

FORESTS IN INDIA

Forests can be seen as both an ecological and an economic resource.

The role that forests play in, among other things, regulating our weather and rainfall, preventing soil erosion, providing habitat to a variety of fauna and flora, helping in noise abatement, providing nutrition to our soils, purifying our air and regulating water run off to ensure perpetuity for streams and rivers can be seen as the ecological functions.

Though indirectly most of the ecological functions are essential for economic well being, the forests, more directly, provide wood, fuel, fodder, grass, leaves, bark, plants, animals and a host of other things that are in their original or manufactured form, of use to man: this can be seen as their economic role.

Though the dependence of the economy, in general, on the ecology is quite obvious; inadequate rainfall or excessive soil erosion being clearly factors disastrous to economic well being, the dependence of ecology on economic well-being is not always clearly seen.

Considering the forests are both an ecological and an economic resource, a weakened economy would imply a greater and more rapid exploitation of the forests as an economic resource, without due consideration to its function as an ecological resource. A proper management of the forests for social well-being implies, therefore, an optimum balance between the economic needs and the ecological needs.

The forest cover required for fulfilling the minimum ecological needs and thereby indirectly the economic needs was determined to be 33% for the whole country and 60% for hill and other ecologically crucial areas. As opposed to this, in India today we have a forest cover of between 12% to 21%, depending on whose figures you accept. This has gone down progressively for the last thirty years or so and threatens to continue to decrease. The hill areas, like Western U.P., Nagaland, Himachal Pradesh, and Mizoram are also far below the required 60%, their current status being 37.5%, 17.42%, 38.06%, 33.81% respectively (official figures)

The All-India situation and the state-wise break-up is as per table I.

Forests are usually talked about as a unified category, but in fact there are many different types of forests, each type playing a different ecological role and having different economic uses. According to one classification (Champion & Seth) our current forests can be disaggregated as seen in Table II.

When a forest policy has to be formulated, or a rational management of forests undertaken, various conflicting pressures and reconciliation. The conflict between the ecological and economic uses of the forests have already been mentioned in general. However, they can be further disaggregated.

Though ecological degradation does, in actual fact, affect all human being, however, geographical location, occupation and economic status make some much worse sufferers than others. To a farmer whose land is washed away, or whose only source of water dries up the implication of such an ecological disaster is much more severe than to a rich urban businessman who has enough surplus wealth to not feel the resultant rise in food prices. Therefore, the interests concerning ecological preservation are also many and one can classify them as those of the poor and those of the rich, and again those of the rural as opposed to those of the urban.

Economic interests are even more varied. There are people who primarily and directly live off the forest in the sense that they collect various forest produce for their immediate needs and consumption. These include a large number of tribals who hunt for their food, build houses from shrubs, leaves and trees and use various types of plants, flower, leaves and bark for different purposes.

The second category include most of the rural population who are partly dependent directly on the forest, mainly for their fuel and for fodder for their cattle and sheep, but who also collect and sell various forest products like fire-wood, silk cocoons, medicinal plants and bark and leaves of certain trees.

The third category, also primarily rural poor, are those who are dependent on the forests for the raw materials for their production work, like rope makers or weavers of cane baskets. These can be distinguished from owners of forest based industries for they use their own hands, usually individually, and with primitive technology, to produce their goods, unlike the industrialists.

The fourth category, mainly urban, are the users of manufactured forest products: users of paper, furniture, plywood, rayons, etc. However, as their interests, in this context, coincide with those of the industrialists, we can see the fourth and fifth class together.

The fifth, and again mainly urban, are the owners of forest based industries who reap huge profits from converting forest products into high-priced commodities.

Obviously, any one individual can fit into more than one of these categories, for example, he can both own industries and be a user of manufactured goods. However, in terms of interests, the interests of the first three categories are usually at variance to the interests of the last two categories. Nevertheless, there are also clashes of interest among each class. The picture can be depicted something like this:

Presuming T is tribal

V is villager

A is Artisan I is industrialist.

1. TVA prefer non-industrial use while I prefer industrial use.
2. T prefers direct use while V wants to sell for profit.
3. T prefers direct use in natural form while A prefers to add value and sell.
4. V wants to sell in original form while A prefers to sell after adding value.

Also, in some cases, there is a clash of interest between the women and the men in a village society as the women want to preserve their source of firewood, as in Garhwal, while the men, not being involved in cooking and gathering firewood, want to sell the trees and get money.

Apart from this, there are also short term economic interests and long term economic interests for all but the tribals. Anyone who is involved in exploiting the forests for profit can maximise his short term profits by extracting from the forests at a rate greater than the forests' ability to regenerate. Though this would lead to short-term economic gains, it would inevitably bring about a situation where the forests would finish and no further products could be got from them. There is also then a clash between short-term and long term economic interests.

At a macro level, the most significant clash that takes place is between the interests of ecology and long term economic gain on the one hand and short term economic gain on the other.

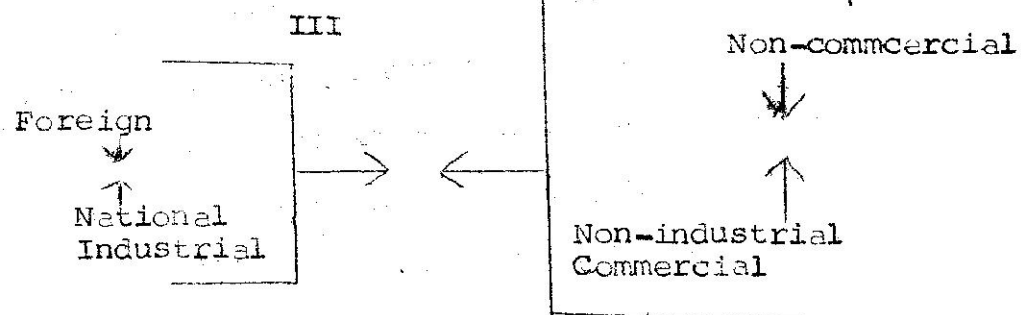
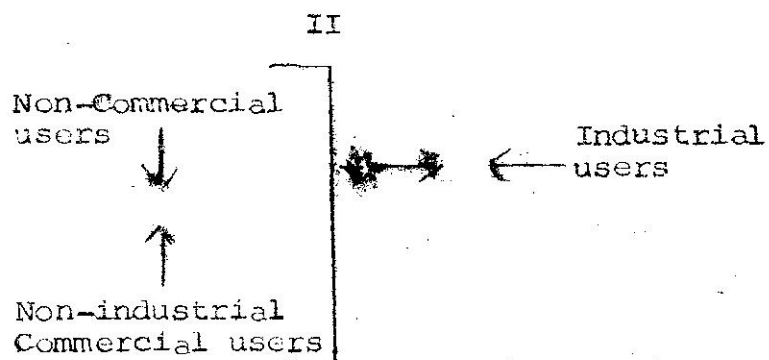
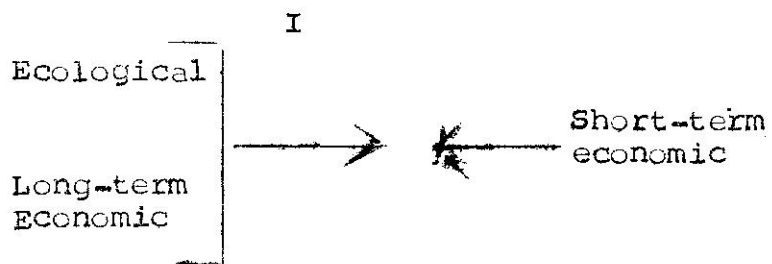
It is quite clear that ecology and economics, in terms of forests, are interdependent. However, one reason why this does not ensure a proper management of our forest resources is that there is a significant clash between ecological interests, which are also long-term economic interests, and the short-term economic interests. The latter usually seem to prevail.

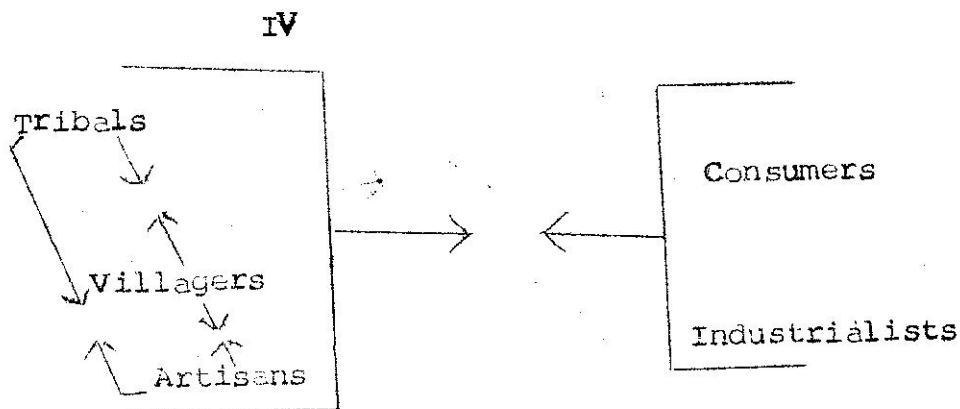
Added to this is the further complication that where people do claim to, and ostensibly do, follow a long term economic policy, thereby trying to preserve our forests, insofar as this involves preventing the poor people from using forest products, there is no guarantee that the forests thereby 'protected' would not be at a later time exploited for commercial use. The issue, then, is: who are we saving the forests for, and from whom?

Finally, there are also the foreign interests, manifested through types of trade relationships. There is an effort, mostly among the developed countries, to preserve their own natural resources and to protect their own environment while maintaining their high standards of consumption and living. This inevitably implies the passing on of their ecological costs to developing countries who are often forced by their economic and political circumstances, or by a class of powerful vested interests within their country, to bear this cost.

Though there is occasionally a clash of interests between the country's industrial class and the foreign industrialists, they most often work together, combining to oppose the interests of the tribals, the villagers, the artisans and of long-term economic gains. A tabulated representation of the various opposing interest follows.

CLASH OF INTERESTS





Looking at the complicated scenario, it seems quite clear that the policies regarding forests have to be well thought out and rigorously implemented if an optimum balance between the opposing interests has to be maintained.

A precondition, though not a sufficient one, of the proper implementation of forest policies seem to be the direct control of the forests by the government. Fortunately, in India such a control does exist and between 95% and 97% of the forests are owned by the Government. The detailed break-up is as per table III.

As can also be seen from the foregoing chart, more than half of these forests are reserved forests, and only 12% to 15% are unclassified forests. The different categories of forests can be understood as follows:

- Reserve Forests: these are forest most important for conservation or scientific management for various forest utilities and which have been properly demarcated and notified under provisions of the Indian Forest Act or other laws.

in force. These forests benefit from the highest degree of state control and exercise of its proprietary rights. In these forests local villagers do not have generally any rights. Every act by outsiders is prohibited except when specifically permitted by proper notification.

- Protected forests: these are similar to reserve forests but the government exercised a lower degree of control and proprietary rights. They may be properly demarcated or not but are constituted under the authority of the Indian Forest Act or other laws in force. Local villagers can exercise some rights unless otherwise specifically prohibited by proper notification.

- Unclassed forests: they are all the other publicly owned forests and may be demarcated or not. The state government exercises the lowest degree of its rights in such forests. The legal status is not well defined. Forest recently transferred from other Departments and those acquired by Forest Department from corporate bodies and private individual under suitable legislation are generally termed as 'vested forests' and also included in this category. Similarly all other forests which have no well defined legal status are also included as unclassified forests. There is a gradual process of constituting reserve and protected forests from unclassified forests.

Source: FAO Report on "Tropical Forest Resources Assessment Project (in the framework of GEMS) Forest Resources of Tropical Asia pp. 183-84. Rome, 1981.

Table I: Forest area and Per-capita Forest area in India
(State-wise) - As on 31.12.1980.

S.No. State/Uts.	Mid year Population, 1980 (Thousand)	Geographical area (Thousand ha.)	Forest area (Thou- sand ha)	% of Forest area to Geographi- cal area,	Per- capita Forest area ha)
1. Andhra Pradesh	50,872	27,632	6,409	23.15	0.13
2. Assam	19,505	7,852	3,071	39.11	0.16
3. Bihar	67,434	17,388	2,923	16.31	0.04
4. Gujarat	32,615	19,598	1,952	9.96	0.10
5. Haryana	12,305	4,422	164	3.71	0.01
6. Himachal Pradesh	44,176	5,567	2,119	38.06	0.51
7. Jammu & Kashmir	5,884	22,224	2,139	9.85	0.37
8. Karnataka	35,173	19,177	3,787	19.75	0.11
9. Kerala	25,666	3,886	1,112	28.62	0.04
10. Madhya Pradesh	52,309	44,284	15,389	34.75	0.29
11. Maharashtra	60,145	30,776	6,408	20.82	0.11
12. Manipur	1,436	2,236	1,515	67.75	1.06
13. Meghalaya	1,299	2,249	855	38.02	0.66
14. Nagaland	700	1,653	288	17.42	0.41
15. Orissa	26,723	15,573	6,767	43.44	0.25
16. Punjab	15,876	5,036	243	4.83	0.02
17. Rajasthan	32,916	34,222	3,491	10.20	0.11
18. Sikkim	251	730	260	35.62	1.04
19. Tamil Nadu	46,918	13,007	2,179	16.75	0.05
20. Tripura	2,064	1,048	593	56.58	0.29
21. Uttar Pradesh	104,509	29,441	5,139	17.46	0.05
22. West Bengal	55,162	8,785	1,184	13.48	0.02
TOTAL STATES	653,938	316,841	68,037	21.47	0.10
1. A&N Islands	183	829	714	86.13	3.90
2. Arunachal Pradesh	624	8,358	5,154	61.67	8.26
3. Chandigarh	495	11	Neg	Neg	-
4. D&N Haveli	87	49	20	40.82	0.23
5. Delhi	6,021	149	Neg	Neg	-
6. Goa, Daman & Diu	1,139	331	105	27.56	0.09
7. Mizoram	488@	2,109	713	33.81	1.46
8. Pondicherry	585	48	-	-	-
9. Lakshadweep	36	3	-	-	-
ALL INDIA TOTAL	663,596	328,778	74,743	22.73	0.11

@ Refers to 1981 census.

Source: Forest Department

States & Union Territories.

Table II: Sixteen different climatic-Climax Forest Types in India vis-a-vis Forest area and occurrence.

S.No.	Forest Types	Forest Area (Million ha)	Occurrence
1.	Tropical Wet-Evergreen Forests	4.5	Assam, West Bengal, Karnataka, Kerala, Andaman & Nicobar Islands.
2.	Tropical Semi-evergreen Forests	1.9	Assam, West Bengal, Orissa and Andamans.
3.	Tropical Moist Deciduous Forests	22.6	Karnataka, Orissa, Tamil Nadu, Uttar Pradesh, Madhya Pradesh, Maharashtra, Kerala, Andaman & Nicobar Islands.
4.	Tropical Dry Deciduous Forests	29.1	Almost all over India.
5.	Littoral and Swamp Forests	0.7	Deltas of big rivers.
6.	Tropical Thorn Forests.	5.2	Punjab, Haryana, Rajasthan, Upper Gangetic Plains, the Deccan Plateau and lower, Peninsular India.
7.	Tropical Dry evergreen Forests	0.1	East Coast in Tamil Nadu only.
8.	Sub-Tropical Broad leaved (Hills Forests)	0.3	Lower slopes of the Himalayas in West Bengal, Assam, Meghalaya, Nilguries, Malabar.
9.	Sub-Tropical Dry-evergreen Forests	0.2	Sivaliks and Western Himalayas upto about 1000 m height.
10.	Sub-Tropical Pine Forests	3.7	North West Himalayas, Manipur and Naga Hills.
11.	Montane Wet-temperate Forests	1.6	Tamil Nadu, Kerala, Eastern, Himalayas, West Bengal, Assam, Arunachal Pradesh,
12.	Himalayan Moist-temperate Forests	2.7	Pine and Sub-alpine Forests in Himalayas between 1500m and 3000m height.
13.	Himalayan Dry-Temperate Forests	0.2	Inner range of Himalaya where S.W monsoon is feeble.
14.	Sub-alpine Forests. X	1.8	Higher elevations over 3000m height of Himalaya.
15.	Moist alpine scrub. X		
16.	Dry-alpine scrub. X		

Source: Forest Research Institute & Colleges, Dehra Dun.

Table III: Relative Change in the Area under Forest in India by various Categories since 1965-66.

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Forest Area: Thousand ha.						
Category of classification	1965-66		1970-71		1976-77	
	Forest Area	% to Total	Forest area	% to Total	Forest area	% to Total
By Owner-Ship:	75,308	100.00	74,827	100.00	74,786	100.0
State owned.	71,685	95.2	71,181	95.2	71,636	95.8
Corporate bodies.	2,270	3.0	2,128	2.8	1,950	2.6
Private Individuals.	1,353	1.8	1,518	2.0	1,200	1.6
By Exploitability:	75,308	100.00	74,827	100.0	74,786	100.0
Forest in use.	59,951	79.6	46,113	61.6	45,061	60.3
Potentially exploitable.	13,470	17.9	14,087	18.8	15,995	21.4
Other forests.	1,887	2.5	14,627	19.6	13,730	18.3
By Legal Status:	75,308	100.0	74,827	100.0	74,786	100.0
Reserved.	37,359	49.6	38,312	51.2	39,016	52.2
Protected.	24,479	32.5	24,031	32.1	23,210	31.0
Unclassed.	13,470	17.9	12,084	16.7	12,560	16.8
By Composition:	75,308	100.0	74,827	100.0	74,786	100.0
Coniferous	4,600	6.1	4,600	6.2	4,760	6.4
Broad leaved.	60,708	80.6	63,717	85.1	63,516	84.9
Bamboo Forests.	10,00	13.3	6,510	8.7	6,510	8.7

Source: Forest Departments of States/Union Territories.

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1. National Economy

Table V: Percentage contribution of Forest Revenue over State Revenue from all sources (State-wise)-1980-81.

S.No.	State/UTs.	Revenue - 1980-81 (Rs. in lakhs)		
		All Sources	Forest (expected)	% contribution of Forest Revenue over State Revenue
1.	Andhra Pradesh	1,092,88	26,09	2.38
2.	Assam	303,73	11,25	3.70
3.	Bihar	874,65	14,71	1.68
4.	Gujarat	947,50	11,28	1.19
5.	Haryana	433,32	1,59	0.36
6.	Himachal Pradesh	192,88	15,15	8.37
7.	Jammu & Kashmir	225,73	18,78	8.31
8.	Karnataka	912,44	46,00	5.04
9.	Kerala	591,29	31,78	5.37
10.	Madhya Pradesh	1,114,88	139,44	12.50
11.	Maharashtra	1,921,97	52,20	2.71
12.	Manipur	84,56	24	0.28
13.	Meghalaya	66,36	88	1.32
14.	Nagaland	95,43	50	0.52
15.	Orissa	536,96	25,21	4.69
16.	Punjab	544,72	4,04	0.74
17.	Rajasthan	715,59	6,51	0.90
18.	Sikkim	35,01	32	0.91
19.	Tamil Nadu	982,66	11,25	1.14
20.	Tripura	85,55	11,25	13.15
21.	Uttar Pradesh	1,622,34	20,30	1.25
22.	West Bengal	1,123,73	14,23	1.26
Total States		14,505,18	464,01	3.19

Note: Figures are provisional and subject to revision.

Table V.1: Forest Area lost for various purposes (State-wise)
1951-52 to 1975-76.

(Thousand Hectares)

State/UTs.	Forest Area lost on account of					Total
	River Velly Projects	Agricul- tural Purposes	Constru- ction of Roads	Estt.of Indust- ries.	Misc purp- oses	
Andhra Pradesh	32.9	153.0	-	8.5	6.8	202.2
Assam	19.7	17.6	6.6	2.9	25.8	72.6
Bihar	1.3	48.3	1.1	11.1	5.8	67.6
Gujarat	35.0	21.1	0.3	1.1	102.9	160.4
Haryana	-	-	-	0.1	18.0	18.1
Himachal Pradesh	7.7	12.2	1.2	-	5.7	26.8
Jammu & Kashmir	0.1	0.3	0.2	-	90.2	90.8
Karnataka	81.3	79.5	1.7	1.5	144.4	308.4
Kerala	7.8	94.6	0.2	12.1	74.3	189.0
Madhya Pradesh	69.2	1453.3	0.4	24.8	262.1	1809.8
Maharashtra	13.0	118.8	33.1	7.9	42.7	215.5
Manipur	-----Nil-----or Neglibile-----					
Meghalaya	-----Nil-----or Neglibile-----					
Nagaland	-	-	-	2.0	0.1	2.1
Orissa	46.8	8.3	0.8	24.2	29.2	109.3
Punjab	-	0.4	-	-	8.1	8.5
Rajasthan	14.5	33.0	0.3	1.3	36.7	85.8
Sikkim	-----Nil-----or Neglibile-----					
Tamil Nadu	45.6	6.6	0.1	0.3	13.0	65.6
Tripura	7.9	11.2	0.2	Neg.	19.7	39.0
Uttar Pradesh	93.5	83.8	4.6	19.4	20.5	221.8
West Bengal	1.7	313.7	2.6	2.9	3.6	324.5
Total States:	479.0	2455.7	53.4	120.1	929.6	4037.8
UNION TERRITORIES:						
A & N Islands	-	7.0	0.5	Neg	3.1	10.6
Arunachal Pradesh	0.1	26.3	0.4	7.1	6.1	40.0
D & N Haveli	-	0.5	-	-	-	0.5
Goa, Daman & Diu	-	17.4	2.7	-	1.0	21.1
Mizoram	-----Nil-----or Neglibile-----					
Delhi	-	-	0.1	-	-	0.1
ALL INDIA:	479.1	2506.9	57.1	127.2	@965.4@4135.7	

"-----" Nil or Neglibile

@ Includes an area of 25.6 thousand hectares for which State-wise details are not available.

Note: Figures are provisional and subject to revision.

TABLE 5.2
Shifting Cultivation in the North Eastern Region*

State/Union-Territory	Total area affected by shifting cultivation ('000ha)	Area under shifting cultivation at one time ('000 ha)	Col.3 percent-ages of col.2	Tribal families involved ('000nos.)	Area cultivated per tribal family (has (Col.3% Col.5)
Arunachal-Pradesh	248.58	92.00	37.0	148	0.62
Assam-					
(i) Mikir Hill.	415.10	54.00	13.0	45	1.20
(ii) North Cachar	83.20	15.60	18.5	13	1.20
Manipur	100.00	60.00	60.0	50	1.20
Meghalaya	416.00	76.00	18.2	68	1.12
Mizoram	604.03	61.61	10.2	45	1.37
Nagaland	608.00	73.54	12.1	80	0.92
Tripura	220.79	22.30	10.1	43	0.51
TOTAL	2,695.70	455.05	16.8	492	0.92

1 Kaith, D.C. 1958. Shifting Cultivation Practised in India. Review Series No. 24, ICAR.

* 1975. Control of Shifting Cultivation in the North Eastern Region. A note to NCA by Miss P.K. Wadia; Director (E&M), North Eastern Council Secretariat, Shillong.

TABLE 5.3
Livestock Population¹ and Grazing incidence in Forests in Some States²

(Number-
thousands)
(Area-Thousand-
hectares)

State	Total number of livestock	Number grazing- ing forests	Percentage grazing in forests	Total forest (67-68)	Area are Closed grazing	Net area open for grazing
Andhra Pradesh	33,064	2,980	9.0	6,405	1,130	5,275
Assam	8,210	105	1.3	4,573	184	4,389
Bihar	27,946	8,530	30.5	3,059	475	2,584
Himachal Pradesh	4,703	4,005	85.1	2,158	240	1,918
Jammu&Kashmir	4,285	582	13.6	2,108	228	1,880
Madhya Pradesh	39,989	6,326	15.8	17,169	1,617	15,552
Maharashtra	26,361	5,251	19.9	6,672	719	5,953
Punjab	9,295	299	3.2	197	119	78
Rajasthan	38,878	3,002	7.7	3,758	577	3,181
Tamil Nadu	23,979	1,388	5.8	2,214	297	1,917
Tripura	738	811	1.1	630	33	597
Uttar Pradesh	49,099	2,005	4.1	4,282	721	4,161
TOTAL	270,547	35,284	13.0	53,825	6,340	47,485

1 Eleventh All-India Livestock Census, 1972 (Provisional Figures). (New Delhi. Directorate of Economics & Statistics, Ministry of Agriculture & Irrigation,

2 Information from Chief Conservators of Forests.

TABLE 5.4

Record of Fires in Different States and Union Territories in India for the periods 1960-61 to 1964-65 and 1968-69 to 1972-73

State/Union	Average for 1960-61 to 1964-65			Average for 1968-69 to 1972-73		
	number of fires	area burnt	recorded value of damage	number of fires	area burnt	recorded value of damage
	No.	ha.	Rs.	No.	ha.	Rs.
Andhra Pradesh	321	25,280	neg	275	68,878	NA
Assam	20	26,772	NA	6	127	96,000
Bihar	572	42,975	NR	445	15,560	NA
Gujarat	410	15,684	NR	400	29,620	13,323
Haryana	40	2,440	20,780
Himachal Pradesh	*	7,422*	35,520*	447	21,890 ³	1,86,000 ³
Jammu & Kashmir	274	5,980	NR	527	14,527 ³	37,512 ¹
Karnataka	NA	NA	NA	NA	NA	NA
Kerala	31	1,526	NR	NA	999 ⁴	NA
Madhya Pradesh	1,260	58,899	26,500 ¹	NA	NA	NA
Maharashtra	1,192	52,781	19,500	NA	NA	NA
Manipur	NA	NA	NA	NA	NA	NA
Meghalaya	included in Assam			1	11 ⁴	455 ¹
Nagaland	NA	NA	NA	NA	Neg	Neg
Orissa	272	107,935	Neg	550	50,988 ⁴	55,20,000
Punjab	223**	9,522**	71,030**	41	2,220	77,343
Rajasthan	450	72,107	NR	NA	NA	NA
Tamil Nadu	600	68,801	NR	NA	NA	NA
Tripura	16	79	NR	33	293	26,590
Uttar Pradesh	466	35,014	41,460	614 ⁴	50,792	NA
West Bengal	100	1,368	6,407 ²	34 ⁴	288 ⁴	130 ⁴
Andaman & Nicobar Islands	Nil	Nil	Nil	Nil	Nil	Nil
Arunachal Pradesh	Nil	NA	NA	Nil	NA	Nil
Dadra & Nagar Haveli	NA	NA	NA	12 ⁴	283 ¹	415
Mizoram	NR	NR	NR	NR	NR	NR

* For Himachal Pradesh territory before Punjab reorganisation.

** Punjab included the present Haryana and Parts of Himachal Pradesh at the time.

1 Only recorded for 1963-64.

2 Average for 3 years only.

3 Average for years, excluding 1972-73. Estimated value of damage reported for one year only, 1971-72

4 Average for 4 years.

neg-negligible.

NA-not recorded.

Sources: (1) Forest research Institute, Dehra Dun, for the year 1960-61 to 1964-65.

(2) Chief Conservator of Forests, Dehra Dun, for the year 1968-69 to 1972-73.

Table VI.1 State-wise Number with corresponding Area under National Parks and Wild Life Sanctuaries including Zoos in India as on 31.12.1979.

State/UTs.	Zoological Gardens (Nos)	National Parks (Nos)	(Area)	Wild Life Sanctuaries (Nos)	(Area)
Andhra Pradesh	2	-	-	14	8,819.12
Assam	1	1	430.00	6	805.00
Bihar	-	-	-	14	3,883.12
Gujarat	6	2	1,429.25	4	5,432.37
Haryana	2	-	-	1	1.20
Himachal Pradesh	2	-	-	26 (a)	2,088.50
Jammu & Kashmir	-	-	-	4 (b)	177.70
Karnataka	1	3	1,549.95	15	4,478.70
Kerala	2	1	97.00	6	2,229.00
Madhya Pradesh	3	3	1,201.00	22	15,352.23
Maharashtra	5	4	575.67	10	11,008.21
Manipur	-	1	25.00	-	-
Meghalaya	-	-	-	1	5.18
Nagaland	1	-	-	2	211.23
Orissa	1	-	-	18 (c)	3,141.00
Punjab	1	-	-	4	249.40
Rajasthan	6	-	-	13 (d)	5,755.36
Sikkim	-	1	850.00	-	-
Tamil Nadu	3	1	2.71	7	2,087.55
Uttar Pradesh	4	2	1,025.00	12	4,749.62
West Bengal	4	-	-	11	708.61
Total States	44	19	7,185.58	190	71,183.10
Andaman Islands	1	-	-	4	20.00
Arunachal Pradesh	-	-	-	4	3,000.57
Chandigarh	-	-	-	1	25.12
Dadra & Nagar Haveli	-	-	-	-	-
Delhi	2	-	-	-	-
Goa, Daman & Diu	-	-	-	3	353.00
Mizoram	-	-	-	1	466.20
Total UTs.	3	-	-	13	3,864.89
ALL INDIA	47	19	7,185.58	203	75,047.99

- (a) : Area under Gangut siya-Behli sanctuary in Chamba District is not available.
- (b) : Area under Chunnai Basin Wild Life Sencuary in Anantnag district is not available.
- (c) : Area under Hadagrah sanctuary in Keonjhar district is not available.
- (d) : Area under Jawaharnagar sanctuary in kota district is not available.

Note: Information regarding Tiger Reserves has been given in Table No. VI.2.

Table VI.2: Number and Area under Tiger Reserve in India
(State-wise) vis-a-vis Tiger population as
on 31.12.1979.

S. No.	Title of Tiger Reserve/ State	Date of establish- ment.	Area Sq.km.		
			A. Covered Area	Gross area	Core area Buffer area
1.	Manas (Assam)	1.4.73	2,840	360	2,480
2.	Palamau (Bihar)	4.6.74	930	200	730
3.	Simlipal (Orissa)	1.10.74	2,750	300	2,450
4.	Kanha (Madhya Pradesh)	1.3.74	1,945	940	1,005
5.	Periyar (Kerala)	29.8.77	777	350	427
6.	Nalghat (Maharashtra)	23.2.74	1,571	311	1,260
7.	Bandipur (Karnataka)	15.11.73	690	335	335
8.	Ranthambhor (Rajasthan)	23.1.74	392	167	225
9.	Sariska (Rajasthan)	13.7.78	800	350	450
10.	Corbett (Uttar Pradesh)	1.2.74	520	320	200
11.	Sunderban (West Bengal)	21.12.73	2,585	1,330	1,255
Total			15,800	4,963	10,837

S.No.	Title of Tiger Reserve	B. Tiger Population (Nos.)		
		1972	1977	1979
1.	Manas (Assam)	31	105	69
2.	Palamau (Bihar)	22	33	39
3.	Simlipal (Orissa)	17	60	65
4.	Kanha (Madhya Pradesh)	43	56	71
5.	Periyar (Kerala)	-	-	34
6.	Nalghat (Maharashtra)	27	57	63
7.	Bandipur (Karnataka)	10	26	36
8.	Ranthambhor (Rajasthan)	14	22	26
9.	Sariska (Rajasthan)	-	-	19
10.	Corbett (Uttar Pradesh)	44	73	84
11.	Sunderban (West Bengal)	60	131	205
Total		268	613	711

Source: Project Tiger Section of Forestry Division,
Ministry of Agriculture, Government of India.

6. Development Programmes

Table VII: State-wise/Planwise Physical achievements on all Plan Schemes of "Social Forestry" - 1969-80

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Physical Achievement: (Hectares)

S.No.	State/UTs.	Fourth Plan (1969-74)	Fifth Plan (1974-79)	Annual Plan (1979-80)
1.	Andhra Pradesh	3,380	14,828	6,550
2.	Assam	620	19,604	978
3.	Bihar	3,380	15,095	3,300
4.	Gujarat	9,700	50,804	9,890
5.	Haryana	4,670	30,578	5,113
6.	Himachal Pradesh	1,630	37,865	3,784
7.	Jammu & Kashmir	4,490	4,947	2,394
8.	Karnataka	15,600	107,825	3,012
9.	Kerala	970	2,852	2,195
10.	Madhya Pradesh	41,540	5,281	2,800
11.	Maharashtra	4,010	38,234	5,503
12.	Manipur	120	1,540	100
13.	Meghalaya	160	1,017	860
14.	Nagaland	980	5,512	1,095
15.	Orissa	1,130	19,345	26,110
16.	Punjab	12,360	29,635	2,000
17.	Rajasthan	11,540	64,499	12,600
18.	Sikkim	-	480	100
19.	Tamil Nadu	19,160	62,349	16,950
20.	Tripura	2,380	-	96
21.	Uttar Pradesh	49,170	44,509	7,363
22.	West Bengal	1,860	8,601	5,531
	Total States	1,88,770	5,65,400	1,18,324
1.	A & N Islands	-	8	40
2.	Arunachal Pradesh	680	541	2,007
3.	Chandigarh	310	-	200
4.	D & N Haveli	160	26	100
5.	Delhi	120	1,073	162
6.	Goa, Daman & Diu	240	-	14
7.	Mizoram	NA	287	210
8.	Pondicherry	-	-	-
	Total UTs	1,510	1,935	2,733
	ALL INDIA TOTAL	1,90,280	5,67,335 @	1,21,057

@ Inclusive of figures implemented under Centrally sponsored schemes on Social Forestry.

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7. Project Formulation

Table VIII: Identification of Foreign Aided Forestry Projects during Sixth Plan 1980-85.

S. No.	Title of the Project	Scope & Coverage of the foreign aided projects.	Estimated investment magnitude (Rs. in lakhs)	Location of the Projects	Donor Agency
1.	Manufacture of Saudust (Drigusttes)	1) Expert Service to conduct feasibility & Market studies. ii) Import of equipments for the plant iii) Training of Indian personnel abroad.	18.80	Gujarat	FAO
2.	Modernisation of Pine Needle based Industry.	Development of technology for using forest waste for production of fibre boards	To be decided by feasibility studies.	Himachal Pradesh	NORAD
3.	Integrated Development of Teak Forests, and Wood based industries.	Planting of teak and development of forest based industries.		Kerala	IFAD
4.	Eastern Ghats Forestry and Tribal Development.	Development of infrastructural facilities, training courses and raising plantations.	3,000.00	Andhra Pradesh	IFAD
5.	Forest Farming	Integrated area development.	2,000.00	Himachal Pradesh	IFAD
6.	Tropical Pine Plantations	Raising Plantations of tropical pines in Indian Forest areas.	To be determined.	National	SIDA
7.	Export Oriented Furniture Design Research & Training Institute.	Establishment of an institute for development & designing furniture for export purposes.	50.60	to be identified.	UNDP

7. Project Formulation.

Table VIII: Identification of Foreign Aided Project Forestry during Sixth Plan 1980-85.

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S No.	Title of the Project	Scope & Coverage of the foreign aided projects.	Estimated investment magnitude (Rs.in lakhs)	Location of the Projects.	Donor Agency
15.	Manufacture of Wood Cement Boards & Establishing Low cost Housing Unit Factory.	Expert Services, Equipments & shoring Projects cost.	540.00	To be determined by Feasibility studies.	U. K.
16.	Fungus Investigations Unit (Phase II)	R&D efforts on fungus investigations on eucalyptus plantations.	73.60	Kerala (Hindustan Paper Corporation)	FAO/ TCP
17.	Integrated watershed Management in the Himalayas	Afforestation in village lands and protected forested areas; Central soil conservation measures; Planning sub-catchment forests fire control etc.	To be determined.	Uttar Pradesh & Himachal Pradesh	World Bank
18.	Social Forestry	Afforestation in village lands and protected forests, training support services, etc.	To be determined.	Bihar	SIDA
19.	Forest for People	Logging Plan for integrated utilisation.	-do-	Kerala	SIDA
20.	Projects for Training and action.	Inter Cropping in reforestation programme, non-formal education, sericulture techniques.	To be allocated	West Bengal, Uttar Pradesh, Kerala	China
21.	Transfer of Economic Model of FAO/World Bank for use in India.	Planning of Forestry Sector.	0.40	FSI Deshra Dun	FAO

7. Project Formulation.

Table VIII: Identification of Foreign Aided Forestry Project during Sixth Plan 1980-85.

S No.	Title of the Projects.	Scope & coverage of the foreign aided projects.	Estimated investment magnitude (Rs. in lakhs)	Location of the Project.	Donor Agency
22.	Integrated Development of Uttarkhand Hills.	Afforestation, Watershed Management torrent control land use development etc.	To be determined	Uttar Pradesh	FRC
23.	Development of Pulp and Paper and Urban Forestry.	Urban Forestry	To be decided.	To be decided	Japan
24.	Forestry Development.	Pilot Plantation trials, import of right provenance plantation.	To be decided	West Bengal, Uttar Pradesh, Haryana, Punjab, Orissa	Australia.
25.	Establishment of Research Centre for Biogas production from fuel wood and other wood residues as non-conventional.	Preparation of design for biogas plant identification of local & exotic application.	92.00	To be identified.	UNDP
26.	Establishment of a Centre for development, the design & technology for manufacturing of knock-down furniture for export.	Development of capabilities of Indian designs etc. for exports.	50.60	To be decided by feasibility studies.	UNDP
27.	Watershed Management Projects in selected catchments.	Development watershed management schemes, through remote sensing techniques.	28.20	Bihar, Uttar Pradesh	UNDP

7. Project Formulation.

Table VIII: Identification of Foreign aided Forestry Projects during Sixth Plan 1980-85.

S No.	Title of the Projects.	Scope & Coverage of the foreign aided Projects.	Estimated investment magnitude (Rs.in lakhs)	Location of the Project.	Donor Agency
28.	Energy Plantations for maximisation of fuelwood.	Raising Plantation Pilot studies etc.	To be decided by feasibility studies.	To be Decided	UNDP
29.	Centre for logging Development Research and Studies	Comprehensive training of foresters and workers in improved logging practices, and securing improved technology in primary forest based industry, i.e.saw-milling.	200.00	FSI	SIDA
30.	Setting up of National Wild Life Research & Training Institute.	Wild Life Research and Training.	218.00	Nadhya Pradesh	UNDP
31.	Forestry for Local Community Development Programme.	Consultancy equipment, research activities setting up Van Vigyan extension activities.	To be determined.	West Bengal, Kerala Bihar Karnataka.	FAO/ SIDA
32.	Development of Minor Forest Produce.	Surveys to assess availability of MFP., intensive cultivation of MFP for greater production collection thereof and develop marketing.	To be determined.	National Level FRI&C	World Bank
33.	Social Forestry Projects.	Plantation, Distribution of seedlings, communication support.	To be determined.	Rajasthan	To be determined.

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