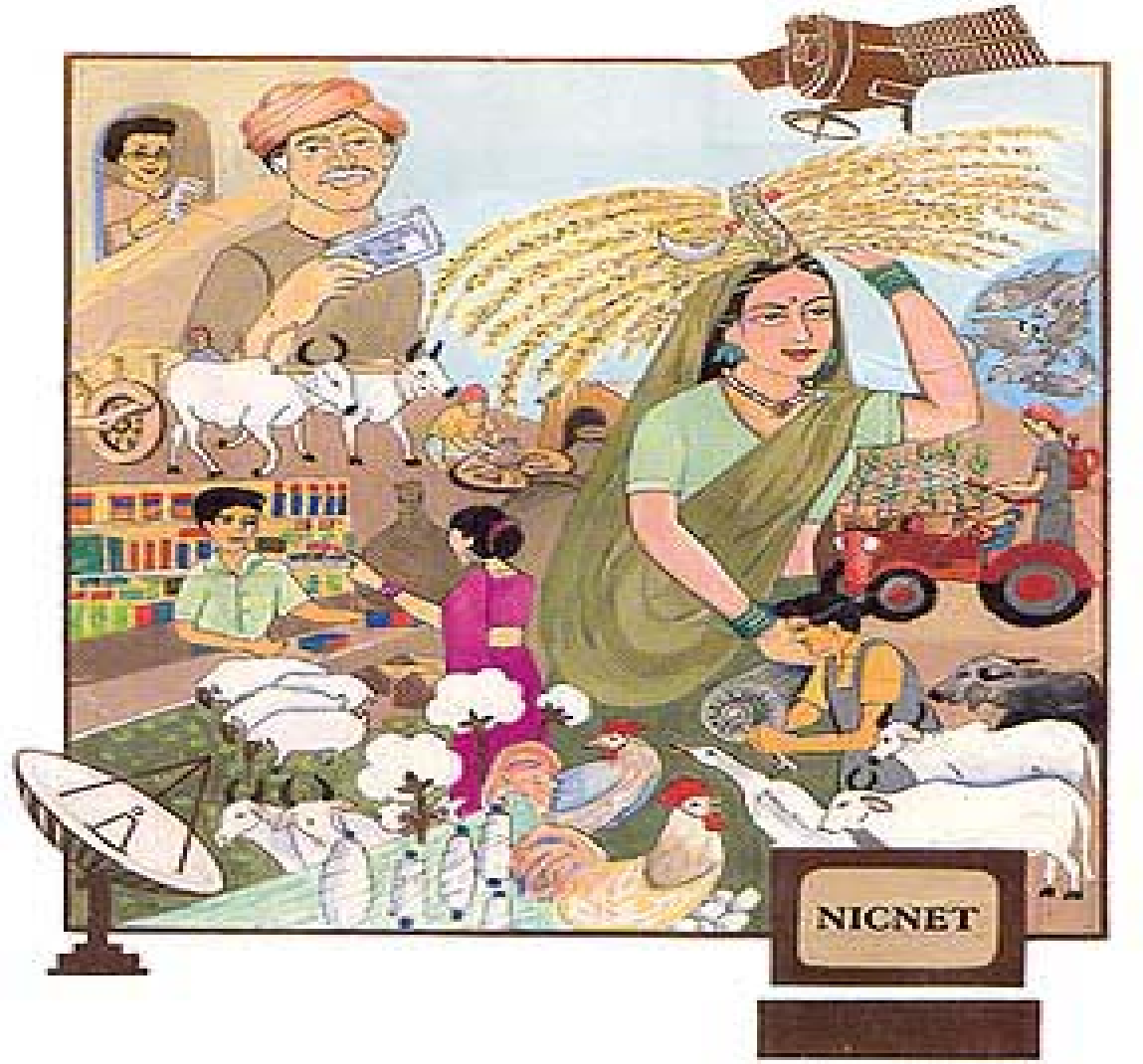
CHAPTER FIVE



Land and Soil

CHAPTER FIVE

LAND AND SOIL

5.1 On the basis of nine-fold land-use classification, the land use statistics is available for roughly 306 million hectares (mha) of land out of the 329 million hectares of the total geographic area which accounts for 93% of the total land.

5.2 The area under barren and uncultivable land is generally unsuitable for agriculture either because of topography or its inaccessibility. Instances are the desert areas in Rajasthan, the saline land in part of the Rann of Kutch in Gujarat, and the weed infected and ravine land in Madhya Pradesh. Recently, the area under non-agricultural land has increased due to increase in developmental activities; e.g. housing, transport system, irrigation, etc. About 24 mha are occupied by the housing, the industry and for other non-agricultural uses, 19.2 mha are snowbound and remote, leaving only 263 million hectare for agriculture, forestry, pasture and other biomass production. The net sown area increased from 119 mha in 1950-51 to 140 mha in 1970-71, mostly through reclamation of old fallow and cultivable wastelands and diversion of groves. Since 1970-71, the net area sown has remained almost the same at around 142 mha levels. The data shows that land use in the country, over the last five decades, has undergone drastic change. Land under agriculture has almost doubled, forest cover has dwindled to less than half, large tracts of fertile agriculture and forest land have been diverted for urbanization and settlements. Deforestation contributes to loss of precious top soil which amounts to about 35 percent of the global sediment load going to oceans even though water flowing through our rivers is only about five percent of the flow of rivers in the world.

Land Degradation

5.3 Land is degraded when it suffers a loss of intrinsic qualities, decline in its capabilities or loss in its productive capacity. Land degradation may be due to natural causes or human causes or it may be due to combination of both. Soil erosion is the major cause of land degradation.

Soil Erosion

5.4 Soil is the non-renewable natural resource which supports life on earth. It is estimated that one-sixth of the world's soils have already been degraded by water and wind erosion. This has two important consequences: the reduced ability of society to produce sufficient food due to loss of quality and depth of soils; and resulted in off-site pollution associated with erosion. These include siltation of dams, pollution of water-courses by agricultural chemicals and damage to property by soil-laden runoff. On-site issues of declining soil quality tend to be spatially dispersed occurring on many different soil types whereas off-site pollution issues tend to be locally concentrated.

5.5 Soil erosion problems are not confined to the Developing World. In the last two decades, there has been a growing appreciation of the threat to European soils as a result of intensification of agriculture, overgrazing and climate change. The threat is most apparent in the Mediterranean Region where the term "desertification" has been used to describe a series of inter-related changes which include soil erosion. The EU-funded Mediterranean Desertification and Land Use (MEDALUS) project is currently addressing these latter issues for much of Southern Europe.

5.6 In India, about 130 mha of land (45% of total geographical area) is affected by serious soil erosion through ravine and gully, shifting cultivation, cultivated wastelands, sandy areas, deserts and water logging (Govt. of India, 1989).

5.7 Soil erosion by rain and river that takes place in hilly areas causes landslides and floods, while cutting trees for firewood, agricultural implements and timber, grazing by a large number of livestock, over and above, the carrying capacity of grass lands, traditional agricultural practices, construction of roads, indiscriminate (limestone) quarrying and other activities, have all led to the opening of hill-faces to heavy soil erosion. Wind erosion causes expansion of deserts, dust, storms, whirlwinds and destruction of crops, while moving sand covers the land and makes it sterile. Excessive soil erosion with consequent high rate of sedimentation in the reservoirs and decreased fertility has become serious environmental problems with disastrous economic consequences. Of the 16 rivers of world, which experience severe erosion and carry heavy sediment load, 3 rivers, namely; Ganges, Brahmaputra and Kosy occupy the 2nd, 3rd and 12th position, respectively.

5.8 Soil erosion results in huge loss of nutrients in suspension or solution, which are removed away from one place to another, thus causing depletion or enrichment of nutrients. Besides the loss of nutrients from the topsoil, there is also degradation through the creation of gullies and ravines, which makes the land unsuitable for agricultural production. Subsidence of the land in some areas and landslides in the hilly tracts are problems affecting highways, habitations and irrigation dams.

5.9 The use of pesticides above permissible limits enters the food chain, causing health hazards. A major concern particularly about chlorinated hydrocarbons like DDT is their persistence in soil.

5.10 Among fertilizers, the conversion of fertilizer-N to gaseous forms-ammonia (NH_3) and various oxides of Nitrogen leads to atmospheric pollution. Escape of fertilizer-N as ammonia gas is called ammonia volatilization. The presence of ammonia and sulphur dioxide may lead to acid rains which ultimately degrade the soil. Atmospheric ammonia contaminates water bodies, impairs visibility and causes corrosion. Nitrous oxide also contributes to global warming.

Mining

5.11 The activity of mining and quarrying covers underground and surface mines, quarries and wells and includes extraction of minerals and also all the supplemental activities such as dressing and benefaction of ores, crushing, screening, washing, cleaning, grading, milling floatation, melting floatation and other preparations carried out at the mine site which are needed to render the material marketable.

5.12 The mining activities in the country are governed by the Mineral Conservation Development Rules (MCDR), 1988. Every license holder of mining lease shall take all possible precautions for protection of environment and control of pollution while conducting prospecting, mining beneficiation or metallurgical operations in the area. Specific provisions for proper removal and utilization of top soil, storage of over burden and waste rocks, reclamation and rehabilitation of lands, precautions against air pollution, noise and ground vibrations, restoration of flora, discharge of toxic liquid, control of surface subsidence have been provided under the MCDR. The Indian Bureau of Mines collects the statistics on all these aspects under the above rules.

TABLE 5.4.9 : Production of Lignite (1994-95 to 2004-05)

Year	Quantity (Lakh tonnes)	No. of Mines
1	2	3
1995-96	222	4
1996-97	225	4
1997-98	231	4
1998-99	234	4
1999-00	221	5
2000-01	242	5
2001-02	248	5
2002-03	260	6
2003-04	280	6
2004-05	303	6

Source : Indian Bureau of Mines (IBM), Nagpur

TABLE 5.4.10 : Consumption of Minerals in Iron & Steel Industry (1993-94 to 2002-03)

('000 tonnes)

Year	Iron Ore*	Coal*	Limestone*	Dolomite	Manganese Ore	Ferro-Allyos	Bauxite
1	2	3	4	5	6	7	8
1993-94	238	407	49	2500	676	200	17
1994-95	254	410	54	3110	636	158	21
1995-96	290	245	55	3330	636	155	18
1996-97	291	244	56	3340	598	194	16
1997-98	288	221	53	2950	500	216	21
1998-99	271	202	48	2640	395	183	18
1999-00	279	210	48	2750	322	199	19
2000-01	313	222	48	2850	351	212	14
2001-02	335	239	52	2760	256	228	20
2002-03	374	223	49	2840	192	236	20

Source : Indian Bureau of Mines (IBM), Nagpur

* Lakh tonnes

TABLE 5.4.11 Consumption of Minerals in Cement Industry (1993-94 to 2002-03)

('000 tonnes)

Year	Limestone*	Coal*	Gypsum*	Quartz	Bauxite	Iron Ore
1	2	3	4	5	6	7
1993-94	805	115	25	66	344	652
1994-95	764	122	26	137	382	736
1995-96	813	131	33	113	417	616
1996-97	846	137	34	132	428	761
1997-98	898	136	34	134	424	705
1998-99	933	113	33	221	426	746
1999-00	1018	126	39	186	442	750
2000-01	985	110	36	180	336	726
2001-02	1049	131	37	221	339	745
2002-03	1134	133	37	271	363	826

Source : Indian Bureau of Mines (IBM), Nagpur

* Lakh tonnes

TABLE 5.1.1 : LAND USE CLASSIFICATION IN INDIA

(million hectore)

Classification	1950-51	1960-61	1970-71	1980-81	1990-91	1995-96P	1999-00P	2000-01P	2001-02P	2002-03P
1	2	3	4	5	6	7	8	9	10	11
I. Geographical Area	**328.73**	**328.73**	**328.73**	**328.73**	**328.73**	**328.73**	**328.73**	**328.73**	**328.73**	**328.73**
II. Reporting Area for Land Utilisation Statistics (1 to 5)	**284.32**	**298.46**	**303.76**	**304.16**	**304.86**	**304.88**	**306.02**	**306.08**	**304.84**	**304.85**
1. Forests	40.48	54.05	63.92	67.47	67.80	68.82	68.97	69.22	69.49	69.47
2. Not Available for Cultivation (a+b)	47.52	50.75	44.64	39.62	40.48	41.37	42.32	42.88	41.78	42.04
(a) Non Agricultural Uses	9.36	14.84	16.48	19.66	21.09	22.36	23.27	23.66	24.09	24.27
(b) Barren and Unculturable Land	38.16	35.91	28.16	19.96	19.39	19.10	19.13	19.22	17.69	17.76
3. Other Uncultivated Land excluding fallow land (a+b+c)	49.45	37.64	35.06	32.33	30.22	28.64	28.48	27.88	27.27	27.31
(a)Permanent Pastures and Other Grazing Land	6.68	13.97	13.26	11.97	11.40	11.06	11.04	10.90	10.58	10.50
(b) Land Under Miscellaneous Tree Crops and Groves not Included in Net Area Sown	19.83	4.46	4.30	3.10	3.82	3.48	3.64	3.35	3.34	3.32
(c) Culturable Wasteland	22.94	19.21	17.50	16.74	15.00	14.10	13.80	13.64	13.35	13.48
4. Fallow Land (a+b)	28.12	22.82	19.88	24.75	23.36	23.85	25.07	25.01	24.93	33.24
(a) Fallow Land Other Than Current Fallows	17.44	11.18	8.76	9.92	9.66	10.02	10.08	10.11	10.25	11.71
(b) Current Fallows	10.68	11.64	11.12	14.83	13.70	13.83	14.99	14.90	14.67	21.53
5. Net Area Sown (6-7)	118.75	133.20	140.27	140.00	143.00	142.20	141.10	141.08	141.38	132.80
6. Gross Cropped Area	131.89	152.77	165.79	172.63	185.74	187.47	190.32	186.36	180.49	175.99
7. Area Sown More Than Once	13.15	19.57	25.52	32.63	42.74	45.27	49.22	45.00	49.10	43.19
8. Cropping Intensity*	111.1	114.70	118.20	123.30	129.90	131.80	134.90	132.10	134.70	132.50
III. Net Irrigated Area	**20.85**	**24.66**	**31.10**	**38.72**	**48.02**	**53.40**	**56.76**	**54.68**	**55.85**	**53.13**
IV. Gross Irrigated Area	**22.56**	**27.98**	**38.20**	**49.78**	**63.20**	**71.35**	**77.99**	**75.14**	**78.33**	**72.56**

Source : Directorate of Economic & Statistics, Ministry of Agriculture.
P : Provisional
* : Cropping Intensity is obtained by dividing the gross cropped area by the net area sown.

Out of total geographic area of 329 mha, only 305mha is the reporting area (the rest being unadministered for various reasons). About 24 mha are occupied for non-agricultural uses (housing, industry and others), 18 mha are remote leaving only 263 mha for agriculture, forestry, pasture and other bio-mass production. The net sown area increased from 119 mha in 1950-51 to 140 mha in 1970-71 mostly through reclamation of old fallow and culturable wastelands and diversion of groves. Net area sown has decreased from 140 mha in 1970-71 to 133 mha in 2002-03.

CHART 8 : LAND USE CLASSIFICATION IN INDIA

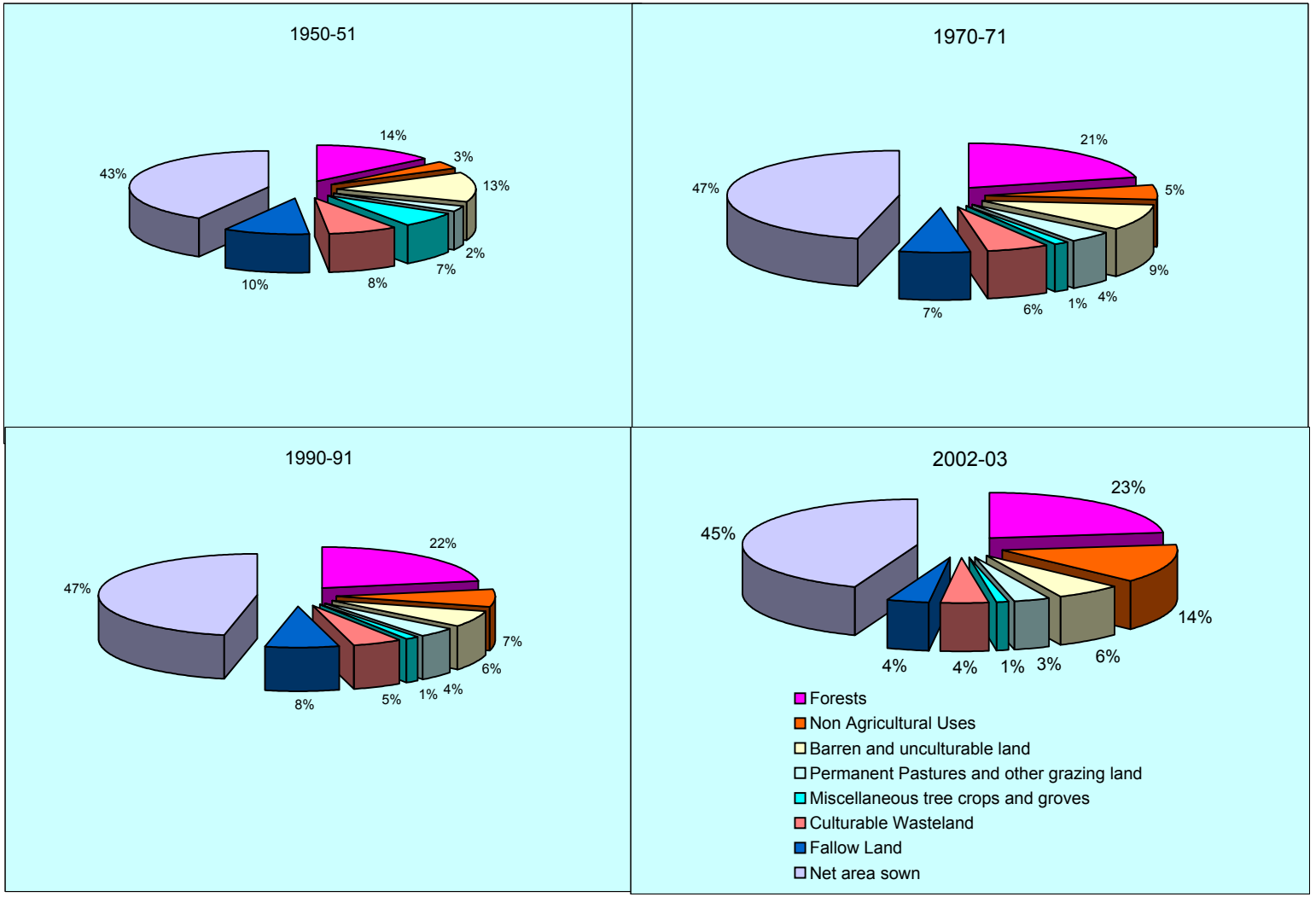


TABLE 5.1.2 : SELECTED CATEGORIES OF LAND USE CLASSIFICATION

(million hectare)

Sl. No.	Years	Net Sown Area (A)	Gross Sown Area (B)	Area Sown More Than Once (B-A)	Net Irrigated Area (C)	Gross Irrigated Area (D)	Area Irrigated More Than Once (D-C)
1	2	3	4	5	6	7	8
1	1950-51	118.75	131.89	13.14	20.85	22.56	1.71
2	1960-61	133.20	152.77	19.57	24.66	27.98	3.32
3	1970-71	140.27	165.79	25.52	31.10	38.19	7.09
4	1980-81	140.00	172.63	32.63	38.72	49.78	11.06
5	1990-91	143.00	185.74	42.74	47.78	62.47	14.69
6	1995-96P	142.20	187.47	45.27	53.40	71.35	17.95
7	1999-2000P	141.10	190.32	49.22	56.76	77.99	19.10
8	2000-01P	141.08	186.36	45.91	54.68	75.14	20.46
9	2001-02P	141.38	190.49	49.11	55.85	78.33	22.48
10	2002-03P	132.80	175.99	43.19	53.13	72.58	19.45

Source : Department of Agriculture & Cooperation, Ministry of Agriculture.
P : Provisional

The net area under irrigation has increased from 20.85 mha in 1950-51 to 53.13 mha in 2002-03. The development in irrigation potential is largely due to the efforts of the Govt. in developing irrigation facilities through major/medium and minor irrigation projects.

Ground water sources contributed nearly 51% of the total area irrigated in 1991-92. There has been a drastic increase in the utilization of ground water since the 1960's due to rural electrification. As a result our ground water resources are getting depleted, surface water sources, rivers, canals, tanks and rivulets have also been affected considerably due to the degradation and siltation of riverbeds.

TABLE 5.1.3 : STATEWISE INFORMATION ON SOILS OF PRIORITY WATERSHEDS OF RIVER VALLEY PROJECTS/ FLOOD PRONE RIVER CATCHMENTS

(area in lakh hectares)

Sl. No.	State/UT	Catchment Area	Surveyed Area	Priority Area	Subwatershed Area On Which Reports Available
1	2	3	4	5	6
	States				
1	Andhra Pradesh	57.55	57.55	15.41	7.19
2	Arunachal Pradesh	--	--	--	--
3	Assam	1.53	1.53	0.86	0.24
4	Bihar	21.12	21.12	3.02	0.38
5	Chhattisgarh	91.70	91.70	16.36	9.31
6	Goa	--	--	--	--
7	Gujarat	5.74	5.74	2.19	1.92
8	Haryana	18.13	18.13	3.07	0.22
9	Himachal Pradesh	42.33	28.96	15.82	4.85
10	Jammu & Kashmir	2.70	4.10	1.52	0.16
11	Jharkhand	48.99	48.99	17.20	10.21
12	Karnataka	103.90	103.90	26.38	13.38
13	Kerala	2.86	2.86	1.57	0.88
14	Madhya Pradesh	174.92	160.65	51.32	19.30
15	Maharashtra	197.46	196.76	48.15	15.80
16	Manipur	--	--	--	--
17	Meghalaya	--	--	--	--
18	Mizoram	0.05	0.05	0.05	0.00
19	Nagaland	--	--	--	--
20	Orissa	27.92	27.92	8.88	10.83
21	Punjab	10.32	10.32	0.52	0.01
22	Rajasthan	76.07	48.20	12.58	5.95
23	Sikkim	4.09	4.09	2.14	1.10
24	Tamil Nadu	5.38	5.38	1,09	1.19
25	Tripura	0.45	0.45	0.35	0.04
26	Uttaranchal	25.70	25.70	10.56	0.61
27	Uttar Pradesh	35.96	35.96	11.76	3.37
28	West Bengal	19.84	19.84	4.10	7.13
29	Chhattisgarh & M. P.	9.04			
30	Bihar & Jharkhand	13.38	13.38	4.23	1.12
31	Uttaranchal & U. P.	3.75			
	Union Territories				
1	Andaman & Nicobar Island	--	--	--	--
2	Chandigarh	0.10	0.10	0.04	0.00
3	Dadra & Nagar Haveli	0.13	0.13	0.06	0.10
4	Daman & Diu	--	--	--	--
5	Delhi	1.06	1.06	0.17	0.00
6	Lakshadweep	--	--	--	--
7	Pondicherry	--	--	--	--
Total		**1002.17**	**945.96**	**269.41**	**115.32**

Source: All India Soil and Land Use Survey, Ministry of Agriculture

TABLE 5.1.4 : STATE-WISE INFORMATION ON DEGRADED LAND OF THE DISTRICTS

(hectare)

Sl. No.	State/UT	District		Total Area	Total Degraded	% Degraded Area
1	2	3		4	5	6
1	Andaman & Nicobar		--	--	--	--
2	Andhra Pradesh	1	Kurnool	1761393	309412	17.5
		2	Nellore	1307600	169808	13
3	Arunachal Pradesh		--	--	--	--
4	Assam		--	--	--	--
5	Bihar	1	Banka	278768	29294	10.51
		2	Bhagalpur	255822	32589	12.74
		3	Gaya	473659	7727	1.63
		4	Munger	634594	144617	22.79
		5	Siwan	221900	22611	10.19
6	Chandigarh		--	--	--	--
7	Chhattisgarh		--	--	--	--
8	Dadra & Nagar Haveli		--	--	--	--
9	Daman Diu		--	--	--	--
10	Delhi		--	--	--	--
11	Goa					
		1	North Goa	175592	24634	14.03
		2	South Goa	194608	19639	10.09
12	Gujarat					
		1	Bharuch	776430	192841	24.84
		2	Bhavnagar	1115500	271337	24.33
		3	Surat	776161	85469	11.1
13	Haryana		--	--	--	--
14	Himachal Pradesh					
		1	Chamba	671500	74238	11.05
		2	Kullu	566604	259127	45.73
15	Jammu & Kashmir		--	--	--	--
16	Jharkhand					
		1	Palamau	802291	50363	6.28
17	Karnataka					
		1	Chickmagalur	722072	16038	2.26
		2	Bagalkot	658877	135145	20.51
		3	Bijapur	1053471	256010	24.3
		4	Gulbarga	1610208	313347	19.46
		5	Tumkur	1055090	N/A	--
18	Kerala					
		1	Palghat	448000	16204	3.6
19	Lakshadeep		--	--	--	--
20	Madhya Pradesh					
		1	Balaghat	924500	112941	12.21
		2	Gwalior	456449		
		3	Jhabua	646912	322601	49.9
		4	Morena	1168336	373553	27.2
		5	Sidhi	1039194	228736	22.01
21	Maharashtra					
		1	Bhandara	934716	49933	5.35
		2	Nasik	1527764	647462	42.38
		3	Wardha	630900	69308	10.98

TABLE 5.1.4 : STATE-WISE INFORMATION ON DEGRADED LAND OF THE DISTRICTS--Concld.

(hectare)

Sl. No.	State/UT	District	Total Area	Total Degraded	% Degraded Area
1	2	3	4	5	6
22	Manipur	--	--	--	--
23	Meghalaya				
		1 East Garohills	260300	34201	10.37
		2 South Garohills	185700	N/A	--
		3 West Garohills	370700	N/A	--
24	Mizoram				
		1 Aizawl	357631	109184	30.53
		2 Champhai	318583	184795	58.01
		3 Kolasib	138251	16865	12.2
		4 Mamit	302575	50986	16.85
		5 Serchhip	142160	70702	49.74
25	Nagaland	--	--	--	--
26	Orissa	--	--	--	--
27	Pondicherry	--	--	--	--
28	Punjab	--	--	--	--
29	Rajasthan				
		1 Ajmer	842388	398913	47.36
		2 Jhunjhunu	591681	81478	13.78
		3 Nagaur	1764504	361120	20.47
30	Sikkim	--	--	--	--
31	Tamilnadu				
		1 Coimbatore	746128	19566	2.62
		2 Dharmapuri	962247	194532	20.21
		3 Erode	825997	5579	0.68
		4 Thirunelveli	682308	36240	5.31
		5 Tuticorin	459054	78213	17.04
32	Tripura	--	--	--	--
33	Uttar Pradesh				
		1 Agra	400369	92650	23.14
		2 Lalitpur	504149	95450	18.9
		3 Mathura	376432	22975	6.1
		4 Sitapur	570633	88717	15.55
34	Uttranchal	--	--	--	--
35	West Bengal				
		1 Puruliya	625100	198619	31.77
		2 North 24 Pargana	378090	64062	16.94
		3 South 24 Paragna	966171	263635	27.29
GRAND TOTAL		**52**	**35660062**	**6703466**	**18.80**

Source: All India Soil and Land Use Survey, Ministry of Agriculture

TABLE 5.1.5 :STATEWISE COVERAGE UNDER DETAILED SOIL SURVEY

Sl. No.	State/UT	RVP	FPR	RVP & FPR	Non-RVP/FPR	Consultancy	Refuge Rehabilitation	Coal Mine Rehabilitation	Total
1	2	3	4	5	6	7	8	9	10
1	Andaman & Nicobar Island			0			4400		4400
2	Andhra Pradesh	719059		719059	312378		10115		1041552
3	Arunachal Pradesh			0	24990		10591		35581
4	Assam	24241		24241			7834		32075
5	Bihar		38128	38128	41		7623		45792
6	Chandigarh			0	318				318
7	Chhattisgarh	909809	21574	931383			6980	7728	946091
8	Dadra & Nagar Haveli	9933		9933	10471				20404
9	Daman & Diu			0					0
10	Delhi			0	21613				21613
11	Goa			0	164302	5			164307
12	Gujarat	192174		192174	670				192844
13	Haryana		22352	22352					22352
14	Himachal Pradesh	420480	64550	485030	490				485520
15	Jammu & Kashmir	16007		16007			456		16463
16	Jharkhand	738767	282458	1021225	31682		595	2922	1056424
17	Karnataka	1416867		1416867	82843	289	2031		1502030
18	Kerala	88078		88078	15277				103355
19	Lakshadweep			0					0
20	Madhya Pradesh	1793034	137270	1930304	19559		22527	13179	1985569
21	Maharashtra	1579855		1579855	33351			13535	1626741
22	Manipur			0					0
23	Meghalaya			0					0
24	Mizoram			0	166				166
25	Nagaland			0					0
26	Orissa	1082854		1082854	112109		21006		1215969
27	Pondicherry			0					0
28	Punjab	1350		1350	2490				3840
29	Rajasthan	365463	229503	594966	23860				618826
30	Sikkim	110046		110046					110046
31	Tamil Nadu	119365		119365	23232				142597
32	Tripura	3970		3970					3970
33	Uttaranchal	30210	30957	61167	4391	15006			80564
34	Uttar Pradesh	45481	309314	354795	27299		6199		388293
35	West Bengal	433537	279430	712967	4905		9842	1430	729144
36	Bihar & Jharkhand		112409	112409					112409
	Total	**10100580**	**1527945**	**11628525**	**916437**	**15300**	**110199**	**38794**	**12709255**

Source: All India Soil and Land Use Survey, Ministry of Agriculture

Total 5.1.6 : STATE -WISE WASTELANDS OF INDIA

(Area in Scl. Kms~)

Sl. No.	State/UT	No of Districts Covered	Total Geog. Area of Dletss, Covered	Total Wastelands arm in dlstts.covered	% of wasteland to total geog. Area
1	Andhra Pradesh	23	275068	45267.15	16.46
2	Arunachal Pradesh	16	83743	18175.95	21.70
3	Assam	23	78438	14034.08	17.89
4	Bihar	37	94171	5443.68	5.78
5	Chhattisgarh	16	135194	7584.15	5.61
6	Goa	2	3702	531.29	14.35
7	Gujarat	25	196024	20377.74	10.40
8	Haryana	19	44212	3266.45	7.39
9	Himachal Pradesh	12	55673	28336.8	50.90
10	Jammu & Kashmir	14	101387	70201.99	69.24
11	Jharkhand	19	79706	11165.26	14.01
12	Karnataka	27	191791	13536.58	7.06
13	Kerala	14	38863	1788.8	4.60
14	Madhya Pradesh	49	308252	57134.03	18.53
15	Maharasthra	33	307690	49275.41	16.01
16	Manipur	9	22327	13174.74	59.01
17	Meghalaya	7	22429	3411.41	15.21
18	Mizoram	8	21081	4469.88	21.20
19	Nagaland	7	16579	3709.4	22.37
20	Orissa	30	155707	18952.74	12.17
21	Punjab	17	50362	1172.84	2.33
22	Rajasthan	32	342239	101453.86	29.64
23	Sikkim	4	7096	3808.21	53.67
24	Tripura	4	10486	1322.97	12.62
25	Tamil Nadu	29	130058	17303.29	13.30
26	Uttaranchal	13	53483	16097.46	30.10
27	Uttar Pradesh	70	240928	16984.16	7.05
28	West Bengal	18	88752	4397.56	4.95
29	Union Territories	20	10973	314.38	2.87
	Total	**597**	**3166414**	**552692.25**	**17.45**

Source :Wastelands Atlas of India-2005

Note : * Unsurveyed area (J&K) 120849.00

Total Geographical Area : 3287263.00

TABLE 5.2.1 : USE OF AGRICULTURAL INPUTS

Sl. No.	Programme	Unit	1980-81	1990-91	2000-01	2001-02	2002-03**	2003-04P	2004-05P
1	2	3	4	5	6	7	8	9	10
1.	**Seeds**								
	I. Production of Breeder Seeds	Thousand Quintals	5.27	33.89	42.69	45.54	48.42	50.42	51.00
	II. Production of Foundation Seeds	Lakh Quintals	--	3.35	5.91	5.44	6.14	6.30	7
	III. Distribution of Certified/Quality Seeds	Lakh Quintals	25.01	57.10	86.27	91.80	93.03	100.00	127.4
2.	**Consumption of Chemical Fertilizers (I+II+III)**	Lakh Tonnes	55.16	125.46	167.02	173.60	160.94	167.99	NA
		Kg./ha	31.83	67.49	87.56	90.12	84.92	89.83	NA
	I. Nitrogenous(N)	Lakh Tonnes	36.78	79.97	109.20	113.10	104.74	110.77	NA
	II. Phosphatic(P)	Lakh Tonnes	12.14	32.21	42.15	43.82	40.19	41.24	NA
	III. Potassic(K)	Lakh Tonnes	6.24	13.28	15.67	16.67	16.01	15.98	NA
3.	**Consumption of Pesticides(Technical Grade)**	Thousand Tonnes	45.00	75.00	43.58	47.02	48.35	41.02	40.67
4.	**Area under Major Crops**								
	Rice	Million ha	40.15	42.69	44.71	44.90	41.18	42.50	42.12
	Wheat	Million ha	22.28	24.17	26.73	26.33	25.20	26.58	26.49
	Jowar	Million ha	15.18	14.36	9.86	9.80	9.30	9.38	9.10
	Bajra	Million ha	11.66	10.48	9.83	9.53	7.74	10.58	9.26
	Maize	Million ha	6.01	5.90	6.61	6.58	6.64	7.32	7.49
5.	**Area covered under Soil Conservation (Cummulative)**	Million ha	24.37	34.90	39.47*	39.49*	39.62*	39.54*	N.A.
6.	**Irrigated Area**	Million ha	54.10	70.80	N.A.	N.A.	N.A.	N.A.	N.A.
	Major & Medium	Million ha	22.70	26.00	N.A.	N.A.	N.A.	N.A.	N.A.
	Minor @	Million ha	31.40	44.80	N.A.	N.A.	N.A.	N.A.	N.A.

Source : Agricultural Statistics at a Glance, 2005, Department of Agriculture & Cooperation, Ministry of Agriculture

N.A. : Not available
@ : The figures for minor irrigation indicate the net benefit after allowing for seepage.
* : Excluding state sector soil conservation programme

TABLE 5.2.2 : PERFORMANCE OF CROP PRODUCTION

(million tonnes)

Sl. No.	Crops	Year											
		1992-93	1993-94	1994-95	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05*
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Rice	72.86	80.30	81.81	81.73	82.54	86.08	89.68	84.98	93.34	71.82	88.28	85.31
2	Wheat	57.21	59.84	65.77	69.35	66.35	71.29	76.37	69.68	72.77	65.76	72.11	72.00
3	Coarse Cereals	36.59	30.82	29.88	34.11	30.40	31.33	30.33	31.08	33.38	26.07	38.12	33.92
4	Total Cereals	166.67	170.96	177.46	185.19	179.29	188.70	196.38	185.74	199.48	163.04	198.51	191.23
5	Total Pulses	12.82	13.30	14.04	14.25	12.97	14.91	13.42	11.08	13.37	11.13	14.94	13.38
6	Total Foodgrains	179.48	184.26	191.50	199.44	192.26	203.61	209.80	196.81	212.85	174.77	213.46	204.61
7	Sugarcane	228.03	229.66	275.54	277.56	279.54	29.57	299.32	295.96	297.21	287.38	237.31	232.32
8	Total Oilseeds	20.11	21.50	21.34	24.38	21.32	24.75	20.72	18.44	20.66	15.06	25.29	26.10
9	Cotton @	11.40	10.74	11.89	14.23	10.85	12.29	11.53	9.52	10.00	8.62	13.87	17.00$
10	Jute & Mesta #	8.59	8.43	9.08	11.13	11.02	9.81	10.56	10.56	11.67	11.28	11.23	10.49

Source : Department of Agriculture & Cooperation, Ministry of Agriculture

@ : Production in million bales of 180 kg. each

: Production in million bales of 170 kg. each * Advance estimated as on 06.07.2005

$: Estimated at 23.20 million bales of 170 kg each by the Cotton Advisory Board compared with a corresponding target of 21.00 million bales of 170 kg each.

The crop yields have increased greatly in India over the past 20-25 years. Most of these increases have been due to the development of crop varieties which respond to fertilizers. The different types of cropping systems practised in traditional agriculture have given way to systems involving only a few crops which are highly nutrient depleting but high yielding. The legumes, grasses, and millets which were regular components of cropping systems in Indian agriculture have largely been phased out in highly productive areas due to poor economic returns and replaced by high yielding rice, wheat, sugarcane, etc. As a result, the water level is receding at an alarming rate. This has created the problems of soil erosion and the destruction and disturbances to wild life habitats.

TABLE 5.2.3 : AREA UNDER PRINCIPAL CROPS

(million hectare)

Sl. No.	Crops	1970-71	1980-81	1994-95	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05*
1	2	3	4	6	7	8	9	10	11	12	13	14	15
1	Rice	37.6	40.2	42.8	43.4	43.4	44.8	45.2	44.7	44.9	41.18	42.50	42.12
2	Wheat	18.2	22.3	25.8	25.9	26.7	27.5	27.5	25.7	26.3	25.2	26.6	26.5
3	Pulses	22.5	22.5	23.0	22.4	22.9	23.5	21.1	20.3	22.0	20.5	23.4	22.5
4	Foodgrains	124.3	126.7	123.9	123.6	123.8	125.2	123.1	121.0	122.8	113.9	123.3	120.2
5	Cotton	7.6	7.8	7.9	9.1	8.9	9.3	8.7	8.5	9.1	7.7	7.6	8.9
6	Jute & Mesta	1.1	1.3	0.9	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	0.9
7	Sugarcane	2.6	2.7	3.9	4.2	3.9	4.1	4.2	4.3	4.4	4.5	4.0	3.6
8	Tobacco	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.3	0.3	0.4	0.3	0.4
9	Oilseeds	16.6	17.6	25.3	26.3	26.1	26.2	24.3	22.8	22.6	21.49	23.70	27.00

Source : Statistics at a Glance,2005, Ministry of Agricuture

* Advance estimates as on 06.07.2005

TABLE 5.2.4(a) : CAPACITY AND PRODUCTION IN THE CHEMICAL INDUSTRY (INSECTICIDES) IN INDIA

(thousand tonnes)

Sl. No.	Products	2000-2001		2001-2002		2002-03		2003-04		2004-05 (P)	
		Cap.	Production	Cap.	Production	Capacity	Production	Capacity	Production	Cap.	Production
1	2	3	4	5	6	7	8	9	10	11	12
	Insecticides										
1	D.D.T.	6.3	3.8	6.3	3.5	6.3	2.9	6.3	4.5	6.3	4.0
2	Malathion	9.5	5.9	9.5	5.6	9.5	4.2	11.7	3.9	11.9	4.7
3	Parathion	4.0	2.0	4.0	2.1	4.0	2.0	4.0	1.3	4.0	1.0
4	Dimethoate	3.2	1.5	3.2	0.8	3.2	0.8	3.2	0.9	3.2	0.9
5	D.D.V.P.	3.9	2.6	3.9	2.8	3.9	2.5	4.4	3.5	4.3	5.0
6	Quinalphos	5.6	2.6	5.6	2.1	5.6	1.8	4.0	1.8	4.0	0.9
7	Monocrotophos	16.2	8.3	16.2	6.7	16.2	6.5	11	8.1	13.9	9.5
8	Phosphamidon	5.7	3.5	5.7	0.5	5.7	0.8	3.9	0.4	3.9	0.4
9	Phorate	7.5	6.1	7.5	4.8	7.5	3.2	8.2	5.1	8.2	3.6
10	Ethion	5.1	3.5	5.1	4.1	5.1	1.7	4.8	2.5	5.6	1.8
11	Endosulphan	10.1	8.5	10.1	4.5	10.1	3.7	10.1	3.6	10.1	3.1
12	Fenvalearate	2.1	1.6	2.1	1.2	2.1	0.5	2.6	0.8	2.6	0.6
13	Cypermethrin	4.6	4.4	4.6	5.1	4.6	5.1	5.9	5.2	5.9	6.5
14	Anilophos	1.2	0.8	1.2	0.6	1.2	0.4	1.1	0.4	1.1	0.4
15	Acephate	4.8	3.1	4.8	4.4	4.8	4.8	6.1	4.0	6.1	6.1
16	Chlorpyriphos	10.3	8.0	10.3	7.0	10.3	6.4	6.8	8.1	8.6	9.0
17	Phosalone	1.0	0.6	1.0	0.5	1.0	0.4	1.0	0.5	1.0	0.5
18	Metasystox	*	0.6	*	0.7	*	0.5	*	0.5	*	0.6
19	Abate	*	0.3	*	0.0	*	0.0	*	0.0	*	0.0
20	Fenthion	*	0.2	*	0.07	*	0.9	*	0.2	*	0.2
21	Triazophos	*	0.8	*	1.5	*	1.2	*	2.1	*	2.9
22	Lindane	1.3	0.5	1.3	0.3	1.3	0.3	1.0	0.4	1.4	0.4
23	Temephos	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.3
24	Deltamethrin	0.3	0.1	0.3	0.1	0.3	0.2	0.4	0.2	0.5	0.4
25	Alphamethrin	0.4	0.1	0.4	0.3	0.4	0.2	1.2	0.2	1.3	0.3
Total		**103.3**	**69.6**	**103.3**	**59.5**	**103.3**	**51.1**	**97.9**	**58.3**	**104.1**	**63.1**

Source : Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers

* : Not available

TABLE 5.2.4(b) : CAPACITY AND PRODUCTION IN THE CHEMICAL INDUSTRY IN INDIA (FUNGICIDES, HERBICIDES, WEEDICIDES, RODENTICIDES, FUMIGENTS)

(thousand tonnes)

Sl. No.	Products	1999-2000		2000-2001		2001-2002		2002-03		2003-04		2004-05 (P)	
		Inst. Cap.	Production	Inst. Cap.	Production	Inst. Cap.	Production	Capacity	Production	Capacity	Production	Inst. Cap.	Production
1	2	3	4	5	6	7	8	9	10	11	12	13	14
I	**Fungicides**	**14.40**	**12.54**	**14.60**	**12.14**	**14.50**	**13.18**	**15.20**	**12.70**	**21.10**	**19.40**	**26.2**	**22.67**
1	Captan & Captafol	1.80	1.10	1.80	1.40	1.80	1.20	1.80	0.80	1.80	0.80	108	0.80
2	Ziram	0.20	*	0.40	0.10	0.40	0.10	0.40	0.10	0.40	0.30	0.50	0.30
3	Carbendazim (Bavistin)	1.20	0.90	1.20	0.70	1.10	0.70	1.80	1.30	1.50	0.80	1.50	0.70
4	Calixin	0.20	0.04	0.20	0.04	0.20	0.06	0.20	0.10	0.20	*	0.20	0.07
5	Mancozab	11.00	10.30	11.00	9.90	11.00	11.60	11.00	10.20	15.70	17.30	20.70	20.80
6	Copper-Oxychloride	*	0.20	*	0.00	*	0.02	*	0.20	1.50	0.20	1.50	0.00
II	**Herbicides**	**3.80**	**2.00**	**3.80**	**1.50**	**3.80**	**0.60**	**3.80**	**0.20**	**1.80**	**0.5**	**1.70**	**0.40**
1	2, 4-D	2.90	1.30	2.9	1.3	2.9	0.20	2.9	0	1.3	0.2	1.20	0.10
2	Butachlor	0.90	0.70	0.9	0.2	0.9	0.40	0.9	0.2	0.5	0.3	0.50	0.30
III	**Weedicides**	**14.74**	**8.00**	**14.68**	**5.87**	**12.88**	**5.50**	**12.88**	**3.30**	**9.70**	**5.00**	**10.10**	**5.94**
1	Isoproturon	8.50	4.60	8.50	3.80	8.50	3.80	8.5	2.7	5.4	4.4	5.40	4.70
2	Glyphoshate	1.80	1.70	1.80	0.70	2.00	0.40	2	0.1	3.5	0.3	3.90	1.00
3	Paraquat	4.00	1.40	4.00	1.20	2.00	1.00	2	*	*	*	*	0.00
4	Diuron	0.04	0.00	0.04	0.02	0.04	0.00	0.04	0.1	0.1	0.1	0.10	0.00
5	Atrazine	0.10	0.10	0.04	0.10	0.04	0.20	0.04	0.2	0.5	0.1	0.50	0.04
6	Fluchloralin	0.30	0.20	0.30	0.05	0.30	0.10	0.3	0.2	0.2	0.2	0.20	0.20
IV	**Rodenticides**	**3.20**	**2.30**	**3.20**	**3.10**	**3.20**	**2.50**	**3.20**	**2.20**	**3.20**	**1.40**	**3.20**	**1.70**
1	Zinc Phosphide	0.90	0.50	0.90	0.60	0.90	0.30	0.9	0.2	0.9	0.2	0.90	0.30
2	Aluminium Phosphide	2.30	1.80	2.30	2.50	2.30	2.20	2.3	2	2.3	1.2	2.30	1.40
V	**Fumigants**	**0.50**	**0.20**	**0.50**	**0.16**	**0.50**	**0.14**	**0.50**	**0.20**	**0.40**	**0.10**	**0.40**	**0.10**
1	Methyl Bromide	0.30	0.10	0.30	0.06	0.30	0.04	0.3	0.1	0.2	0.0	0.20	0.00
2	Dicofol	0.20	0.10	0.20	0.10	0.20	0.10	0.2	0.1	0.2	0.1	0.20	1.10

Source : Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers

* : Not Available P : Provisional

TABLE 5.2.5 : STATE-WISE CONSUMPTION OF PESTICIDES

(MTs technical grade)

Sl. No.	Name of State/ U.T.s	2000-01	2001-02	2002-03	2003-04	2004-05(P)
1	2	3	4	5	6	7
1	Andhra Pradesh	4000	3850	3706	2034	2133
3	Arunachal Pradesh	13	17	15	147	17
2	Assam	245	237	181	175	170
4	Bihar	853	890	1010	860	850
5	Chhatisgarh	NA	NA	NA	332	486
5.7	Goa	6	5	5	5	5
6.6	Gujarat	2822	4100	4500	4000	2900
7.5	Haryana	5025	5020	5012	4730	4520
8.4	Himachal Pradesh	302	311	380	360	310
9.3	Jammu & Kashmir	1	4	98	9	12
10	Jharkhand	150	36	40	56	69
11	Karnataka	2020	2500	2700	1692	2200
12	Kerala	754	1345	902	326	360
13	Madhya Pradesh	871	714	1026	662	749
14	Maharashtra	3239	3135	3725	3385	3030
15	Manipur	20	14	19	25	26
16	Meghalaya	6	6	6	6	8
17	Mizoram	8	26	15	15	25
17	Nagaland	8	7	7	7	5
18	Orissa	1006	1018	1134	682	692
19	Punjab	7005	7200	7200	6780	6900
20	Rajasthan	3040	4628	3200	2303	1628
21	Sikkim	4	2	3	3	-
22	Tamil Nadu	1668	1576	3346	1434	2466
23	Tripura	11	16	88	118	17
24	Uttar Pradesh	7023	6951	6775	6710	6855
25	Uttaranchal	99	105	129	147	132
26	West Bengal	3250	3180	3000	3900	4000
26	Andaman & Nicobar Islands	3	2	3	6	3
27	Chandigarh	2	1	1	1	1
28	Delhi	55	58	60	56	53
29	Dadra & Nagar Haveli	6	4	5	5	5
30	Daman and Diu	2	2	1	1	1
31	Lakshadweep	2	2	2	2	2
32	Pondicherry	65	58	57	46	42
All-India		**43584**	**47020**	**48350**	**41020**	**40672**

Source : Directorare of Plant Protection Quarentine & Storage, Ministry of Agriculture

P : Provisional

TABLE 5.2.6 : CONSUMPTION OF CHEMICAL FERTILIZERS

(thousand tonnes)

Sl. No.	Year	Nitrogen (N)	Phosphate (P_2O_5)	Potash (K_2O)	Total
1	2	3	4	5	6
1	1960-61	210.0	53.1	29.0	292.1
2	1970-71	1487.0	462.0	228.0	2177.0
3	1980-81	3678.1	1213.6	623.9	5515.6
4	1990-91	7997.2	3221.0	1328.0	12546.2
5	1991-92	8046.3	3321.2	1360.5	12728.0
6	1992-93	8426.8	2843.8	883.9	12154.5
7	1993-94	8788.3	2669.3	908.4	12366.0
8	1994-95	9507.1	2931.7	1124.7	13563.5
9	1995-96	9822.8	2897.5	1155.8	13876.1
10	1996-97	10301.7	2976.8	1029.6	14308.1
11	1997-98	10901.7	3913.6	1372.5	16187.8
12	1998-99	11353.8	4112.2	1331.5	16797.5
13	1999-2000(P)	11592.7	4798.3	1678.7	18069.7
14	2000-01(P)	10920.2	4214.6	1567.5	16702.3
15	2001-02(P)	11310.2	4382.4	1667.1	17359.7
16	2002-03(P)	10474.1	4018.8	1601.2	16094.1
17	2003-04(P)	10177.0	4124.3	1597.9	16799.1

Source :Agriculture Statistcs at a Glance, 2005, Ministry of Agriculture
P : Provisional

TABLE 5.3.1 : FREQUENTLY OCCURRING NATURAL DISASTERS IN INDIA

Sl. No.	Type	Location/ Area	Affected Population (in Million)
1	2	3	4
1	Cyclones	Entire 5700 km long coastline of Southern, Peninsular India covering 9 States viz Gujarat, Maharashtra,Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal and Union Territory of Pondicherry besides Islands of Lakshadweep and Andaman and Nicobar	10
2	Floods	8 major river valleys spread over 40 million hectares of area in the entire country	260
3	Drought	About 68% of total sown area and 16% of total area of the country spread in 14 States of Andhra Pradesh, Bihar, Gujarat, Haryana, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal & Himachal Pradesh covering a total of 116 districts and 746 blocks	86
4	Earthqua	56% of the total area of the countrysusceptible to seismic disturbances	400
5	Landslide	Entire sub Himalayan region and Western Ghats	10
6	Avalanch	Many parts of the Himalaya	1
7	Fires	States of Bihar, West Bengal, Orissa and north eastern States	140

Source : India: State of the Environment, 2001

India is prone to natural disasters. Due to its locational and geographical features, it is vulnerable to a number of natural hazards like cyclones, droughts, floods, earthquakes, fires, landslides and avalanches.

Natural disasters result in heavy economic losses, apart from the loss of human life and the hardship inflicted on the survivors. On an average, atleast one major disaster hits India every year, causing irrepairable damage to life and property.

TABLE 5.3.2 : MAJOR EARTHQUAKES IN INDIA

Sl. No.	Date	Lattitude (Degree N)	Longitude (Degree E)	Magnitude	Yield in Mega/ Others at Source	Region	Remarks
1	2	3	4	5	6	7	8
1	16.06.1819	24.00	70.00	8.0	12.59(0.62)	Kutch	About 2000 people killed
2	12.06.1897	25.00	92.00	8.7	63.1	Assam	One of the greatest earthquake of historical time Shillong city was razed to the ground 1542 killed.
3	04.04.1905	32.30	76.25	8.0	12.59(0.62)	Kangra	20000 lives lost
4	15.01.1934	26.60	86.80	8.3	25.12(1.25)	India-Nepal Border	Most severe in Indian history, More than 10000 killed
6	26.06.1941	12.40	92.50	8.1	15.85(0.79)	Andaman Islands	Flooding in port Blair
7	15.08.1950	28.46	96.66	8.5	39.81(1.99)	Assam	532 people killed
8	06.08.1988	25.14	95.12	5.8	0.79(0.04)	Burma-India Border	3 killed 11 injured
9	20.08.1988	26.78	86.61	6.5	0.04(0.02)	Nepal-India Border	1000 people killed, 1000 injured Extensive damage in Northern Bihar
10	19.10.1991	30.75	78.86	6.6	0.50(0.03)	West UP Hills(Uttarkashi)	768 people killed
11	30.09.1993	18.07	76.00	6.3	0.48(0.2)	Latur, Osmanabad	7601 people killed
12	22.05.1997	23.08	80.06	6.0		Jabalpur	38 People killed
13	29.03.1999	30.41	79.42	6.8	--	Uttar Pradesh	there 1000 dead
14	26.01.2001	23.40	70.28	7.9	--	Gujarat	Over 20000 people killed, 150000 injured and 15900000 affected
15	8.10.2005	34.60	37.00	7.6		Pakistan & Kashmir	Over 87,000 in Pakistan & Kashmir dead
16	13.12.2005			6.8			Demagae houses but no casuality

Source : Ministry of Environment & Forests and web-site of Ministry of Home Affairs

The two thirds of India lies in the Seismic zones of moderate to severe intensity. The Himalayan Range, the Indo-gangetic plains and the Kuthch and Kathaiwar region of Western India are geologically the most unstable parts, and are most prone to earthquakes. The Himalayan frontal arc flanked by the chaman fault in the west constitutes one of the most seismically active intra-continental regions in the world. In a span of 53 years, four earthquakes, exceeding magnitude 8 on the Richter scale, occurred in this region. These are the Assam earthquakes of 1897 and 1950, the Kangra earthquake of 1905 and the Bihar-Nepal earthquake of 1935. Besides the Himalayan regions, the Union Territories of Andaman and Nicobar Islands are also quite vulnerable to earthquakes. Peninsular India comprises stable continental crust regions, which are considered stable since they are away from tectonic activity of the boundaries. These regions are considered seismically the least active but the Latur earthquake in Maharashtra on September 30, 1993 of magnitude 6.4 in the Richter scale showed that this region, too, is unstable and earthquake prone.

The Department of earthquake engineering, University of Roorkee was established in 1960 to carry out Research and Development, Consultancy and Training in Earthquake Engineering. The Department helps in designing earthquake resistant structure. They use various techniques of seismic methods of geophysics in assessing the status of a locality.

TABLE 5.3.3 : LIST OF DISTRICTS COVERED UNDER DROUGHT PRONE AREA PROGRAMME (DPAP) (As on Feb2002)

Sl No.	State/District		No. of Blocks	Area of blocks (Sq.K.M.)
1	**Andhra Pradesh**			
	1	Adilabad	9	11793
	2	Chittoor	8	7761
	3	Cuddapah	7	8225
	4	Khammam	2	1228
	5	Kurnool	13	17366
	6	Mahabubnagar	16	18178
	7	Modak	5	4323
	8	Nalgonda	9	8178
	9	Prakasam	14	15165
	10	Rangareddy	7	5535
	11	Srikakulam	4	1466
		Total	**94**	**99218**
2	**Bihar**			
	1	Bhabhua	5	2237
	2	Jamul	7	3062
	3	Madhubani	4	772
	4	Nawadah	9	2276
	5	Rohtas	2	639
	6	Sitamarhi	3	547
		Total	30	9533
3	**Chattisgarh**			
	1	Bastar	6	3857
	2	Bilaspur	3	1709
	3	Dantewada	6	6010
	4	Durg	2	1146
	5	Janjgir	1	440
	6	Kavardha	2	1386
	7	Korba	5	4309
	8	Rajnandgaon	4	2944
		Total	29	21801
4	**Gujarat**			
	1	Ahmedabad	6	4429
	2	Amreli	11	7393
	3	Bharuch	4	3129
	4	Bhavnagar	6	4896
	5	Dahod	7	3811
	6	Junagarh	6	3162
	7	Narmada	4	2800
	8	Navsari (Valsad)	1	593
	9	Panchmahals	10	4639
	10	Porbandar	2	1729
	11	Sabarkantha	1	368
	12	The Dangs	1	1723
	13	Vadodara	5	3244
	14	Valsad	3	2022
		Total	67	43938

TABLE 5.3.3 : LIST OF DISTRICTS COVERED UNDER DROUGHT PRONE AREA PROGRAMME (DPAP) (As on Feb2002) ….Contd.

Sl No.	State/District		No. of Blocks	Area of blocks (Sq.K.M.)
5	**Himachal Predesh**			
	1	Bilaspur	3	1120
	2	Solan	2	685
	3	Una	5	1514
		Total	10	3319
6	**Jammu & Kashmir**			
		Doda	14	11656
		Udhampur	8	3049
		Total	22	14705
7	**Jharkhand**			
	1	Bokaro	2	755
	2	Chatra	4	2493
	3	Deoghar	7	2436
	4	Dhanbad	8	2000
	5	Dumka	10	5470
	6	Garhwa	14	4032
	7	Godda	7	2019
	8	Hazaibagh	10	15638
	9	Jamtara	4	*
	10	Kodarma	4	*
	11	Latehar	7	*
	12	Pakur	6	*
	13	Palamau	11	*
	14	Sahebganj	6	*
		Total	100	34843
8	**Karnataka**			
	1	Bangalore ®	8	5843
	2	Belgaum	7	9450
	3	Bidar	4	4491
	4	Chamarajanagar	1	1406
	5	Chickmagalur	6	6416
	6	Chitradurga	5	6681
	7	Davangere	1	953
	8	Dharwad	4	3016
	9	Gadag	4	4210
	10	Gulbarga	9	14603
	11	Hassan	4	4002
	12	Haveri	6	4063
	13	Kolar	9	6370
	14	Mysore	3	2630
	15	Tumkur	10	10198
		Total	81	84332
9	**Madhya Pradesh**			
	1	Badwani	6	3184
	2	Betul	10	7080
	3	Bhind	1	406
	4	Chindwada	8	7474
	5	Damoh	3	2204
	6	Dewas	3	3009
	7	Dharwad	8	4981
	8	Guna	6	7196
	9	Jabalpur	1	863
	10	Jhabua	12	6791
	11	Khandwa	5	3886

TABLE 5.3.3 : LIST OF DISTRICTS COVERED UNDER DROUGHT PRONE AREA PROGRAMME (DPAP) (As on Feb2002)….Contd.

Sl No.	State/District		No. of Blocks	Area of blocks (Sq.K.M.)
	12	Khargone	5	3246
	13	Panna	3	2727
	14	Raisen	3	2325
	15	Rajgarh	2	1873
	16	Ratlam	1	681
	17	Rewa	4	2124
	18	Seoni	5	5424
	19	Shaldol	4	5225
	20	Shahjapur	2	1639
	21	Shivpuri	3	2780
	22	Sidhi	8	10350
	23	Umaria	2	3633
		Total	105	89101
10	**Maharashtra**			
	1	Ahmedanagar	10	14109
	2	Akola	13	10540
	3	Washim		
	4	Amravati	9	6407
	5	Aurangabad	6	8108
	6	Beed	6	9008
	7	Buldhana	9	6877
	8	Chandrapur	3	4206
	9	Dhule &		
	10	Nandurbar	7	10621
	11	Gadchiroli	3	7686
	12	Jalgaon	7	6504
	13	Jaina	2	2826
	14	Latur	4	5676
	15	Nagpur	1	829
	16	Nanded	4	4703
	17	Nasik	13	15658
	18	Osmanabad	3	3197
	19	Parbhani	2	3288
	20	Hingoli	2	3308
	21	Pune	12	33355
	22	Sangli	6	7164
	23	Satara	4	5035
	24	Sholapur	10	13730
	25	Yeotmal	12	11638
		Total	148	194473
11	**Orissa**			
	1	Bargarh	6	2648
	2	Bolangir	8	3446
	3	Boudh	2	2516
	4	Dhenkanal	2	1167
	5	Kalahandi	10	5741
	6	Baupada	5	2685
	7	Phulbani (Kandhamal)	12	7376
	8	Sonepur	2	599
		Total	47	26178

TABLE 5.3.3 : LIST OF DISTRICTS COVERED UNDER DROUGHT PRONE AREA PROGRAMME (DPAP) (As on Feb2002)….Contd.

Sl No.	State/District		No. of Blocks	Area of blocks (Sq.K.M.)
12	**Rajasthan**			
	1	Ajmer	3	2660
	2	Banswara	8	5037
	3	Baran	2	3587
	4	Bharatpur	1	501
	5	Dungarpur	5	3793
	6	Jhalawar	3	3536
	7	Karouli	1	1393
	8	Kota	2	1964
	9	Swai Madhopur	1	1375
	10	Tonk	3	3176
	11	Udaipur	3	4947
		Total	32	31969
13	**Tamil Nadu**			
	1	Ariyalur	4	1275
	2	Coimbatore	5	1530
	3	Dharmapuri	14	5751
	4	Dindigul	3	1846
	5	Karur	2	976
	6	Perambalur	2	847
	7	Pudukottai	4	1334
	8	Ramanathapuram	7	2988
	9	Salem	5	1087
	10	Namakkal	3	592
	11	Sivaganga	7	2616
	12	Thiruvannamalai	1	255
	13	Thothukudi	8	3662
	14	Tiruchirapalli	1	475
	15	Tirunelveli	1	326
	16	Vellore	6	1346
	17	Virudhunagar	7	2507
		Total	80	29413
14	**Uttar Pradesh**			
	1	Allahabad	1	587
	2	Bharaich &		
	3	Sravasthi	14	5405
	4	Balrampur (Gonda)	4	2090
	5	Banda	6	3546
	6	Chitrakoot	5	3647
	7	Hamirpur	3	2216
	8	Jalaun	3	2140
	9	Jhansi	5	3281
	10	Lakhimpur Kheri	2	392
	11	Lalitpur	2	1793
	12	Mahoba	2	1835
	13	Mirzapur	2	1385
	14	Sitapur	3	1108
	15	Sonebhadra	8	6273
		Total	60	35698
		188		

TABLE 5.3.3 : LIST OF DISTRICTS COVERED UNDER DROUGHT PRONE AREA PROGRAMME (DPAP) (As on Feb2002)…Concld.

Sl No.	State/District		No. of Blocks	Area of blocks (Sq.K.M.)
15	**Uttaranchal**			
	1	Almora &		
	2	Bageswar	8	3114
	3	Chamoli	4	5850
	4	Garhwal (Pauri)	10	4070
	5	Pithoragargh &		
	6	Champavath	5	1709
	7	Tehri Garhwal	3	1053
		Total	30	15796
16	**West Bengal**			
	1	Bankura	7	2185
	2	Birbhum	2	397
	3	Midnapur	7	2707
	4	Purulia	20	6305
		Total	36	11594
DPAP Total 183 Districts			971	745914

Source : Central Water Commission

* Combined for all blocks in districts at Sr. no 8 to 14, seprate break up not available

TABLE 5.3.4 (a) : FLOOD AFFECTED AREA & FLOOD DAMAGES IN INDIA (abstract for the period 1953 to 2002)

Sl. No.	Item	Unit	Average Flood Damage During 1953-2002	Maximum Damage (Year)	Damage During 2002 (Tentative)
1	2	3	4	5	6
1	Area Affected	Million ha.	7.38	17.50 (1978)	2.87
2	Population Affected	Million	32.97	70.45 (1978)	22.41
3	Human Lives Lost	Nos.	1560.00	11316.00 (1977)	640.00
4	Cattle Lost	Nos.	91555	618248 (1979)	3647.00
5	Cropped Area Affected	Million ha.	3.48	10.15 (1988)	1.27
6	Value of Damage to Crops	Rs. Crore	596.97	2510.90 (1988)	547.13
7	Houses Damaged	Million	1.19	3.51 (1978)	0.45
8	Value of Damage to Houses	Rs. Crore	189.10	1307.89 (1995)	455.17
9	Value of Damage to Public Utilities	Rs. Crore	566.24	3171.40 (1998)	486.49
10	Value of Damage to Houses, Crops and Public Utilities	Rs. Crore	1376.08	5845.98 (1998)	1488.79

Source : Central Water Commission.
Note : Figures for 1998, 1999, 2000, 2001 & 2002 are tentative

Table 5.3.4 (b) : STATE -WISE DETAILS OF DEMAGE DUE TO HEAVY RAINS / FLOODS CYCLONIC STORMS AND LANDSLIDES DURING 2005 IN INDIA

Sl. No	State/UT	Human Lives	No. of House
1	Assam	27	735
2	Andhra Pradesh	87	120404
3	Arunachal Pradesh	10	6572
4	Bihar	51	4266
5	Chhattisgarh	17	376
6	Goa	16	226
7	Chandigarh	213	161628
8	Gujarat	11	3647
9	Haryana	15	2872
10	Himachal Pradesh	3	357
11	Jammu & Kashmir	160	108665
12	Karnataka	131	20527
13	Kerala	86	223022
14	Madhya Pradesh	1108	449145
15	Meghalaya	1	67
16	Mizoram	2	27
17	Nagaland	15	214
18	Orissa	12	5871
19	Punjab	25	268
20	Rajasthan	79	12690
21	Sikkim	10	390
22	Tamil Nadu	203	374852
23	Uttar Pradesh	203	72729
24	Uttaranchal	113	1712
25	West Bengal	7	461
26	Pondicherry	Nil	47000

Source : Environment in the Indian Parliament: An Analysis, 2005, Supported by Ministry of Environment and Forests.
Note : Figures duly updated as on 29.11.2005

TABLE 5.3.5 : STATEWISE DAMAGE DUE TO HEAVY RAINS, FLOOD, CYCLONE DURING SOUTH-WEST MONSOON --2004

(As on 3-10-2004)

Sl. No.	States/UTs	Calamity		Affected					Damage					Lives lost	
			Total Districts (No.)	Districts (No.)	Talukas/Blocks/Mpls.	Villages	Total Area (in lakh Ha.)	Population (in lakh)	Crop Area (in lakh Ha.)	Estimated value of crops (Rs. in crores)	Houses (No.)	Estimated value of houses (Rs. In Crores)	Estimated value of Public properties (Rs. in Crores)	Human (No.)	Cattle (No.)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Arunachal Pradesh	HR/F/L	16	6	NR	130	NR	2.69	0.92	19.15	NR	1.19	59.09	11	NR
2	Assam	HR/F	27	27	NR	10560	28.51	133.54	12.58	NR	589064	NR	NR	448	2256
		C		1	NR	NR	NR	0.15	NR	NR	NR	NR	NR	3	NR
3	Bihar	F/FF	38	20	204	9360	49.86	212.51	13.95	418.6	897427	739.49	0.01	731	2673
		CW		1	NR	NR	NR	0.97	NR	NR	18892	NR	NR	22	NR
4	Gujarat	HR	25	11	38	896	NR	7.45	NR	NR	30000	NR	NR	171	637
5	Haryana	HR	19	6	94	197	1.3	10	0.81	41.00	5000	NR	99.76	20	766
6	Himachal Pradesh	HR/FF	12	2	NR	3	NEG	Neg	0.58	0.58	92	0.37	0.02	3	2
7	Kerala	HR/L	14	8	NR	940	NR	0.85	NR	NR	15788	1.21	NR	139	NR
8	Maharashtra	HR	35	15	95	1028	NR	1.25	1.00	NR	4468	531.83	2	283	552
9	Meghalaya	F/HR	7	7	NR	183	NR	1.57	NR	NR	2604	NR	NR	13	4913
10	Mizoram	HR/L	8	1	NR	NR	NR	NR	NR	NR	2	NR	NR	6	NR
11	Orissa	HR		4	17	294	NR	2.56	0.40	NR	95	NR	NR	7	NR
12	Punjab	HR	17	3	NR	339	NR	NR	0.81	NR	12438	NR	M	15	482
13	Sikkim	HR/L	4	4	NR	NR	NR	NR	NR	NR	300	NR	M	4	NR
14	Tripura	HR/L	4	4	115	199	NR	3.5	NR	NR	14043	15.1	27.3	3	NR
15	Uttar Pradesh	CW	70	1	NR	NR	NR	NR	NR	NR	NR	NR	NR	25	NR
16	Uttaranchal	L/HR	13	6	NR	NR	NR	NR	NR	NR	38	NR	NR	43	16
17	West Bengal	HR/F/L	19	1	NR	90	NR	0.65	0.451	1.00	768	0.37	0.5	2	Nil
18	Daman & Diu	HR/F	1	NR	NR	NR	NR	0.09	NR	NR	2165	NR	NR	Nil	Nil
19	D & NH	HR/F	1	NR	NR	NR	NR	NR	NR	NR	681	NR	NR	2	NR
20	Lakshadweep	C	1	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
TOTAL			**331**	**128**	**563**	**24219**		**377.78**	**31.501**		**1593865**			**1951**	**12297**

Source : Disaster Management Division, Ministry of Home Affairs

Note : F - Flood, FF- Flash Flood, L - Landslide, HR - Heavy Rains, C - Cyclone, NR - Not Reported, Neg.-Negligible, CW - Cyclonic wind.

TABLE 5.3.6 : DAMAGE DUE TO TSUNAMI/TIDE WAVE IN THE BAY OF BENGAL-2004

Name of States/UT	Districts/Islands	Population (Total for A& N/Affected for others)	Human lives lost	Total Persons missing including fisher men	Persons moved to safer places	No. of Relief Camps/ persons in the camps
1	2	3	4	5	6	7
A & N Islands	Bambooka	55	0	17	0	Evacuated
	Car Nicobar	20292	768	344	7791	85/15550
	Chowara	1385	41	15	13	Evacuated
	Great Nicobar/ Campbell Bay	7566	336	220	1687	14/4328
	Kondul	150	38	-	-	Evacuated
	Kamorta	3412	51	387	700	4/1476
	Katchal	5312	345	4310	277	3/3228
	Little Andaman	17528	52	15	4286	7/6569
	Little Nicobar	353	43	-	-	Evacuated
	Middle Andaman	54385	3	-	-	2/934
	Nancowry	927	1	3	-	Evacuated
	Pilomillow	145	163		-	Evacuated
	Trinket	432	3	234	-	9/3296
	Terassa	2026	50	9	-	45/7992
	South Andaman includes Port Blair	181949	5		3612	-
	Strait Island	42	0.0	0	29	
	Total	**295959**	**1899**	**5554***	**18395**	**169/43373**
Andhra Pradesh	Krishna	13061	27	-	-	-
	Guntur	30700	12	-	-	-
	Nellore	16578	20	-	-	-
	Parkasham	92547	35	-	-	-
	West Godavari	2395	8	-	-	-
	East Godavari	7836	3	-	-	-
	Visakhapatnam	33203	0.0	-	-	-
						People gone back. All 65 Relief Camps
	Total	**196320**	**105**	**11**	**34264**	**closed**
Kerala	Kollam	600000	131	-	-	-
	Allappuzha	40000	35	-	-	-
	Ernakulam	300000	5	-	-	-
	Total	**1300000**	**171**	-	**24978**	**29/24978**

Source: Website of Ministry of Home Affairs

TABLE 5.3.6 :DAMAGE DUE TO TSUNAMI/TIDE WAVE IN THE BAY OF BENGAL-2004

Name of States/UT	Districts/Islands	Population (Total for A& N/Affected for others)	Human lives lost	Total Persons missing including fisher men	Persons moved to safer places	No. of Relief Camps/ persons in the camps
1	2	3	4	5	6	7
Tamil Nadu	Chenai	65322	206	-	30000	0
	Cuddalore	99704	615	-	61054	2/900
	Kancheepuram	100000	128	-	60000	0
	Kanyakumari	187650	824	-	46280	15/12423
	Nagapattinam	196184	6060	-	196184	33/28864
	Pudukottai	66350	15	-	4857	0
	Ramanathapuram	6815	6	-	8350	0
	Tirunelveli	27948	4	-	11170	0
	Thoothukudi	13072	3	-	13072	0
	Thiruvallur	25600	29	-	15600	0
	Thanjavur	29278	26	-	4600	0
	Tiruvarur	NA	20	-	11295	0
	Villupuram	78240	47	-	37500	8/020
	Total	**896163**	7983	-	499962	58/44207
Pondicherry	Karaikal	17432	484	66	15000	0
	Pondicherry	26000	107	9	55000	0
	Total	**43432**	**591**	**75**	**70000**	**People gone back. All 48 Relief camps closed**
	Grand Total	**27,31,874**	**10749**	**5640**	**6,47,599**	**256/1,12,558**

Source: Website of Ministry of Home Affairs

* Information is based on the Survey being undertaken of inhabitated Islands.

TABLE 5.3.7 : DETAILS OF ASSISTANCE PROVIDED TO DROUGHTS FOR 2004-05
(Rs. In crores)

State	No of District declared	Demand by the State	CRF Released	Assistance released	Foodgrains Allocation (in Lakh Mts)
Andhra Pradesh	23	1199.68	180.56	40.01	2.20
Bihar	20	2312.48	61.05	162.15	2.00
Chhattisgarh	15	604.96	25.03	52.74	0.90
Jharkhand	22	928.12	25.84	-	0.67
Kernataka	21	1147.71	67.98	49.14	1.14
Madhya Pradesh	20	724.88	57.10	1.70	1.00
Maharashtra		1117.99			
Rajasthan	25	2378.64	188.71	216.79	6.99
		939.37			4.00
Tamil Nadu	#	1910.58	93.57	117.27	1.50
Uttar Pradesh	61	7226.10	133.36	192.10	-
Punjab	#	4538.38	111.87		

Source : Website of Ministry of Agriculture

TABLE 5.3.8 : ASSISTANCE PROVIDED TO STATES FOR DROUGHTS OF 2002-03,2003-04 & 2004-05

(Amount Rs. In crores) (Foodgrains in Lakh MTs)

State	Assistance provided for Drought of 2002-03		Assistance provided for Drought of 2003-04		Assistance provided for Drought of 2004-05	
	NCCF	Foodgrains	NCCF	Foodgrains	NCCF'@	Foodgrains
Andhra Pradesh	123.51	17.20	50.58	7.82	163.60	2.20
Bihar	-	-	-	-	162.15	2.00
Chhattisgarh	127.51	4.74	-	-	93.44	0.90
Gujarat	-	3.06	-	-	-	-
Haryana	-	0.25	-	-	-	-
Himachal Pradesh	14.35	0.10	-	-	-	-
Jharkhand	-	0.40	-		139.82	0.67
Karnataka	207.65	7.20	298.16	7.29	83.67	1.14
Kerala	-	0.52	-	1.03	-	-
Madhya Pradesh	171.66	7.80	-	-	36.30	1.00
Maharashtra	20.00	2.32	250.69	7.00	174.66	-
Orissa	5.29	4.22	-	-	-	-
Rajasthan	889.61	32.56	-	0.19	332.27	699.00
					156.71	4.00
Tamil Nadu	332.09	5.00	173.35	3.04	156.84	1.50
Uttranchal	-	0.50	-	-	-	-
Urrar Pradesh	310.06	2.00	-	-	360.94	-

Source : Website of Ministry of Agriculture

@ : Subject to adjustment of available balances in the State CRF.
CRF : Calamity Relief Fund
NCCF : National Calamity Contingency Fund

TABLE 5.3.9: INDIA'S MAJOR NATURAL DISASTERS SINCE 1980

Sl. No.	Year	Type	Affected Population Location/Area	Loss of Human (Million)	Life	Loss to Crops and Property
1	1980	Floods	Uttar Pradesh	30	1525	Rs. 2.0 Billion
2	1981	Floods	Uttar Pradesh	13	362	1.5 Million hectares of cropped area affected
3	1982	Floods	Orissa	10	1000	3 Million hectares of agricultural land affected. Loss estimated to run into thousands of millions of Rupees
4	1982	Cyclone	Saurashtra	--	514	Livestock death toll nearly 0.15 million.Loss to crops estimated at about Rs. 1.27 Billion
5	1983	Cyclone	Andhra Pradesh	--	134	Livestock death toll-42800. Damage to crops estimated at Rs. 0.34 Billion
6	1984	Cyclone	Andhra Pradesh and Tamil Nadu	--	658	Livestock death toll-90650. Damage to crops estimated at Rs. 2.32 Billion
7	1985	Floods	Haryana, Punjab and Uttar Pradesh	--	Heavy Toll	Large area of standing Kharif crop affected heavily
8	1986	Floods	Andhra Pradesh, Bihar and Uttar Pradesh	--	Heavy Toll	Large area of standing Kharif crop affected heavily
9	1987	Floods	Assam, Bihr and West Bengal	--	Over 1400	--
10	1988	Cyclone	West Bengal	--	532	Livestock death toll-57604
11	1989	Floods	Andhra Pradesh, Assam, Gujarat, Himachal Pradesh, Jammu and Kashmir, Karnataka, Maharashtra, Orissa, Uttar Pradesh and West Bengal	--	Over 1400	--
12	1990 *	Cyclone	Andhra Pradesh and Tamil Nadu	7.78	928	Rs. 22.470 Billion
13	1991 *	Earthquake	Uttarkashi, Uttar Pradesh	0.4	768	Rs. 0.890 Billion
14	1992	Drought	Maharashtra			Rs. 28.23 Billion
15	1993 *	Floods	Arunachal Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, J & K, Mizoram, Punjab, Rajasthan, Tripura and Uttar Pradesh	28.8	1643	Rs. 21.060 Billion
16	1994	Cyclone	Andhra Pradesh and Tamil Nadu	--	226	Loss to propertty estimated at Rs. 6.12 Billion in Tamil Nadu and 444194 Hectares of land in Andhra Pradesh
17	1995	Floods	Large parts of the country	--	1360	Property worth Rs. 17.7 Billion and crop in 2.35 Million Hectares dameaged
18	1996	Floods	Large parts of the country	--	1700	Property worth Rs. 22.0 Billion and crop in 20.0 Million Hectares dameaged
19	1996	Cyclone	Andhra Pradesh	--	1058	0.3 Million houses fully and a similar number partially damaged. 0.1 Million Hectares of crop damaged. Loss to property worth Rs. 61.26 Billion.
20	1997 *	Earthquake	Jabalpur	--	39	--
21	1998 *	Earthquake	Chamoli	--	100	--
22	1999 **	Cyclone	Orissa	12.9	9887	1.8 Million Hectares of crop area and 1.6 Houses damaged
23	2001	Earthquake	Gujarat			Over 20,000 people killed, 1,50,000 injured and 1,59,00,000 affected, 12.54 lakhs house damaged
24	2004	Tsunami/Tide waves	A & N Island, Andhra Pradesh, Tamil Nadu, Pondicherry			over 10,749 persons were killed. 5640 person were eperted missing. About 6.5 Lakhs person moved to refer place
25	2005	Earthquake	Pakistan & Kashmir			over 87,000 people in Pakistan & Kashmir dead.

Source : India: State of Environment Report 2001 & Website of Ministry of Home Affairs

* : State of the Environment: India 1995, Ministry of Environment and Forests, Government of India

** : Minstry of Agrivulture

TABLE 5.4.12 : Consumption of Minerals in Refractory Industry 1994-95 to 2002-03

('000 tonnes)

Year	Dolomite	Fireclay	Magnesite	Quartz & Quartzite	Bauxite & Disapore	Chromite	Kyanite & sillimanite	Kaolin
1993-94	616	634	243	55	239	29	41	15
1994-95	483	583	264	64	234	27	31	18
1995-96	454	316	288	61	234	23	31	22
1996-97	187	321	292	71	238	22	24	22
1997-98	228	250	234	66	213	46	18	29
1998-99	228	241	235	64	200	39	18	22
1999-00	228	227	427	67	206	40	17	19
2000-01	379	227	182	61	197	25	18	18
2001-02	392	210	193	59	176	22	17	20
2002-03	391	193	190	59	165	22	16	17

Source : Indian Bureau of Mines (IBM), Nagpur

* : Includes alloy steel, foundary and iron & steel

TABLE 5.4.13 NUMBER OF REPORTING MINES (By Groups) 1995-96 to 2004-05

('000 tonnes)

Year	Total*	Coal & Lignite	Metallic Minerals	Non -Metallic Minerals
1	2	3	4	5
1994-95	3746	563	690	2493
1995-96	3635	565	696	2374
1996-97	3541	578	683	2280
1997-98	3354	575	611	2168
1998-99	3283	567	621	2095
1999-00	3209	611	572	2026
2000-01	3191	596	565	2030
2001-02	3193	570	574	2049
2002-03	3146	562	591	1993
2003-04	3132	562	612	1958
2004-05	3168	562	615	1991

Source : Indian Bureau of Mines (IBM), Nagpur

* : Excluding Petroleum (crude), Atomic and Minor minerals.

Note : Reoirting Mine : A mine reporting production or reporting 'Nil' production during a year but engaged in developmental work such as, overburden removal; underground driving, winzing, sinking work; exploration by pitting, trenching or drilling as evident from the MCDR returns.

TABLE 5.4.14 NUMBER OF UNDERGROUND MINES (By Principal Minerals) 2003-04*

Mineral	Total	A' Category	B' Category
1	2	3	4
Asbestos	3	1	2
Barytes	4	0	4
Chromite	5	5	0
Copper Ore	5	4	1
Gold	3	3	0
Lead & Zinc	4	4	0
Manganese Ore	10	7	3
Mica	29	2	27
Ochre	1	0	1
Steatite	5	2	3
Others	4	0	4
Total	**73**	**28**	**45**

Source : Indian Bureau of Mines (IBM), Nagpur

* : Excluding fuel, atomic & minor minerals

A' i) Mechanised Mines ii) > 150 labour in all

iii) > 75 labour in workings below ground B' Other than 'A'

TABLE 5.4.1 : NUMBER OF REPORTING MINES IN INDIA
(Excluding atomic and minerals, Petrolium(crude) Natural gas (utilised) & Minor Minerals)

Sl. No.	State	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05
1	2	3	4	5	6	7	8	9
1	Andhra Pradesh	406	385	394	400	413	405	413
2	Arunachal Pradesh	--	--	--	--	--	--	--
3	Assam	9	10	10	10	10	9	9
4	Bihar	20	13	10	9	6	8	10
5	Chhattisgarh	86	66	113	123	125	142	138
6	Goa	76	71	74	75	80	79	72
7	Gujarat	443	454	432	424	417	421	430
9	Haryana	29	30	32	28	17	2	3
8	Himachal Pradesh	38	33	33	32	32	30	28
10	Jammu & Kashmir	6	7	7	9	9	8	8
11	Jharkhand	311	343	336	299	292	299	303
12	Karnataka	202	184	171	192	216	227	235
13	Kerala	54	45	42	37	34	35	38
14	Madhya Pradesh	425	436	374	371	325	318	334
15	Maharashtra	142	150	135	137	137	152	156
17	Meghalaya	2	2	2	2	4	5	5
18	Orissa	239	229	236	232	243	243	240
16	Manipur	--	--	--	--	--	--	--
19	Rajasthan	501	465	456	465	441	396	391
20	Sikkim	2	2	2	2	2	2	2
21	Tamilnadu	130	134	148	172	171	183	183
22	Uttar Pradesh	21	21	28	38	29	27	29
23	Uttaranchal	16	8	15	20	28	27	28
24	West Bengal	125	121	123	116	115	114	113
Total		**3283**	**3209**	**3173**	**3193**	**3146**	**3132**	**3168**

Source : Indian Bureau of Mines

TABLE 5.4.2 : PRODUCTION [1] OF MINERALS
(Excluding atomic and minor minerals)

Sl. No.	Minerals	Unit	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05
1	2	3	4	5	6	7	8	9	10
	Fuel Minerals								
1	Coal	000 t	296508	304103	313696	327787	341272	361156	382137
2	Lignite	000 t	23419	22124	22947	24813	26018	27958	30341
3	Natural Gas (Ut.)	M.C.M.	25705	26885	27860	28038	29964	30908	30820
4	Petroleum (Crude)	000 t	32722	31949	32426	32032	33044	33373	34015
	Metallic Minerals								
5	Bauxite	Tonne	6609525	7053582	7992782	8688752	9867455	109424786	11696773
6	Chromite	Tonne	1418119	1737985	1971806	1548900	3068631	2904809	3639848
7	Copper Ore	Tonne	4229996	3084849	3498270	3417967	3071293	2902972	2931158
8	Copper Conc.	Tonne	198531	165024	163564	164469	152099	143135	145664
9	Gold Ore	Tonne	644059	569824	471042	496270	612346	622468	589877
10	Gold	Kg.	2683	2586	2615	2810	3153	3457	3526
11	Iron Ore	000 t	72230	74946	80762	86226	99072	122838	142711
12	Lead & Zinc Ore	Tonne	2650854	2755390	2505265	3676751	3074864	3644263	3928526
13	Lead Conc.	Tonne	62842	62899	54487	52386	59107	73069	81635
14	Zinc Conc.	Tonne	349934	360138	365164	398837	486162	590276	666972
15	Manganese Ore	Tonne	1537693	1585726	1595458	1587305	1678372	1776153	2378453
16	Silver	Kg.	55409	53641	46150	57675	59502	37870	10955
17	Tin Conc.	Kg.	39391	22812	12979	13887	10630	15576	23502
	Non-Metallic Minerals								
18	Agate	Tonne	154	120	120	53	96	55	15
19	Apatite	Tonne	14031	11642	11117	12138	11426	10448	8596
20	Phosphorite	Tonne	1262238	1191640	1252918	1239414	1201408	1435959	1184351
21	Asbestos	Tonne	20111	18550	15397	11148	14139	10107	5619
22	Ball Clay	Tonne	448949	423989	461836	634121	663296	837847	527807
23	Barytes	Tonne	660854	360538	845001	915976	679628	723075	1161332
24	Calcite	Tonne	61908	60134	62044	68243	115612	122329	84187
25	Chalk	Tonne	118623	142065	129173	115061	132775	117185	131599
26	Clay (Others)	Tonne	95671	217446	216354	199139	164790	790191	1224514
27	Corundum	Kg.	807	20	9	301	7601	117030	18560
28	Diamond	Carat	34580	40956	57407	81436	84407	71260	78315
29	Diaspore	Tonne	9334	9406	8818	8849	11157	13775	21194
30	Dolomite	Tonne	2921748	2841607	3077573	3251119	3630115	4050906	4308938
31	Dunite	Tonne	230203	229667	168121	54158	27731	31040	21925
32	Felspar	Tonne	114948	194158	179046	228735	239093	332220	373212
33	Fireclay	Tonne	469721	407296	440982	495752	513980	657080	558716
34	Felsite	Tonne	657	656	928	1121	1163	947	793
35	Fluorite (Graded)	Tonne	4025	44784	44302	13866	8825	6555	3733
36	Fluorite (Conc.)	Tonne	48	220	3253	6900	4198	5838	7717
37	Garnet (Abrasive)	Tonne	133107	193406	232259	280784	432093	490893	587951
38	Garnet (Gem)	Kg.	950	800	502	676	908	544	90
39	Graphite (r.o.m.)	Tonne	135668	108826	124790	105814	106060	87207	100363
40	Gypsum	Tonne	2267240	3247009	2644415	2858659	2653485	2773813	3554973
41	Jasper	Tonne	5570	5709	5041	4189	4547	2533	1210
42	Kaolin	Tonne	740542	815595	871331	814759	822751	896884	904989
43	Kyanite	Tonne	6134	6191	4773	4225	5327	9057	7710
44	Sillimanite	Tonne	12123	14938	15498	14720	13290	19729	28761
45	Laterite	Tonne	594665	795017	605598	615271	638220	828179	704290
46	Limestone	000 t	110968	128787	127202	130912	155742	153390	161462
47	Lime Kankar	Tonne	252125	206767	228926	171635	310435	358468	482013
48	Limeshell	Tonne	91761	98033	82008	128497	119931	135782	138380
49	Magnesite	Tonne	349852	325764	317765	287985	278267	323977	381327
50	Mica (Crude)	Tonne	1484	1807	1154	2026	1232	1075681	1366095
51	Mica (Waste & Scrap)[2]	Tonne	1067	1579	2963	4069	2342	2927662	2801799
52	Ochre	Tonne	375371	424019	390019	612663	778540	959673	807963
53	Perlite	Tonne	207	383	274	176	283	279	334
54	Pyrites	Tonne	88730	9539	-	-	-	-	-
55	Pyrophyllite	Tonne	91924	107458	148346	150345	147233	176240	269712
56	Pyroxenite	Tonne	-	-	-	169995	256381	240391	241749
57	Quartz	Tonne	253859	251157	302226	248372	271267	287188	295719
58	Quartzite	Tonne	45109	60506	55311	26793	39313	66654	92641
59	Silica Sand	Tonne	1718325	1558419	2357601	1722061	2017282	2545969	1904771
60	Sand (Others)	Tonne	2589600	2152751	1817439	1982427	2026477	1191854	1386559
61	Salt (Rock)	Tonne	2607	2813	2530	2679	1620	1813	3073
62	Shale	Tonne	816492	779949	828422	914879	1276207	1897969	2385580
63	Slate	Tonne	9711	10559	10046	4859	6841	11381	4093
64	Steatite	Tonne	481554	557112	553241	598366	688135	726398	749969
65	Selenite	Tonne				20705	18759	19740	6956
66	Sulphur[3]	Tonne	14889	24883	62047	85818	102977	108856	113904
67	Vermiculite	Tonne	4274	3123	5003	5097	5499	4493	3273
68	Wollastonite	Tonne	94700	117094	121891	136420	178298	150814	172530

Source : Indian Bureau of Mines/website www.coal.nic.in

(1) : Excluding the minerals declared as prescribed substances under the Atomic Energy Act 1962.

(2) : Includes the mine waste and waste obtained while dressing of crude mica at the mine site

(3) : Obtained as by-product from fertilizer plants and oil refineries. P : Provisional;

TABLE 5.4.3 : INFORMATION ON REHABILITATION OF MINING LAND/RECLAIMATION OF ABANDONED MINES

Sl. No.	Item	For the Year 2003-04	Cumulative
1	2	3	4
1	No. of abandoned mines	7	91
2	No. of abandoned mines reclaimed	5	45
3	Total area reclaimed in abnandoned mines (hect.)	6.01	642.18
4	No. of mines (working) where reclaimation / rehabilitation is being carried out	128	817
5	Area of such reclaimed / rehabilitation in working mines(in hect.)	591.52	9315.49

Source : Indian Bureau of Mines

TABLE 5.4.4 : STATUS OF AFFORESTATION IN MAJOR NON-COAL MINES UPTO 2003-04

Sl. No.	Minerals	Mines Covered	Area Covered (Hects.)	Trees Planted	Trees Survived	Survival Rate (%)
1	2	3	4	5	6	7
1	Bauxite	83	1822.15	5879624	4426361	75.28
2	Chromite	14	422.32	1908295	1215900	63.72
3	Copper	7	355.77	1334060	844990	63.34
4	Dolomite	70	305.78	499253	334039	66.91
5	Gold	5	434.00	922310	645422	69.98
6	Iron Ore	130	9113.17	27901898	19081280	68.39
7	Iron and Manganese	31	211.78	649346	482020	74.23
8	Lead & Zinc Ore	9	1369.50	705040	629834	89.33
9	Limestone	397	9974.48	15466376	11168129	72.21
10	Manganese Ore	57	2205.81	5617163	3648362	64.95
11	Magnesite	18	524.55	478923	324337	67.72
12	Pyrites	1	7.00	20750	14715	70.92
13	Others Minerals	404	2362.97	3063167	1985876	64.83
Total		**1226**	**29109.28**	**64446205**	**44801265**	**69.52**

Source : Indian Bureau of Mines

TABLE 5.4.5 : MINING MACHINERY IN METALLIFERROUS OPEN CAST MECHANISED MINES DURING 2002-03 & 2003-04 (Excluding Fuel, Atomic and Minor Minerals)

Sl. No.	Machinery	2002-03		2003-04	
		In Use	In Reserve	In Use	In Reserve
1	2	3	4	5	6
1	Air Compressor	726	104	672	98
2	Back Hoe	377	17	442	22
3	Bulldozer	4653	24	410	22
4	Crane	132	12	142	14
5	Crusher	272	12	292	13
6	Dipper Shovels (Hydil)	444	36	453	48
7	Dipper Shovels (Mech)	144	11	93	0
8	Drag Lines	0	1	0	2
9	Drills/B;ast Hols	853	124	874	116
10	Front and loader	492	16	492	27
11	Hauler/Dumper	4489	219	3985	243
12	Locomotives	22	9	22	8
13	Motor Grader	56	4	78	5
14	Surface Miners	6	0	0	0

Source : Indian Bureau of Mines

TABLE 5.4.6 : CONSUMPTION OF EXPLOSIVE FOR MINING
(excluding fuel, atomic & minor minerals)

Sl. No.	Item	Unit	2002-03	2003-04
1	2	3	4	5
1	Gun powder	Tone	38	46
2	High Explosive	Tone	57955	58100
3	Liquid Oxygen	Tone	393	251
4	Detonators	000 No.	9853	10416
5	Fuse	M (000)	27587	30914

Source : Indian Bureau of Mines

TABLE 5.4.7 : MINING LEASES
(By principal States as on 31-3-2003*)

Sl. No.	State	No. of Mining Leases Granted/Executed	% to Total Leases	Area ('000 Hect.)	% of Total Area
1	2	3	4	5	6
1	Gujarat	1589	17	37	6
2	Andhra Pradesh	1482	16	48	8
3	Rajasthan	1312	14	135	22
4	Madhya Pradesh	1154	13	33	5
5	Orissa	629	7	95	15
6	Tamilnadu	536	6	42	7
7	Karnataka	514	6	51	8
8	Goa	396	4	30	5
9	Jharkhand	384	4	45	7
10	Chhattisgarh	259	3	30	5
11	Maharashtra	220	3	16	3
12	Others	656	7	58	9
	Total	**9131**	**100**	**620**	**100**

Source : Indian Bureau of Mines (IBM), Nagpur

* : Excluding fuel, atomic and minor minerals

TABLE 5.4.8 : Production of Coal
(1994-95 to 2004-05)

Year	Quantity (Lakh tonnes)	Labour * Employed (AV. Daily)**
1	2	3
1995-96	2734	525300
1996-97	2861	514686
1997-98	2967	506403
1998-99	2965	503416
1999-00	3041	491289
2000-01	3137	486710
2001-02	3278	449021
2002-03	3413	438179
2003-04	3612	422594
2004-05	3821	422594

Source : Indian Bureau of Mines (IBM), Nagpur

* : Excluding Meghalaya

** : Including Lignite. Data relates to calender year