738.43	473363.88
19	1998	18425.21	491789.09
20	1999	45784.41	537573.50
21	2000	22386.43	559959.93
22	2001	267897.61	827857.54
23	2002	51172.31	879029.85
24	2003	42729.68	921759.53
25	2004	33079.50	954839.03

Source : Forests & Wildlife Statistics, India, 2004,MOEF

CHART 3.5 : FOREST LAND DIVERSION

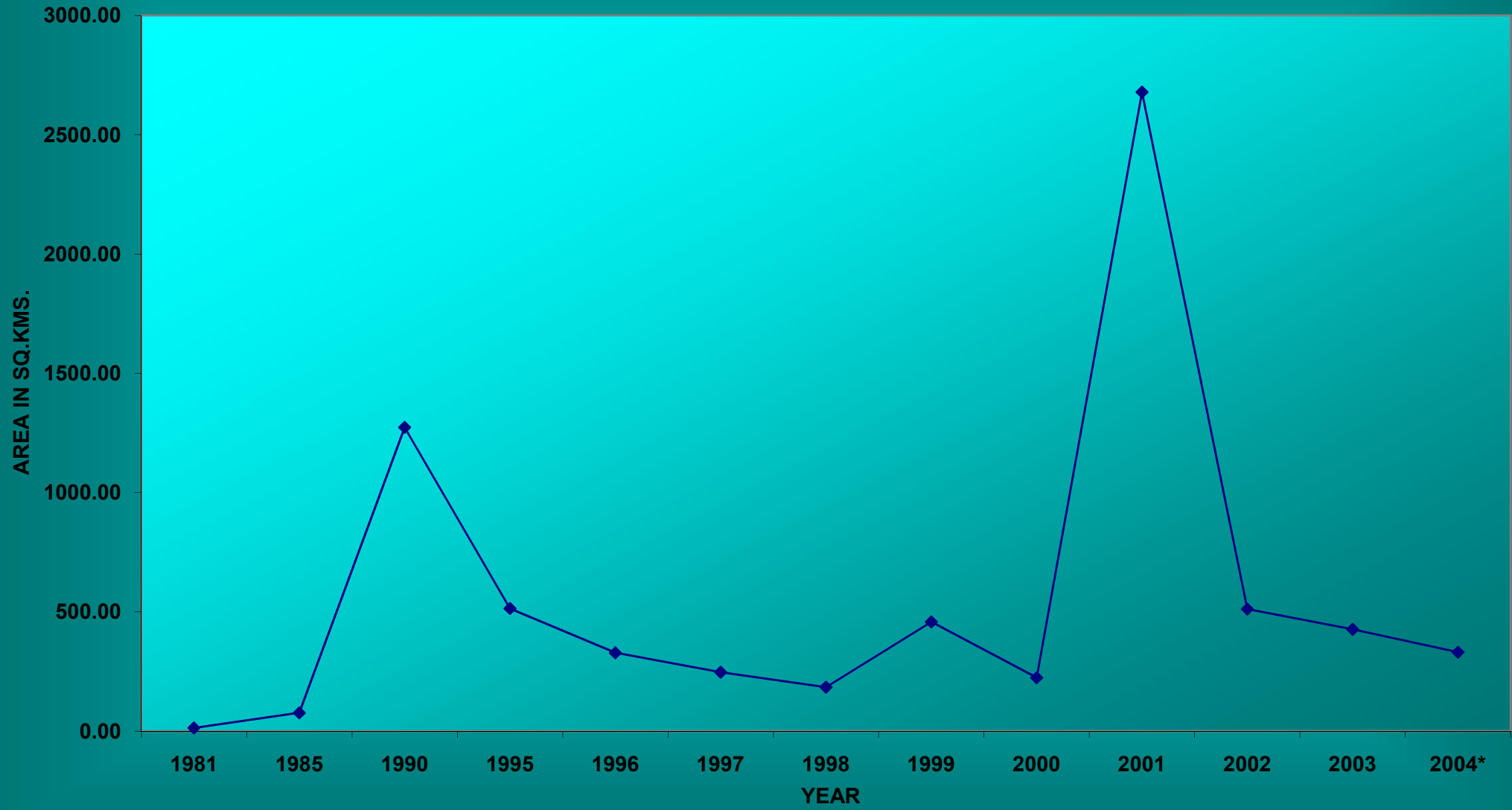


TABLE: 3.2.15 : PROGRESS OF JOINT FOREST MANAGEMENT IN INDIA*(As on 01-01-2004)*

Sl. No.	State	No. of JFM Committees	Area Under JFM (in ha)	Total No. of Families involved in JFM
1	2	3	4	5
1	Andhra Pradesh	7245	1886764.00	611095
2	Arunachal Pradesh	308	80217.00	20474
3	Assam	503	79251.00	67341
4	Bihar	493	267240.94	242639
5	Chhattisgarh	6881	2846762.16	1360251
6	Goa	26	13000.00	336
7	Gujarat	1424	160525.41	149191
8	Haryana	875	56000.00	165500
9	Himachal Pradesh	835	290922.80	259069
10	Jammu & Kashmir	935	49544.00	48460
11	Jharkhand	3358	847967.93	296135
12	Karnataka	3470	232734.00	243357
13	Kerala	323	170712.00	40624
14	Madhya Pradesh	13698	5500000.00	1641000
15	Maharashtra	5322	1411215.00	921634
16	Mnipur	205	93941.00	19451
17	Mizoram	249	10980.00	32241
18	Nagaland	306	22930.00	57492
19	Orissa	15985	821504.00	--
20	Punjab	287	56243.95	38022
21	Rajasthan	3667	376766.00	300295
22	Sikkim	158	600.00	3268
23	Tamil Nadu	1816	445965.00	270934
24	Tripura	234	34154.00	20239
25	Uttar Pradesh	2030	112652.93	620265
26	Uttranchal	10107	859028.00	499980
27	West Bengal	3892	604334.00	465395
Total		84632	17331955.12	8384788

Source : Ministry of Environment & Forests, Annual Report 2003-2004

Participation of people in the protection and management of forests has been emphasised in the National Forest Policy, 1988. Pursuant to this policy, Government of India through its resolution dated 1st June '90 formalised the JFM Programme. The JFM is being practiced through constitution of forest protection committees. About 84,632 committees are managing a total of 17.33 million ha of forest area under JFM .

TABLE 3.3.1 : INDIA'S MAJOR BIOGEOGRAPHIC HABITATS

Sl. No.	Biogeographic Zone	Biotic Province	Total Area (Sq.Km)
1	2	3	4
1	Trans-Himalayan	Upper Regions	186200
2	Himalayan	North-Western	69000
		Western	72000
		Central	123000
		Eastern	83000
3	Desert	Kachchh	45000
		Thar	180000
		Ladakh (cold)	NA
4	Semi-Arid	Central India	107600
		Gujarat-Rajwara	400400
5	Western Ghats	Malabar Coast	59700
		Western Ghat Mountains	99300
6	Deccan Peninsula	Deccan South Plateau	378000
		Central Plateau	341000
		Eastern Plateau	198000
		Chhota Nagpur	217000
		Central Highlands	287000
7	Gangetic Plain	Upper Gangetic	206400
		Lower Gangetic	153000
8	North-East India	Brahmaputra Valley	65200
		North-Eastern Hills	106200
9	Islands	Andaman Islands	6397
		Nicobar Islands	1930
		Lakshadweep	180
10	Coasts	West Coast	6500
		East Coast	6500

Source : "Conserving our Biological Wealth", WWF for Nature-India (modified) and Zoological Survey of India

TABLE 3.3.2 : ESTIMATED NUMBER OF SPECIES - 2007

Sl. No.	Taxonomic Group	No. of Species		% In India
		India	World	
1	2	3	4	5
I	PROTISTA	2577	31250	8.24
1	Protozoa	2577	31250	8.24
II	ANIMALIA	86808*	1196903	7.25
1	Mesozoa	10	71	14.08
2	Porifera	486	4562	10.65
3	Cnidaria	842	9916	8.49
4	Ctenophora	12	100	12.00
5	Platyhelminthes	1622	17500	9.27
6	Nemertinea	--	600	--
7	Rotifera	330	2500	13.20
8	Gastrotricha	100	3000	3.33
9	Kinorhyncha	10	100	10.00
10	Nematoda	2850	30000	9.50
11	Nematomorpha	--	250	--
12	Acanthocephala	229	800	28.63
13	Sipuncula	35	145	24.14
14	Mollusca	5070	66535	7.62
15	Echiura	43	127	33.86
16	Annelida	840	12700	6.61
17	Onychophora	1	100	1.00
	Arthropoda	69903	970670	7.20
1	Crustacea	2934	35534	8.26
2	Insecta	61151	861696	7.10
3	Arachnida	5818	73440	7.92
4	Pycnogonida	16	600	2.67
5	Paupoda	--	360	--
6	Chilopoda	100	3000	3.33
7	Diplopoda	162	7500	2.16
8	Symphyla	4	120	3.33
9	Merostomata	2	4	50.00
10	Phoronida	3	11	27.27
11	Bryozoa (Ectoprocta)	200	4000	5.00
12	Entoprocta	10	60	16.66
13	Brachiopoda	3	300	1.00
14	Pogonophora	--	80	--
15	Priapulida	--	8	--
16	Pentastomida	--	70	--
17	Chaetognatha	30	111	27.02
18	Tardigrada	30	514	5.83
19	Echinodermata	765	6223	12.29
20	Hemichordata	12	120	10.00
	Chordata	4994	48451	10.31
1	Protochordata (Cephalochordata +Urochordata)	119	2106	5.65
2	Pisces	2546	21723	11.72
3	Amphibia	240	5150	4.66
4	Reptilia	460	5817	7.91
5	Aves	1232	9026	13.65
6	Mammalia	397	4629	8.58
Grand Total (Protista I + Animalia II)		91307*	1222458	7.47

Source : Zoological Survey of India
* Upto January, 2007

TABLE 3.3.3 (a): RARE AND THREATENED SPECIES (VERTEBRATES)

Sl. No.	Category	Approximate Number				
		Mammalia	Aves	Reptilia	Amphibia	Total
1	2	3	4	5	6	7
1	Rare	--	2	--	--	2
2	Vulnerable	28	22	4	--	54
3	Endangered	29	21	16	1	67
4	Critical*	3	8	--	--	11
5	Extinct**	1	2	--	--	3
6	Insufficiently Known	16	--	--	--	16
Total		77	55	20	1	153

Source : Zoological Survey of India.

* **Mammal** - Brow - Antlered Deer, Yak, Hispid Hare
Aves - Christmas Island Frigate Bird, Mrs. Hume's Bartailed Pheasant, Burmese Peafowl, Blacknecked Crane, Hooded Crane, Masked Finfoot, Jerdon's Courser, Forest Spotted Owlet.

** **Mammal** - Cheetah.
Aves - Pinkheaded Duck, Mountain Quail

A taxon is **Extinct**, when there is no reasonable doubt that the last Individual has died.

A taxon is **Critical** when it is facing an extremely high probability of extinction in the wild in the immediate future.

A taxon is **Endangered** when it is not critical but is facing a very high probability of extinction in the wild in the near future.

A taxon is **Vulnerable** when it is not critical or endangered but is facing a high probability of extinction in the wild in the medium-term future.

A taxon is **Rare** when its populations are small and at present not endangered or vulnerable but are at risk .

A taxon is **Insufficiently Known** when an evaluation has been made but the available data are inadequate to assign a category.

3.3.3 (b): RECENT ADDITION IN THE LIST OF THREATENED/ ENDANGERED SPECIES

As per the Gazette Notification number 1-4/95 WL dated 5th November, 2001, published in Part II Section 3, subsection (II), Extraordinary Gazette of India, the Central Government (Ministry of Environment and Forests) has made amendments in Schedule I and Schedule IV of the Subsection (1) of section 61 of the Wild Life (Protection) Act, 1972 and included the following species in the Schedules of Threatened and endangered species

1 Schedule 1

- a) in Para II related to " Fishes" for serial number 2 and the entry relating thereto the following serial number and entries shall be substituted, namely
- "2. Shark and Ray
- (i) Anoxypristis cuspidate
 - (ii) Carcharhinus hemiodon
 - (iii) Glyphius gangeticus
 - (iv) Glyphius glyphius
 - (v) Himantura fluviatilis
 - (vi) Pristis microdon
 - (vii) Pristis zijsron
 - (viii) Rhynchobatus djiddensis
 - (ix) Urogymnus asperrimus
- (b) for Part IVB, relating to Mollusca and the entries relating there to, the following Part IVB and the entries shall be substituted, namely:-

"Part IV B-Mollusca

- 1 Cassis cornuta (Linnalus)
- 2 Charonia tritonis (Linnalus)
- 3 Conus milne -edwardi Jousseau
- 4 Cypraecsis rufa (Linnacus)
- 5 Hippopus hippopus
- 6 Nautilus Pompilius (Linnaeus)
- 7 Tridacna maxima (Roeding)
- 8 Tridacna squamosa Lamarela
- 9 Tudicla Spirillus (Linnaeus)

2 In Schedule IV to the said Act, after serial number 18 and the entries relating there to, the following serial numbers and entries shall be added, namely:-

"19. Mollusca

- i. Cypraea limacina' Lamarck
- ii. Cypraea mappa Linnaeus
- iii. Cypraea talpa Linnaeus
- iv. Fasciolaria trapezium = Pleuroploca trapezium (Linnaeus)
- v. Harpulina arausica
- vi. Lambis chiragra Chiragra (Linnaeus)
- vii. Lambis chiragra arthitica
- viii. Lambis Crocaltia Croeata (Link)
- ix. Lambis millepeda (Linnaeus)
- x. Lambis scorpio (Linnaeus)
- xi. Lambis truncata (Humphrey)
- xii. Plaeuna placenta Linnaeus
- xiii. Strombus plicatus siboldi Sowerby
- xiv. Trochus niloticus Linnaeus
- xv. Turbo marmoratus Linnaeus

Source : Zoological Survey of India.

Table 3.3.3 (c) : Globally Threatened Animals Occurring in India by Status Category

Groups	Threatened	Extinct	Cr	En	Vu	LRnt	NT	LRcd	DD	Total
Mamals	213	2	12	47	63	39	13	6	31	213
Birds	149	-	10	13	64	3	56	-	3	149
Reptiles	33	-	4	12	10	4		-	3	33
Amphibia	148	1	14	30	22	-	9	-	72	148
Pisces	75	-	2	5	20	14	13	-	21	75
Crustacea	12	-	-	-	9	-	-	-	3	12
Mollusca	5	-	-	2	-	-	-	3	-	5
Hymenoptera	5	-	-	-	5	-	-	-	-	5
Lepidoptera	4	-	-	-	-	3		-	1	4
Odonata	3	-	1	-	2	-	-	-	-	3
Anoplura	1	-	1	-	-	-	-	-	-	1
Total	648	3	44	109	195	63	91	9	134	648

Source : Ramakrishna & Alfred ,2006, Faunal Resources in India.

Cr - Critically Endangered

En - Endangered

Vn - Vulnerable

LRnt - Low risk -near threatened

NT - Near Threatened

LRcd - Low risk/conservation dependent

DD - Data deficient

TABLE 3.3.4 : ESTIMATED NUMBER/PERCENTAGE OF ENDEMIC SPECIES IN INDIA

Sl. No.	Taxon	Number of Species		Percentage
		Total	Endemic	
1	2	3	4	5
1	Protozoa			
I	Free living	1247	90	7.21
II	Parasitic	1330	550	41.33
2	Mesozoa	10	10	100.00
3	Porifera			
I	Freshwater	31	13	41.93
4	Cnidaria	842	10 *	--
5	Platyhelminthes	1622	1160	71.88
6	Rotifera	330	23	7.00
7	Gastroticha	100	64	64.00
8	Kinorhyncha	10	7	70.00
9	Nematoda	2850	400 *	--
10	Acanthocephala	229	203	88.64
11	Mollusca			
I	Terrestrial	1487	498	33.50
II	Freshwater	183	77	41.80
12	Echiura	43	12	28.00
13	Annelida			
I	Oligochaeta	473	368	77.80
II	Hirudinea	59	25	42.37
14	Arthropoda			
I	Crustacea	2934	501	17.07
II	Insecta	59353	20717	34.90
III	Arachnida	5818	2623	45.08
15	Phoronida	11	1	9.00
16	Bryozoa	4000	12 *	--
17	Entoprocta	10	1	10.00
18	Chaetognatha	111	3	2.70
19	Chordata			
I	Pisces	2546	223	8.75
II	Amphibia	209	128	61.24
III	Reptilia	456	214	47.00
IV	Aves	1166 **	50 **	4.29 **
V	Mammalia	390	42 **	11.28

Source : Faunal Diversity in India (1998) with updated (**) figures, Zoological Survey of India.

* : Complete data not available, hence percentage not calculated

** : Rec. Zool. Survey of India, occasional paper no. 200 (2002)
Rec. Zool. Survey of India, occasional paper no. 201 (2002)

TABLE 3.3.5 : NATIONAL PARKS AND WILDLIFE SANCTUARIES OF INDIA*(Area in Sq. Km.)**As on December 2006*

Sl. No.	State	National Parks		Wildlife Sanctuaries		Total Area
		Number	Area	Number	Area	
1	2	3	4	5	6	7
1	Andhra Pradesh	4	373.24	22	12599.19	12972.43
2	Arunachal Pradesh	2	2290.82	11	7606.37	9897.19
3	Assam	5	1977.79	18	1932.00	3909.79
4	Bihar	1	335.65	11	2949.17	3284.82
5	Chhatisgarh	3	2929.50	10	3409.13	6338.63
6	Delhi	0	0.00	1	27.20	27.20
7	Goa	1	107.00	6	647.96	754.96
8	Gujarat	4	480.11	21	16422.72	16902.83
9	Haryana	2	48.25	10	255.67	303.92
10	Himachal Pradesh	2	1430.00	32	6132.55	7562.55
11	Jammu & Kashmir	4	3930.25	15	10312.25	14242.50
12	Jharkhand	1	231.67	10	1862.72	2094.39
13	Karnataka	5	2472.18	21	3888.14	6360.32
14	Kerala	6	558.16	13	1859.07	2417.23
15	Madhya Pradesh	9	3656.36	25	7158.40	10814.76
16	Maharashtra	6	1273.60	35	14152.69	15426.29
17	Manipur	1	40.00	1	184.40	224.40
18	Meghalaya	2	267.48	3	34.20	301.68
19	Mizoram	2	150.00	7	840.75	990.75
20	Nagaland	1	202.02	3	20.34	222.36
21	Orissa	2	990.70	18	6969.15	7959.85
22	Punjab	0	0.00	10	316.73	316.73
23	Rajasthan	5	4122.33	23	5447.03	9569.36
24	Sikkim	1	1784.00	6	393.10	2177.10
25	Tamil Nadu	5	307.84	19	2539.82	2847.66
26	Tripura	0	0.00	4	603.64	603.64
27	Uttaranchal	6	4725.00	6	2413.76	7138.76
28	Uttar Pradesh	1	490.00	23	5222.47	5712.47
29	West Bengal	5	1693.25	15	1203.28	2896.53
30	Andaman & Nicobar Islands	9	1156.91	96	389.39	1546.30
31	Chandigarh	0	0.00	2	26.13	26.13
32	Dadra & Nagar Haveli	0	0.00	1	92.16	92.16
33	Daman & Diu	0	0.00	1	2.18	2.18
34	Lakshadweep	0	0.00	1	0.01	0.01
35	Pondicherry	0	0.00	0	0.00	0.00
Total		95	38024.11	500	117913.77	155980.15

Source: Wildlife Division of MOE&F

Current Protected Area Status (as on March 2009)			
National Parks	99	Area Covered	39,155 km ²
Wildlife Sanctuaries	523	Area Covered	1,18,417 km ²
Conservation Reserves	43	Area Covered	1,155.06 km ²
Community Reserves	3	Area Covered	17.76 km ²
Protected Areas	668	Area Covered	1,58,745 km ²
National Parks % of G.A.	1.19%		
Wildlife Sanctuaries % of G.A.	3.60%		
Conservation Reserves % of G.A.	0.04%		
Protected Areas % of G.A.	4.83%		

Source: Wildlife Institute of India, 2009

TABLE 3.3.6 (a) : ALL INDIA TIGER POPULATION IN TIGER RESERVES

Sl. No.	Name of Reserve	Years							
		1972	1979	1984	1989	1993	1995	1997	2001-02 *
1	2	3	4	5	6	7	8	9	10
1	Bandipur (Karnataka)	10	39	53	50	66	74	75	82
2	Corbett(Uttaranchal)	44	84	90	91	123	128	138	137
3	Kanha(Madhya Pradesh)	43	71	109	97	100	97	114	127
4	Manas(Assam)	31	69	123	92	81	94	125	65*
5	Melghat (Maharashtra)	27	63	80	77	72	71	73	73
6	Palamu (Jharkhand)	22	37	62	55	44	47	44	32
7	Ranthombore (Rajasthan)	14	25	38	44	36	38	32	35
8	Similipal(Orissa)	17	65	71	93	95	97	98	99
9	Sunderbans (West Bengal)	60	205	264	269	251	242	263	245
10	Periyar (Kerala)	-	34	44	45	30	39	40	36
11	Sariska (Rajasthan)	-	19	26	19	24	25	24	22
12	Buxa (West Bengal)	-	-	15	33	29	31	32	31
13	Indravati (Madhya Pradesh)	-	-	38	28	18	15	15	29
14	Nagarkimasagar (Andhra Pradesh)	-	-	65	94	44	34	39	67
15	Namdhapa (Arunachal Pradesh)	-	-	43	47	47	52	57	61
16	Dudhwa (Uttar Pradesh)	-	-	-	90	94	98	104	76*
17	Kalalad (Tamil Nadu)	-	-	-	22	17	16	28	27
18	Valmiki (Bihar)	-	-	-	81	49	N.R	53	53
19	Pench (Madhya Pradesh)	-	-	-	-	39	27	29	40
20	Tadoba (Maharashtra)	-	-	-	-	34	36	42	38
21	Bandhavgarh (Madhya Pradesh)	-	-	-	-	41	46	46	56
22	Panna (Madhya Pradesh)	-	-	-	-	25	22	22	31
23	Dampha(Mizoram)	-	-	-	-	7	4	5	4
24	Pench (Maharashtra)	-	-	-	-	-	10 (1994)	-	14
25	Bhadra (Karnataka)	-	-	-	-	-	-	-	35
26	Pakhui- Nameri (Arunachal Pradesh)	-	-	-	-	-	-	-	26 Nameri
27	Bori-Satpura (Madhya Pradesh)	-	-	-	-	30	-	-	35
Total		268	711	1121	1327	1366	1333	1498	1576

Source: Project Tiger, Ministry of Environment & Forests

* : under compilation/vetting

TABLE 3.3.6 (b) : POPULATION OF TIGERS IN STATES

Sl. No.	State	1972	1979	1984	1989	1993	1997	2001-02**
1	2	3	4	5	6	7	8	9
1	Tamilnadu	33	65		95	97	62	60
2	Maharashtra	160	174	301	417	276	257	238
3	West Bengal	73	296	352	353	335	361	349
4	Karnataka	102	156	202	257	305	350	401
5	Bihar	85	110	138	157	137	103	76
6	Assam	147	300	376	376	325	458	354
7	Rajasthan	74	79	96	99	64	58	58
8	Madhya Pradesh	457	529	786	985	912	927	710
9	Uttar Pradesh	262	487	698	735	465	475	284
10	Andhra Pradesh	35	148	164	235	197	171	192
11	Mizoram	-	65	33	18	28	12	28
12	Gujarat	8	7	9	9	5	1	-
13	Goa Daman & Diu	-	-	-	2	3	6	5
14	Orissa	142	173	202	243	226	194	173
15	Kerala	60	134	89	45	57	73	71
16	Chattisgarh	-	-	-	-	-	-	227
17	Jhaarkhand	-	-	-	-	-	-	34
18	Uttaranchal	-	-	-	-	-	-	251
	Total	1638	2723	3446	4026	3432	3508	3511
19	Meghalya	32	35	125	34	53	*	47
20	Manipur	1	10	6	31	-	*	NR
21	Tripura	7	6	5	-	-	*	NR
22	Nagaland	80	102	104	104	83	*	23
23	Arunachal Pradesh	69	139	219	135	180	*	61***
24	Sikkim	-	-	2	4	2	*	NR
25	Haryana	-	-	1	-	-	-	-
	Total	189	292	462	308	318	-	131
1	Grand Total	1827	3015	3908	4334	3750	3508	3642

Source: Project Tiger, Ministry of Environment & Forests-2005

NR : Not Reported by States

* : Tiger Census was not carried out in North East States in 1997.

** : Under vetting

*** : only for Namdapha Tiger Reserve

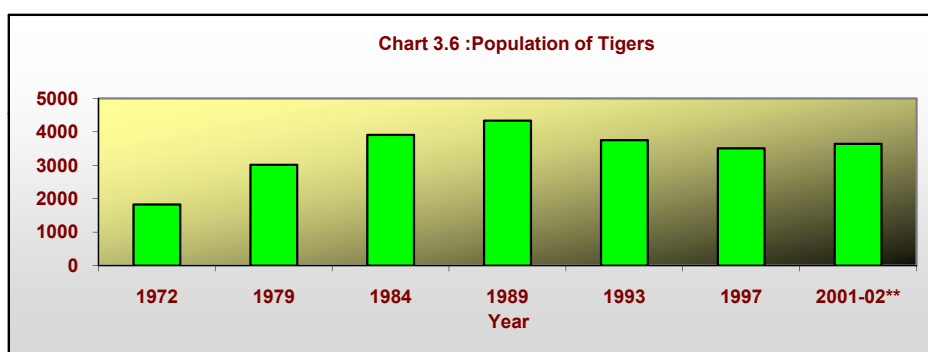


TABLE 3.3.7 (a) : AREA OF TIGER RESERVES IN TIGER RANGE STATES

Sl. No.	Year of Creation	Name of Tiger Reserve	State	Total Area in sq. Kms.
1	2	3	4	5
1	1973-74	Bandipur	Karnataka	866
2	1973-74	Corbett	Uttar Pradesh	1316
3	1973-74	Kanha	Madhya pradesh	1945
4	1973-74	Manas	Assam	2840
5	1973-74	Melghat	Maharashtra	1677
6	1973-74	Palamau	Bihar	1026
7	1973-74	Ranthambore	Rajasthan	1334
8	1973-74	Similipal	Orissa	2750
9	1973-74	Sunderbans	West Bengal	2585
10	1978-79	Periyar	Kerala	777
11	1978-79	Sariska	Rajasthan	866
12	1982-83	Buxa	West Bengal	759
13	1982-83	Indravati	Madhya Pradesh	2799
14	1982-83	Nagarjunsagar	Andhra Pradesh	3568
15	1982-83	Namdapha	Arunachal Pradesh	1985
16	1987-88	Dudhwa	Uttar Pradesh	811
	1999-2000	Katerniaghat (extension)		551
17	1988-89	Kalakad- Mundanthurai	Tamil Nadu	800
18	1989-90	Valmiki	Bihar	840
19	1992-93	Pench	Madhya Pradesh	758
20	1993-94	Tadoba-Andheri	Maharashtra	620
21	1993-94	Bandhavgarh	Madhya Pradesh	1162
22	1994-95	Panna	Madhya Pradesh	542
23	1994-95	Dampha	Mizoram	500
24	1998-99	Bhadra	Karnataka	492
25	1998-99	Pench	Maharashtra	257
26	1999-2000	Pakui	Arunachal Pradesh	862
27	1999-2000	Nameri	Assam	344
28	1999-2000	Bori, Satpura, Panchmari	Madhya pradesh	1486
Total				37118

Source : National Tiger Conesevation Authority, Ministry of Environment and Forests

TABLE 3.3.7(b) : FOREST OCCUPANCY AND POPULATION ESTIMATES OF TIGER AS PER THE REFINED METHODOLOGY

State	Area Km ²	Tigger Numbers		
		No.	Lower limit	Upper limit
Shivalik-Gangetic Plain Landscape Complex				
Uttarakhand	1901	178	161	195
Uttar Pradesh	2766	109	91	127
Bihar	510	10	7	13
Shivalik Gangetic	5177	297	259	335
Central Indian Landscape Complex and Eastern Ghats Landscape Complex				
Andhra Pradesh	14126	95	84	107
Chattisgarh	3609	26	23	28
Madhya Pradesh	15614	300	236	364
Maharashtra	4273	103	76	131
Orissa	9144	45	37	53
Rajasthan	356	32	30	35
Jharkhand**	1488		Not assessed	
Central Indian	48610	601	486	718
Western Ghats Landscape Complex				
Karnataka	18715	290	241	339
Kerala	6168	46	39	53
Tamil Nadu	9211	76	56	95
Western Ghats	34094	402	336	487
North East Hills, and Brahmaputra Flood Plains				
Assam*	1164	70	60	80
Arunachal Pradesh*	1685	14	12	18
Mizoram*	785	6	4	8
Northern West Bengal*	596	10	8	12
North East Hills, and Brahmaputra	4230	100	84	118
Sunderbans	1586		Not assessed	
Total Tiger Population		1411	1165	1657

Source: Ministry of Environment & Forests , Annual Report 2007-08

* Population estimates are based on possible density of tiger occupied landscape in the area, not assessed by double sampling.

** Data was not amenable to population estimation of tiger. However, available information about the landscape indicates low densities of tiger in the area ranging from 0.5 to 1.5 per 100 km².

TABLE 3.3.8: DESIGNATED ELEPHANT RESERVES IN INDIA (Revised Network-2005)

Sl. No.	Elephant Range	Elephant Reserve	State	Date of Notification	Total Area (Sq. Km)	P.A. in ER (Sq.Km)	Elephant Population in 2005
1	2	3	4	5	6	7	8
1	Eastern India (South West Bengal- Jharkhand-Orissa)	Mayurjharna	W. Bengal	24.10.2002	414	-	96
		Singhbhum	Jharkhand	26.09.2001	4530	193	371
		Mayurbhanj	Orissa	29.09.2001	3214	1309	465
		Mahanadi*	Orissa	19.06.2002	1038	964	464
		Sambalpur*	Orissa	27.03.2002	427	427	284
		Baitarni ER#	Orissa		1755	-	108
		South Orrissa ER#	Orissa		4216	750	138
		Lemru #	Chattisgarh		450	-	-
		Badalkhol-Tamorpingla #	Chattisgarh		1048.3	1154.93	-
Total					15594	3643	1978
2	North Brahmaputra Arunachal - Assam)	Kameng	Ar. Pradesh	19.06.2002	1892	748	
		Sonitpur	Assam	7.03.2003	1420	420	612
Total					3312	1168	612+
3	South Brahmaputra (Assam- Arunachal)	Dihing-Patkai	Assam	17.04.2003	937	345	295
		Deormali*	Ar. Pradesh		1957.5	378.13	129
Total					1837+	345	424
4	Kaziranga (Assam- Nagaland)	Kaziranga-Karbi Anglong	Assam	17.04.2003	3270	1073	1940
		Dhansiri-Lungding	Assam	19.04.2003	2740	-	275
		Intanki #	Nagaland	28.02.2005	202	202	30
Total					6212	1275	2245
5	Eastern Dooars (Assam- W. Bengal)	Chirang-Ripu	Assam	6.03.2003	2600	526+	658
		E. Dooars	W. Bengal	28.08.2002	978	484	300-350
Total					3578	1010	1008
6	Garo Hills (Meghalaya)	Garo Hills	Meghalaya	31.10.2001	3500	402	1047
		Khasi Hills ER^	Meghalaya			-	383
Total							1430
7	Nilgiri -Eastern Ghat (Karnataka- Kerala- Tamilnadu-Andhra)	Mysore	Karnataka	25.11.2002	6724	3103	4452
		Wayanad	Kerala	2.04.2002	1200	394	636
		Nilgiri	Tamilnadu	15.10.2003	4663	716	2862
		Rayala #	A. Pradesh		766	525	12
Total					13353	4738	7962
8	South Nilgiri (Kerala- Tamilnadu)	Nilambur	Kerala	2.04.2002	1419	90	281
		Coimbatore	Tamilnadu	15.10.2003	566	482	329
Total					1985	572	610
9	Western Ghat (Tamilnadu- Kerala)	Anamalai	Tamilnadu	15.10.2003	1457	300	179
		Anamudi	Kerala	2.04.2002	3728	780	10726
Total					5185	1080	1430
10	Periyar (Kerala- Tamilnadu)	Periyar	Kerala	2.04.2002	3742	1058	1100
		Srivilliputhur	Tamilnadu	15.10.2003	1249	568	638
Total					4991	1626	1738
11	Northern India (Uttaranchal)	Shivalik	Uttaranchal	28.10.2002	5405	1340	1510
		Ganga-Jamuna ER#	U.P.		744	-	NA
TOTAL					6149	1340	1510
TOTAL					58900+	16400+	21200+

Source : Project Elephant, Ministry of Environment and Forests

Approved by Govt. of India, but not yet notified by the State Government.

* Proposal for extension approved by GOI, but not yet notified by the state.

^ Under consideration

ER : Elephant Reserve

TABLE 3.3.9: LOCATION OF MAJOR ZOOS (cont...)

Sl. No	Name of Zoo	Location	State
1	2	3	4
1	Mini Zoo, Haddo	Port Blair	Andaman & Nicobar Islands
2	Indira Gandhi Zoological Park	visakhapatnam	Andhra Pradesh
3	Nehru Zoological Park	Hyderabad	Andhra Pradesh
4	Sri Venkateswara Zoological Park	Tirupati	Andhra Pradesh
5	Biological Park	Itanagar	Arunachal Pradesh
6	Assam State Zoo Cum Botanical Garden	Guwahati	Assam
7	Sanjay Gandhi Biological Park	Patna	Bihar
8	Maitri Baagh Zoo	Bhilai	Chattisgarh
9	National Zoological Park	Delhi	Delhi
10	Bondla Zoo	Usgao	Goa
11	Kamla Nehru Zoological Garden	Ahemdabad	Gujarat
12	Sakkarbaug Zoo	Junagarh	Gujarat
13	Indroda Nature Park	Gandhi Nagar	Gujarat
14	Sayaji Baug Zoo	Vadodara	Gujarat
15	Sundervan Nature Discovery Centre	Jodhpur tekra	Gujarat
16	Rohtak Zoo	Rohtak	Haryana
17	Himalayan Nature Park (Kufri)	Kufri	Himachal Pradesh
18	Bhagwan Birsa Biological Park	Ranchi	Jharkhand
19	Jawaharlal Nehru Biological Park	Bokaro	Jharkhand
20	Tata Steel Zoological Park	Jamshedpur	Jharkhand
21	National Park, Bannerghatta Zoological Garden	Bannerghatta	Karnataka
22	Sri Chamarajendra Zoological Gardens	Mysore	Karnataka
23	Tiger & Lion Safari, Thyarekoppa	Shimoga	Karnataka
24	Thiruvananthapuram Zoo	Thiruvananthapuram	Kerala
25	State Museum & Zoo	Thrissur	Kerala
26	Gandhi Zoological Park	Gwalior	Madhya Pradesh
27	Van Vihar National Park	Bhopal	Madhya Pradesh
28	Kamla Nehru Prani Sanghralay Zoo	Indore	Madhya Pradesh
29	Rajiv Gandhi Zoological Park And Wildlife Research Centre	Pune	Maharashtra
30	Veermata Jijabai Bhosale Udyan & Zoo	Mumbai	Maharashtra
31	Aurangabad Municipal Zoo	Aurangabad	Maharashtra
32	Mahatma Gandhi Rashtriya Udyan Zoo	Solapur	Maharashtra
33	Nisargakavi Bahlnabai Choudhary Pranisansangahralay	Pune	Maharashtra
34	Manipur Zoological Garden	Imphal	Manipur
35	Lady Hydari Park Animal	Shillong	Meghalaya
36	Nandankanan Biological Park	Bhubaneswar	Orissa
37	Indira Gandhi Park Zoo & Deer Park	Rourkela	Orissa
38	Mahendra Chaudhury Zoological Park	Chhatbir	Punjab
39	Jaipur Zoo	Jaipur	Rajasthan
40	Bikaner Zoo	Bikaner	Rajasthan
41	Jodhpur Zoo	Jodhpur	Rajasthan

TABLE 3.3.9: LOCATION OF MAJOR ZOOS- Concl.d.

Sl. No	Name of Zoo	Location	State
1	2	3	4
42	Udaipur Zoo	Udaipur	Rajasthan
43	Arigna Anna Zoological Park	Vandalur	Tamil Nadu
44	Madras Crocodile Bank Trust/Centre For Herpetology	Mahabalipuram	Tamil Nadu
45	Chennai Snake Park Trust	Guindy	Tamil Nadu
46	Children's Corner	Guindy	Tamil Nadu
47	V.O.C. Park Mini Zoo	Coimbatore	Tamil Nadu
48	Sepahijala Zoological Park	Sepahijala	Tripura
49	Kanpur Zoological Park	Kanpur	Uttar Pradesh
50	Lucknow Prani Udyan	Lucknow	Uttar Pradesh
51	Pt Govind Ballabh Pant High Altitude Zoo	Nainital	Uttaranchal
52	Alipore Zoological Garden	Calcutta	West Bengal
53	Calcutta Snake Park	Badu	West Bengal
54	Marble Palace Zoo	Calcutta	West Bengal
55	Padmaja Naidu Himalayan Zoological Park	Darjeeling	West Bengal

Source : Central Zoo Authority, Ministry of Environment & Forests

TABLE 3.3.10 : INDIA'S LIVESTOCK POPULATION*(Thousand)*

Sl. No.	Livestock	Number of Animals					
		1977	1982	1987	1992	1997	2003
1	2	3	4	5	6	7	7
1	Cattle	180140	192453	199695	204584	198882	185181
2	Buffaloes	62019	69783	75967	84206	89918	97922
3	Sheep	40907	48765	45703	50783	57494	61469
4	Goats	75620	95255	110207	115279	122721	124358
5	Horses & Ponnies	916	900	797	817	826	751
6	Pigs	7647	10071	10626	12788	13291	13519
7	Mules	89	131	167	193	220	176
8	Donkeys	978	1024	958	967	881	650
9	Camels	1068	1078	1001	1031	911	632
II Other Livestock							
1	Yaks	132	128	36	58	59	65
2	Mithuns	129	154	129	154	177	278
Total		369645	419742	445286	470860	485379	485002

Source : Live Stock Census, Ministry of Agriculture

The livestock population in the country increased from 292 million in 1951 to the current estimate of 485 million. Grazing by Livestock puts pressure on grasslands and forests. Because of excessive grazing, natural regeneration is either absent or inadequate in 52.8% of the forests in the country.

An analysis of forests vis-a-vis livestock indicates continued free access to the forest area which has resulted in high rates of growth of livestock population causing land degradation and arresting the development of markets for forage crops. Overgrazing impedes regeneration, retards growth of vegetation, and leads to extinction of good palatable grasses which are replaced by less palatable and inferior grasses. Extensive areas have been invaded by bushes which are not browsed, excessive trampling makes the soil compact and impervious and prevents circulation of air, water, thus exposing the soil to erosion by wind and water.

CHART 3.7 : INDIA'S LIVESTOCK POPULATION

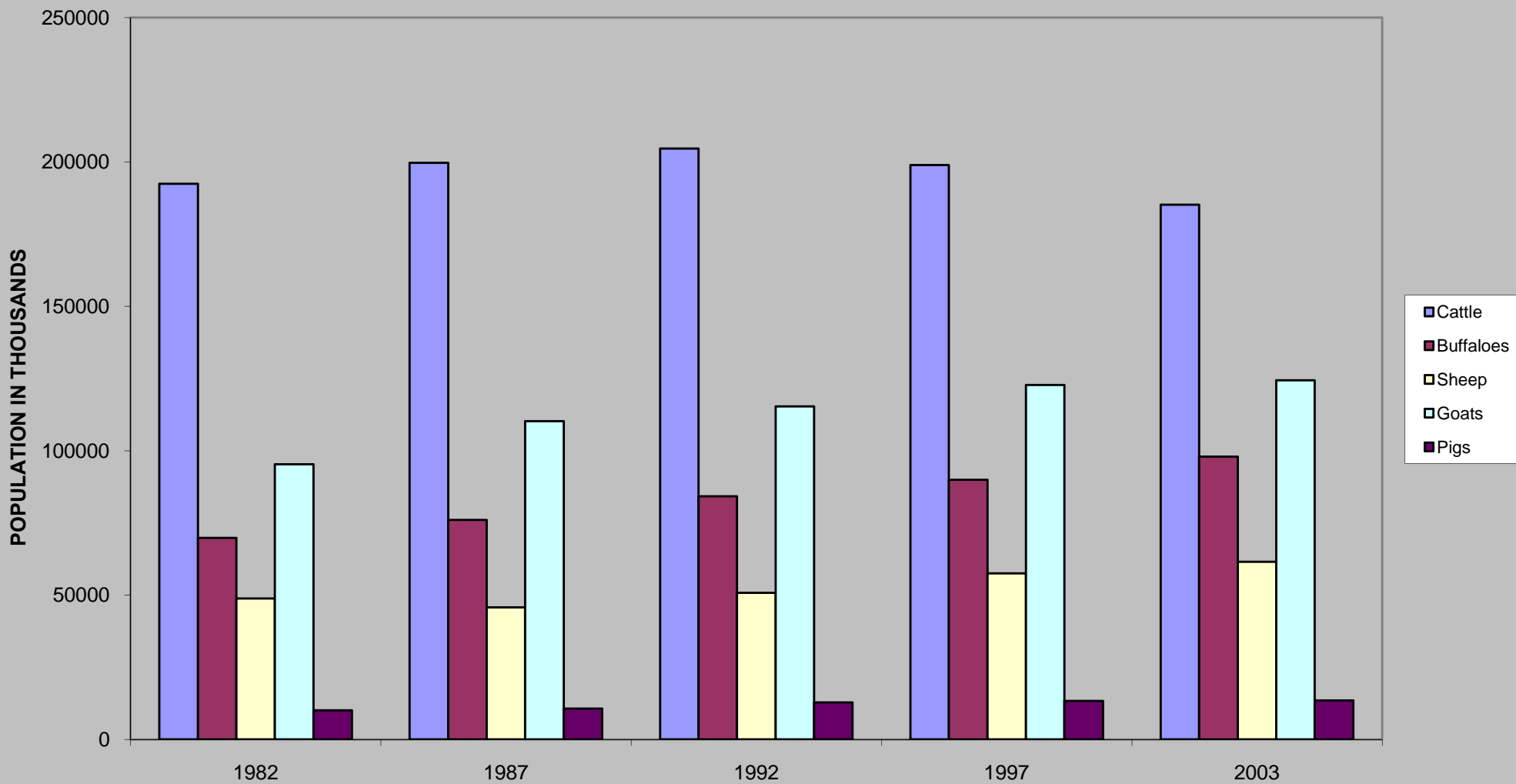


TABLE 3.3.11: LIVESTOCK POPULATION AS PER 2003 CENSUS

Sr. No.	States/UTs	Cattle			Buffalos	Sheep	Goats	Pigs	Horses and ponies	Mules	Donkeys	Camel	Yaks	Mithun	Total Live-stock
		Cross bred	Indigenous	Total											
1	Andhra Pradesh	1107	8193	9300	10630	21376	6277	570	9	-	33	-	0	0	38895
2	Arunachal Pradesh	13	445	458	11	19	231	330	7	0	0	0	9	192	799
3	Assam	440	7999	8440	678	170	2987	1543	12	0	0	0	0	0	5390
4	Bihar*	1274	9455	10729	5743	382	9490	672	117	4	23	1	0	0	16432
5	Chhatisgarh	253	8629	8882	1598	121	2336	552	4	-	-	-	0	0	4610
6	Goa	12	63	76	37	-	11	87	-	0	-	0	0	0	136
7	Gujarat	639	6785	7424	7140	2062	4541	351	18	1	65	53	0	0	14231
8	Haryana	573	967	1540	6035	633	460	120	25	14	8	50	0	0	7345
9	Himachal Pradesh	677	1559	2236	774	926	1125	3	18	24	9	-	2	0	2881
10	Jammu & Kashmir	1320	1764	3084	1039	3411	2055	2	172	40	24	2	47	24	6816
11	Jharkhand	145	7513	7659	1343	680	5031	1108	5	-	-	-	0	0	8167
12	Karnataka	1602	7936	9539	3991	7256	4484	312	14	-	25	-	0	0	16082
13	Kerala	1735	387	2122	65	4	1213	76	-	-	-	0	0	0	1358
14	Madhya Pradesh	317	18595	18913	7575	546	8142	358	32	4	39	8	0	0	16704
15	Maharashtra	2776	13527	16303	6145	3094	10684	439	40	1	57	-	0	0	20460
16	Manipur	69	349	418	77	6	33	415	2	0	0	0	0	20	553
17	Meghalaya	23	744	767	18	18	327	419	2	0	0	0	0	0	785
18	Mizoram	9	27	36	6	1	17	218	2	-	0	0	0	2	245
19	Nagaland	243	208	451	34	4	175	644	1	-	0	0	0	40	898
20	Orissa	1063	12840	13903	1394	1620	5803	662	-	-	9	-	0	0	9489
21	Punjab	1531	508	2039	5995	220	278	29	29	9	5	3	0	0	6568
22	Rajasthan	464	10390	10854	10414	10054	16809	338	25	3	143	498	-	0	38284
23	Sikkim	80	79	159	2	6	124	38	2	0	0	0	7	0	178
24	Tamilnadu	5140	4001	9141	1658	5593	8177	321	25	0	26	-	0	0	15800
25	Tripura	57	702	759	14	3	472	209	0	0	0	0	0	0	698
26	Uttar Pradesh	1634	16917	18551	22914	1437	12941	2284	154	52	182	16	0	0	39980
27	Uttaranchal	228	1961	2188	1228	296	1158	33	17	22	1	0	0	0	2755
28	West Bengal	1119	17794	18913	1086	1525	18774	1301	18	-	-	0	0	0	22704
29	A& Nicobar	13	51	64	16	0	64	52	0	0	-	0	0	0	132
30	Chandigarh	5	1	6	23	-	1	-	-	-	-	-	0	0	24
31	D & Nagar Haveli	1	49	50	4	-	21	3	-	0	0	-	0	0	28
32	Daman & Diu	0	4	4	1	-	4	-	-	0	0	-	0	0	5
33	Delhi	58	34	92	231	3	17	28	1	1	1	-	0	0	282
34	Lakshadweep	2	2	4	0	0	47	0	0	0	0	0	0	0	47
35	Pondicherry	63	16	78	4	3	48	1	-	0	-	0	0	0	56
	All India	24686	160495	185181	97922	61469	124358	13519	751	176	650	632	65	278	485002

Note: *- Data from 2 districts are yet to be received from State Government.

-' denotes less than 500.

Source: Department of Animal Husbandary and dairying

TABLE 3.3.12 : FISH PRODUCTION*(Lakh tonne)*

SI No.	Year	Marine	Inland	Total
1	2	3	4	5
1	1950-51	5.34	2.18	7.52
2	1960-61	8.80	2.80	11.60
3	1970-71	10.86	6.70	17.56
4	1980-81	15.55	8.87	24.42
5	1981-82	14.45	9.99	24.44
6	1982-83	14.27	9.40	23.67
7	1983-84	15.19	9.87	25.06
8	1984-85	16.98	11.03	28.01
9	1985-86	17.16	11.60	28.76
10	1986-87	17.13	12.29	29.42
11	1987-88	16.58	13.01	29.59
12	1988-89	18.17	13.35	31.52
13	1989-90	22.75	14.02	36.77
14	1990-91	23.00	15.36	38.36
15	1991-92	24.47	17.10	41.57
16	1992-93	25.76	17.89	43.65
17	1993-94	26.49	19.95	46.44
18	1994-95	26.92	20.97	47.89
19	1995-96	27.07	22.42	49.49
20	1996-97	29.67	23.81	53.48
21	1997-98	29.50	24.38	53.88
22	1998-99	26.96	26.02	52.98
23	1999-00	28.52	28.23	56.75
24	2000-01	28.11	28.45	56.56
25	2001-02	28.30	31.26	59.56
26	2002-03	29.90	32.10	62.00
27	2003-04	29.41	34.58	63.99
28	2004-05*	27.79	35.25	63.05
29	2005-06	28.16	37.56	65.72
30	2006-07(P)	30.24	38.45	68.69

Source : Department of Animal Husbandry and Dairying, Ministry of Agriculture

*: Revised

P : Provisional

TABLE 3.3.13 : MARINE FISHERY RESOURCES OF INDIA

SI No.	State/Union Territory	Continental Shelf ('000 Sq Kms.)	Number of Landing Centres	Number of Landing Centres	Number of Fishing Villages
1	Andhra Pradesh	33	508	271	498
2	Goa	10	88	34	39
3	Gujarat	184	286	123	263
4	Karnataka	27	29	88	156
5	Kerala	40	226	178	222
6	Maharashtra	112	184	152	406
7	Orissa	26	63	57	641
8	Tamil Nadu	41	362	352	581
9	West Bengal	17	65	44	346
10	Andaman & Nicobar Islands	35	57	25	100
11	Daman & Diu	-	7	7	22
12	Lakshadweep	4	11	19	20
13	Puducherry	1	28	26	28
TOTAL		530	1914	1376	3322

Source: Department of Animal Husbandry and Dairying, Ministry of Agriculture
Marine Fisheries Census,2005

TABLE 3.3.14 : STATE-WISE FISH PRODUCTION

FAUNA

Sl. No.	States/UT's	(Tonnes)								
		2004-2005			2005-2006			2006-2007		
		Marine	Inland	Total	Marine	Inland	Total	Marine	Inland	Total
1	2	9	10	11	12	13	14	15	16	17
1	Andhra Pradesh	210733	642321	853054	21884	67225	89109	240.20	616.73	856.93
2	Arunachal Pradesh	0	2704	2704	0	275	275	0.00	2.77	2.77
3	Assam	0	186314	186314	0	18801	18801	0.00	181.48	181.48
4	Bihar	0	267510	267510	0	27953	27953	0.00	267.04	267.04
5	Goa	94813	4231	99044	10091	404	10495	98.96	3.43	102.39
6	Gujarat	584779	50426	635205	66388	6993	73381	670.51	76.82	747.33
7	Haryana	0	42050	42050	0	4820	4820	0.00	60.08	60.08
8	Himachal Pradesh	0	6901	6901	0	730	730	0.00	6.89	6.89
9	Jammu & Kashmir	0	19100	19100	0	1915	1915	0.00	19.20	19.20
10	Karnataka	171227	80000	251227	17697	12060	29757	168.54	123.92	292.46
11	Kerala	601863	76451	678314	55891	7798	63689	598.06	79.57	677.63
12	Madhya Pradesh	0	62060	62060	0	6108	6108	0.00	65.04	65.04
13	Maharashtra	417769	130250	548019	44534	13520	58054	464.09	131.85	595.94
14	Manipur	0	17800	17800	0	1822	1822	0.00	18.61	18.61
15	Meghalaya	0	5638	5638	0	412	412	0.00	5.49	5.49
16	Mizoram	0	3680	3680	0	375	375	0.00	3.76	3.76
17	Nagaland	0	4900	4900	0	550	550	0.00	5.80	5.80
18	Orissa	121928	193657	315585	12221	20324	32545	128.14	213.90	342.04
19	Punjab	0	77700	77700	0	8564	8564	0.00	86.70	86.70
20	Rajasthan	0	16391	16391	0	1850	1850	0.00	22.20	22.20
21	Sikkim	0	140	140	0	15	15	0.00	0.15	0.15
22	Tamil Nadu	307693	151734	459427	30799	15504	46303	387.25	155.03	542.28
23	Tripura	0	19838	19838	0	2387	2387	0.00	28.63	28.63
24	Uttar Pradesh	0	277074	277074	0	28958	28958	0.00	306.73	306.73
25	West Bengal	179500	1035500	1215000	16000	109000	125000	178.10	1181.00	1359.10
26	A & N Islands	32600	83	32683	1205	5	1210	28.60	0.08	28.68
27	Chandigarh	0	84	84	0	9	9	0.00	0.17	0.17
28	Dadar & Nagar Haveli	0	48	48	0	5	5	0.00	0.05	0.05
29	Daman & Diu	12506	0	12506	1772	7	1779	16.35	0.06	16.41
30	Delhi	0	1410	1410	0	70	70	0.00	0.61	0.61
31	Lakshadweep	11964	0	11964	1196	0	1196	11.75	0.00	11.75
32	Pondicherry	31500	5250	36750	1927	218	2145	33.61	6.05	39.66
33	Chattisgarh	0	120072	120072	0	13175	13175	0.00	137.75	137.75
34	Uttranchal	0	2566	2566	0	279	279	0.00	3.03	3.03
35	Jharkhand	0	22000	22000	0	3427	3427	0.00	34.27	34.27
	Total	2778875	3525883	6304758	281605	375558	657163	3024.16	3844.89	6869.05

Source : Department of Animal Husbandary and Dairying, Ministry of Agriculture

TABLE 3.3.15 : INLAND FISHERY WATER RESOURCES OF INDIA

SI. No.	State/UTs	Rivers & Canals (Kms.)	Reservoirs (Lakh Ha)	Tanks & Ponds (Lakh Ha)	Floodplain Lakes & Derelict Water (Lakh Ha)	Brackish Water (Lakh Ha)
1	2	3	4	5	6	7
1	Andhra Pradesh	11,514	2.34	5.17	-	0.60
2	Arunachal Pradesh	2,000	-	2.76	0.42	-
3	Assam	4,820	0.02	0.23	1.10	-
4	Bihar	3,200	0.60	0.95	0.50	-
5	Chhattisgarh	3,573	0.84	0.63	-	1.47
6	Goa	250	0.03	0.03	-	Neg
7	Gujarat	3,865	2.43	0.71	0.12	1.00
8	Haryana	5,000	0.09	0.10	0.10	-
9	Himachal Pradesh	3,000	0.42	0.01	-	-
10	Jammu & Kashmir	27,781	0.07	0.17	0.06	-
11	Jharkhand	4,200	0.94	0.29	-	-
12	Karnataka	9,000	4.40	2.90	-	0.10
13	Kerala	3,092	0.30	0.30	2.43	2.40
14	Madhya Pradesh	17,088	2.27	0.60	-	-
15	Maharashtra	16,000	2.79	0.59	-	0.10
16	Manipur	3,360	0.01	0.05	0.04	-
17	Meghalaya	5,600	0.08	0.02	Neg	-
18	Mizoram	1,395	-	0.02	-	-
19	Nagaland	1,600	0.17	0.50	Neg	-
20	Orissa	4,500	2.56	1.14	1.80	4.30
21	Punjab	15,270	Neg	0.07	-	-
22	Rajasthan	5,290	1.20	1.80	-	-
23	Sikkim	900	-	-	0.03	-
24	Tamil Nadu	7,420	5.70	0.56	0.07	0.60
25	Tripura	1,200	0.05	0.13	-	-
26	Uttar Pradesh	28,500	1.38	1.61	1.33	-
27	Uttaranchal	2,686	0.20	0.01	0.00	-
28	West Bengal	2,526	0.17	2.76	0.42	2.10
29	Andaman & Nicobar Islands	115	0.01	0.03	-	1.20
30	Chandigarh	2	-	Neg	Neg	-
31	Dadra & Nagar Haveli	54	0.05	-	-	-
32	Daman & Diu	12	-	Neg	-	Neg
33	Delhi	150	0.04	-	-	-
34	Lakshadweep	-	-	-	-	-
35	Pondicherry	247	-	Neg	0.01	Neg
Total		195,210	29.07	24.14	7.98	12.40

Source: Annual Report 2005-06, Department of Animal Husbandry and Dairying, Ministry of Agriculture
Neg - Negligible

TABLE 3.3.16: INCIDENCE OF LIVESTOCK AND POULTRY DISEASES IN INDIA - 2006

Sl. No.	Disease Name	Species	Number of		
			Outbreak	Attack	Death
1	Foot and mouth disease	Bovine	1623	49469	280
		Buffalo	5	10244	59
		Ovine/Caprine	15	5345	88
		Swine	3	15	1
		Total	1646	65073	428
2	Hamorrhagic septicaemia	Bovine	405	2633	1056
		Ovine/Caprine	52	1069	161
		Buffalo	313	1441	766
		Total	770	5143	1983
3	Black quarter	Bovine	527	2204	1029
		Ovine/Caprine	3	8	4
		Buffalo	4	49	29
		Total	534	2261	1062
4	Anthrax	Bovine	43	202	146
		Ovine/Caprine	70	408	301
		Buffalo	0	6	6
		Total	113	616	453
5	Fascioliasis	Bovine	65	527559	11
		Ovine/Caprine	1	50	11
		Buffalo	0	49	0
		Swine	0	10	0
		Total	66	527668	22
6	Enterotoxaemia	Ovine/Caprine	461	3974	1932
7	Sheep pox and goat pox	Ovine/Caprine	1389	19935	5357
8	Cow Pox	Bovine	1	10	0
9	Buffalo Pox	Buffalo	17	181	0
10	Blue Tongue	Ovi/Cap	154	4951	651
11	CCPP	Ovi/Cap	1	45	19
12	Ampjostp,oasos	Bovine	7	35	19
		Caprine	5	340	35
		Total	12	375	54
13	Swine Fever	Swine	40	4519	2327
14	Coccidiosis	Bovine	7	137	0
		Avian	327	23564	11763
		Swine	1	62	0
Total	335	23763	11763		
15	Ranikhet (New Castle) Disease	Avian	391	36416	10120
16	Fowl Pox	Avian	44	1566	388
17	Fowl cholera	Avian	4	284	152
18	Marks Disease	Avian	6	925	925
19	I.B.D.	Avian	260	20198	12117
20	Duck Plague	Avian	34	1177	546
21	Salmonellosis	Avian	7	599	180
22	Chronic Respiratory Disease	Avian	122	21778	20369
23	Canine Disetmper	Canine	34	825	29
24	Rabies	Bovine	16	42	42
		Canine	1	1	1
		Total	17	43	43

Sl. No.	Disease Name	Species	Number of		
			Outbreak	Attack	Death
25	Babesiosis	Bovine	26	1233	6
26	Mastitis	Bovine	34	11889	0
		Caprine	1	18	0
		Total	35	11907	0
27	Trypanosomiasis	Bovine	19	255	2
		Buffalo	5	61	7
		Camel	2	5	0
		Total	26	321	9
28	Mange	Swine	292	4766	0
		Canine	244	2647	0
		Total	536	7413	0
29	Peste Des Petits Ruminants(PPR)	Ovine/Caprine	577	28075	7059
30	Anaplasmosis	Bovine	14	73	1
31	Brucellosis	Ovine/Caprine	6	551	6
32	Coryza	Avian	2	500	13
33	Highly Pathogenic Avian Influenza (HPAI)	Avian	2	-	1043834*
34	Glander Disease	Equine	2	23#	23+
GRAND TOTAL			7684	792398 \$	78014**

Source: Department of Animal Husbandry and Dairying, Ministry of Agriculture

* Figure pertains to number of poultry destroyed.

1702 samples tested out of which 23 found positive and destroyed

+ Figure pertains to number of animals destroyed

\$ Total does not include animals attacked by Glander disease

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The total does not include poultry destroyed due to HPAI and equine destroyed due to Glander disease.