



APPENDIX



1. Ramsar wetland sites in India

The Ramsar Convention is an international treaty for the conservation and sustainable utilization of wetlands, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific, and recreational value.

S.No	Name	State
1.	Kolleru Lake	Andhra Pradesh
2.	Deepor Beel	Assam
3.	Nalsarovar Bird Sanctuary	Gujarat
4.	Chandra Taal	Himachal Pradesh
5.	Pong Dam Lake	Himachal Pradesh
6.	Renuka Wetland	Himachal Pradesh
7.	Hokersar Wetland	Jammu and Kashmir
8.	Surinsar-Mansar Lakes	Jammu and Kashmir
9.	Tsomoriri	Jammu and Kashmir
10.	Wular Lake	Jammu and Kashmir
11.	Ashtamudi Wetland	Kerala
12.	Sasthamkotta Lake	Kerala
13.	Vembanad-Kol Wetland	Kerala
14.	Bhoj Wetland	Madhya Pradesh
15.	Loktak Lake	Manipur
16.	Bhitarkanika Mangroves	Orissa
17.	Chilika Lake	Orissa
18.	Harike Wetland	Punjab
19.	Kanjli Wetland	Punjab
20.	Ropar	Punjab
21.	Keoladeo National Park	Rajasthan

S.No	Name	State
22.	Sambhar Lake	Rajasthan
23.	Point Calimere Wildlife and Bird Sanctuary	Tamil Nadu
24.	Rudrasagar Lake	Tripura
25.	Upper Ganga River (Brijghat to Narora Stretch)	Uttar Pradesh
26.	East Calcutta Wetlands	West Bengal

2. Tiger Reserves of India

Project Tiger was launched by the Government of India in the year 1973 to save the endangered species of tiger in the country. Starting from nine (9) reserves in 1973-74 the number is grown up to fifty two (52).

Sl. No	Name of Tiger Reserve	State
1	Nagarjunsagar Srisailem (part)*	Andhra Pradesh
2	Namdapha	Arunachal Pradesh
3	Pakke	Arunachal Pradesh
4	Kamlang	Arunachal Pradesh
5	Orang	Assam
6	Manas	Assam
7	Nameri	Assam
8	Kaziranga	Assam
9	Valmiki	Bihar
10	Udanti-Sitanadi	Chhattisgarh
11	Achanakmar	Chhattisgarh
12	Indravati	Chhattisgarh
13	Palamau	Jharkhand
14	Bandipur	Karnataka



Sl. No	Name of Tiger Reserve	State
15	Bhadra	Karnataka
16	Dandeli-Anshi	Karnataka
17	Nagarahole	Karnataka
18	BiligiriRanganatha Temple	Karnataka
19	Periyar	Kerala
20	Parambikulam	Kerala
21	Kanha	Madhya Pradesh
22	Pench	Madhya Pradesh
23	Bandhavgarh	Madhya Pradesh
24	Panna	Madhya Pradesh
25	Satpura	Madhya Pradesh
26	Sanjay-Dubri	Madhya Pradesh
27	Melghat	Maharashtra
28	Tadoba-Andhari	Maharashtra
29	Pench	Maharashtra
30	Sahyadri	Maharashtra
31	Nawegaon-Nagzira	Maharashtra
32	Bor	Maharashtra
33	Dampa	Mizoram
34	Similipal	Odisha

Sl. No	Name of Tiger Reserve	State
35	Satkosia	Odisha
36	Ranthambore	Rajasthan
37	Sariska	Rajasthan
38	Mukandra Hills	Rajasthan
39	Kalakad-Mundanthurai	Tamil Nadu
40	Mudumalai	Tamil Nadu
41	Sathyamangalam	Tamil Nadu
42	Anamalai	Tamil Nadu
43	Kawal	Telangana
44	Nagarjunasagar Srisailem (part) *(atmakur)	Telangana
45	Dudhwa	Uttar Pradesh
46	Pilibhit	Uttar Pradesh
47	a. Amangarh (buffer of Corbett TR) b. Corbett	Uttar Pradesh Uttarakhand
48	Rajaji TR	Uttarakhand
49	Sunderbans	West Bengal
50	Buxa	West Bengal

3. Elephant Reserves of India

The Indian elephant *Elephas maximus* occurs in the central and southern Western Ghats, North-east India, eastern India and northern India and in some parts of southern peninsular India. It is distributed in 16 of the 28 states in the country and is showing an increasing trend across its distributional range.

Sl.No	ELEPHANT RANGE	ELEPHANT RESERVE	STATE
1.	East-Central Landscape (South-West Bengal-Jharkhand - Orissa)	1. Mayurbhanj ER 2. Singbhum ER 3. Mayurbhanj ER 4. Mahanadi ER 5. Sambalpur ER 6. Baitami ER 7. South Orissa ER 8. Lemru ER 9. Badalkhol - Tamorpingla ER	West Bengal Jharkhand Orissa Orissa Orissa Orissa Orissa Chhattishgarh Chhattishgarh
2.	Kameng-Sonitpur Landscape (Arunachal - Assam) Total	10. Kameng ER 11. Sonitpur ER	Arunachal Assam
3.	Eastern-South Bank Landscape (Assam - Arunachal)	12. Dihing-Patkai ER 13. South Arunachal ER	Assam Arunachal



Sl.No	ELEPHANT RANGE	ELEPHANT RESERVE	STATE
4.	Kaziranga-Karbi Anglong-Intanki Landscape (Assam - Nagaland)	14. Kaziranga-Karbi Anglong ER 15. Dhansiri-Lungding ER 16. Intanki ER	Assam Assam Nagaland
5.	North Bengal- Greater Manas Landscape (Assam - West Bengal)	17. Chirang-Ripu ER 18. Eastern Dooars ER	Assam West Bengal
6.	Meghalaya Landscape (Meghalaya)	19. Garo Hills ER 20. Khasi-hills ER	Meghalaya Meghalaya
7.	Brahmagiri-Nilgiri-Eastern Ghat Landscape (Karnataka - Kerala-Tamilnadu- Andhra)	21. Mysore ER 22. Dandeli ER 23. Wayanad ER 24. Nilgiri ER 25. Rayala ER 26. Nilambur ER 27. Coimbatore ER	Karnataka Karnataka Kerala Tamil Nadu Andhra pradesh Kerala Tamil Nadu
8.	Anamalai-Nelliampathy- High Range Landscape (Tamilnadu - Kerala)	28. Anamalai ER 29. Anamudi ER	Tamil Nadu Kerala
9.	Periyar-Agasthyamalai Landscape (Kerala - Tamilnadu)	30. Periyar ER 31. Srivilliputhur ER	Kerala Tamil Nadu
10.	North-Western Landscape (Uttarakhand - Uttar Pradesh)	32. Shivalik ER 33. Uttar Pradesh ER	Uttarakhand U.P.

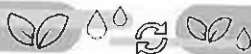
4 Mike Sites in India

S.No	Name	State
1.	Chirang Ripu	Assam
2.	Dhang Patki	Assam
3.	Eastern Dooars	WB
4.	Deomali	Arun Pradesh
5.	Garo Hills	Meghalaya
6.	Mayurbhanj	Orissa
7.	Mysore	Karnataka
8.	Nilgiri	Tamil Nadu
9.	Shivalik	Uttarakhand
10.	Wayanad	Kerala

5. Biosphere reserves

Biosphere reserves are sites established by countries and recognized under UNESCO's Man and the Biosphere (MAB) Programme to promote sustainable development based on local community efforts and sound science. The programme of Biosphere Reserve was initiated by UNESCO in 1971.

S.No	Name	Location (State)
1.	Achanakamar - Amarkantak	Covers parts of Anupur and Dindori districts of M.P. and parts of Bilaspur districts of Chhattishgarh State.
2.	Agasthyamalai	Neyyar, Peppara and Shendurney Wildlife Sanctuaries and their adjoining areas in Kerala.
3.	Cold Desert	Pin Valley National Park and surroundings; Chandratal and Sarchu & Kibber Wildlife Sanctuary in Himachal Pradesh
4.	Dehang-Dibang	Part of Siang and Dibang Valley in Arunachal Pradesh.
5.	Dibru-Saikhowa	Part of Dibrugarh and Tinsukia Districts (Assam)
6.	Great Nicobar	Southern most islands of Andaman And Nicobar (A&N Islands).



S.No	Name	Location (State)
7.	Gulf of Mannar	Indian part of Gulf of Mannar between India and Sri Lanka (Tamil Nadu).
8.	Kachchh	Part of Kachchh, Rajkot, Surendra Nagar and Patan Civil Districts of Gujarat State
9.	Khang chendzonga	Parts of Khang chendzonga hills and Sikkim.
10.	Manas	Part of Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup and Darang districts (Assam)
11.	Nanda Devi	Part of Chamoli, Pithoragarh, and Bageshwar districts (Uttarakhand).
12.	Nilgiri	Part of Wayanad, Nagarhole, Bandipur and Madumalai, Nilambur, Silent Valley and Siruvani hills (Tamil Nadu, Kerala and Karnataka).
13.	Nokrek	Part of Garo hills (Meghalaya).
14.	Pachmarhi	Parts of Betul, Hoshangabad and Chhindwara districts of Madhya Pradesh.
15.	Seshachalam Hills	Seshachalam Hill Ranges covering parts of Chittoor and Kadapa districts of Andhra Pradesh
16.	Simlipal	Part of Mayurbhanj district (Orissa).
17.	Sunderbans	Part of delta of Ganges and Brahmaputra river system (West Bengal).
18.	Panna	Part of Panna and Chhatarpur districts in Madhya Pradesh.

6. List of INDIA's Biosphere Reserves in UNESCO'S WNBR.

S.No	NAME	STATE
1.	Nilgiri	Tamil Nadu, Kerala, Karnataka
2.	Gulf of Mannar	Tamil Nadu
3.	Sunderbans	West Bengal
4.	Nanda Devi	Uttarakhand
5.	Nokrek	Meghalaya
6.	Pachmarhi	Madhya Pradesh
7.	Similipal	Orissa
8.	Achanakmar-Amarkantak	Chhattishgarh
9.	Great Nicobar	Andaman & Nicobar
10.	Agasthyamalai Biosphere Reserve	Kerala and Tamil Nadu
11.	Khangchendzonga National Park	Sikkim

7. Natural World Heritage Sites

World Heritage Site is a place that is listed by the UNESCO as of special cultural or physical significance.

S.No.	Name of WH Site	State Location
1	Kaziranga National Park	Assam
2	Keoladeo Ghana National Park	Rajasthan
3	Manas Wildlife Sanctuary	Assam
4	Nanda Devi National Park and Valley of Flowers	Uttarakhand
5	Sunderbans National Park	West Bengal
6	Western Ghats	Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala
7	Great Himalayan National Park	Himachal Pradesh



8. List of Sacred Groves

Sl.No.	State	Local term for Sacred Groves	No. of sacred groves
1	Andhra Pradesh	Pavithravana	580
2	Arunachal Pradesh	Gumpa Forests (attached to Buddhist monestries)	101
3	Goa	Deorai, Pann	55
4	Jharkhand	Sarana	29
5	Karnataka	Devara Kadu	1531
6	Kerala	Kavu, Sara Kavu	299
7	Maharashtra	Devrai, Devrahati, Devgudi	2820
8	Manipur	Gamkhap, Mauhak (sacred bamboo reserves)	166
9	Meghalaya	Ki Law Lyngdoh, Ki Law Kyntang, Ki Law Niam	101
10	Orissa	Jahera, Thakuramma	169
11	Puducherry	Kovil Kadu	108
12	Rajasthan	Orans, Kenkris, Jogmaya	560
13	Tamil Nadu	Swami shola, Koilkadu	752
14	UttaraKhand	Deo Bhumi, Bugyal (sacred alpine meadows)	22
15	West Bengal	Garamthan, Harithan, Jahera, Sabitrithan, Santalburithan	39

Similarly several water bodies are declared sacred by people. This indirectly leads to protection of aquatic flora and fauna. (E.g. khecheoprai lake in Sikkim)

9. Mangrove sites in India

State/Union Territories	Mangrove areas
West Bengal	1. Sunderbans
Orissa	2. Bhaitarkanika
	3. Mahanadi
	4. Subernarekha
	5. Devi-Kauda
	6. Dhamra
	7. Mangrove Genetic Resources Centre
	8. Chilka
Andhra Pradesh	9. Coringa
	10. East Godavari
	11. Krishna
Tamil Nadu	12. Pichavaram
	13. Muthupet
	14. Ramnad

State/Union Territories	Mangrove areas
	15. Pulicat
	16. Kaznuveli
Andaman & Nicobar	17. North Andamans
	18. Nicobar
Kerala	19. Vembanad
	20. Kannur (Northern Kerala)
Karnataka	21. Coondapur
	22. Dakshin Kannada/Hannavar
	23. Karwar
	24. Manglore Forest Division
Goa	25. Goa
Maharashtra	26. Achra-Ratnagiri
	27. Devgarh-Vijay Durg



State/Union Territories	Mangrove areas
	28. Veldur
	29. Kundalika-Revdanda
	30. Mumbra-Diva
	31. Vikroli
	32. Shreevardhan
	33. Vaitarna
	34. Vasai-Manori
	35. Malvan
Gujarat	36. Gulf of Kutchh
	37. Gulf of Khambhat
	38. Dumas-Ubhrat

10. List of Key Activities and Likely Associated Air Pollutants

S. No.	Activity	Significant Air Pollutants
A.	EIA Notifications, 1994	
1.	Nuclear Power Plants	Tritium, Radioactive elements
2.	River Valley Projects	TSPM/RPM, HC, CO etc.
3.	Air Ports, Ports/Harbours	TSPM/RPM, HC, NOx, etc.
4.	Petroleum Refineries	SO ₂ , HC, Mercaptan, VOCs
5.	Chemical fertiliser	TSPM/RPM, Fluoride, Ammonia, NOx, SO ₂
6.	Pesticides	Odour, VOCs, HC, Cl ₂
7.	Petrochemicals	TSPM/RPM, SO ₂ , NOx, CO, HC, VOCs
8.	Bulk Drugs & Pharmaceuticals	TSPM/RPM, VOCs
9.	Exploration of Oil & Gas and their production, transportation and storage	TSPM/RPM, HC, CO
10.	Synthetic Rubber	TSPM/RPM, SO ₂ , HC
11.	Asbestos and Asbestos products	TSPM/RPM, fibre
12.	Hydrocyanic acid and its derivatives	HCN Vapours
13.	Metallurgical industries	TSPM/RPM, SO ₂ , CO, NOx Fluoride etc.
14.	Electric arc furnaces	TSPM/RPM, NOx,
15.	Chlor-alkali industry	Hg, Cl ₂ , HCl vapours, H ₂
16.	Integrated paint complex	TSPM/RPM, SO ₂ , Volatile Organic
17.	Viscose Staple fibre and filament yarn	H ₂ S, CS ₂ , SO ₂
18.	Storage batteries	TSPM/RPM, Pb
19.	Tourism Project	TSPM/RPM,
20.	Thermal Power Plants	TSPM/RPM, SO ₂ , NOx.



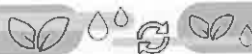
S. No.	Activity	Significant Air Pollutants
21.	Mining Activities	TSPM/RPM, HC etc.
22.	Highway Projects	TSPM/RPM, HC, NOx CO.
23.	Tarred roads in Himalayas	TSPM/RPM, HC, NOx CO.
24.	Distilleries	TSPM/RPM, SO ₂
25.	Raw Skins and Hides	-
26.	Pulp and Paper	TSPM/RPM, H ₂ S, Mercaptan
27.	Dyes	TSPM/RPM, SO ₂ , NOx
28.	Cement	TSPM/RPM, NOx
29.	Foundries	TSPM/RPM, SO ₂ , CO, Metal Fumes
30.	Electroplating	TSPM/RPM, Fumes of HCN, HCl Acid Fumes

11. Respiratory Irritants and Toxic Chemicals

Chemical	Sources of exposure	Injury produced
Acetaldehyde	Plastics, synthetic rubber industry, combustion products	Upper airway injury; rarely causes delayed pulmonary edema
Acetic acid, organic acids	Chemical industry, electronics, combustion products	Ocular and upper airway injury
Acid anhydrides	Chemicals, paints, and plastics industries; components of epoxy resins	Ocular, upper airway injury, bronchospasm; pulmonary haemorrhage after massive exposure
Acrolein	Plastics, textiles, pharmaceutical manufacturing, combustion products	Diffuse airway and parenchymal injury
Ammonia	Fertilizers, animal feeds, chemicals, and pharmaceuticals manufacturing	Primarily ocular and upper airway burn; massive exposure may cause bronchiectasis
Antimony trichloride, antimony penta-chloride	Alloys, organic catalysts	Pneumonitis, non-cardiogenic pulmonary oedema
Beryllium	Alloys (with copper), ceramics; electronics, aerospace and nuclear reactor equipment	Acute upper airway injury, tracheobronchitis, chemical pneumonitis
Boranes (diborane)	Aircraft fuel, fungicide manufacturing	Upper airway injury, pneumonitis with massive exposure
Hydrogen bromide	Petroleum refining	Upper airway injury, pneumonitis with massive exposure
Methyl bromide	Refrigeration, produce fumigation	Upper and lower airway injury, pneumonitis, CNS depression and seizures
Cadmium	Alloys with Zn and Pb, electroplating, batteries, insecticides	Tracheobronchitis, pulmonary oedema (often delayed onset over 24-48 hours); chronic low level exposure leads to inflammatory changes and emphysema



Chemical	Sources of exposure	Injury produced
Calcium oxide, calcium hydroxide	Lime, photography, tanning, insecticides	Upper and lower airway inflammation, pneumonitis
Chlorine	Bleaching, formation of chlorinated compounds, household cleaners	Upper and lower airway inflammation, pneumonitis and non-cardiogenic pulmonary oedema
Chloroacetophenone	Crowd control agent, "tear gas"	Ocular and upper airway inflammation, lower airway and parenchymal injury with massive exposure
o-Chlorobenzomalo-nitrile	Crowd control agent, "tear gas"	Ocular and upper airway inflammation, lower airway injury with massive exposure
Chloromethyl ethers	Solvents, used in manufacture of other organic compounds	Upper and lower airway irritation, also a respiratory tract carcinogen
Chloropicrin	Chemical manufacturing, fumigant component	Upper and lower airway inflammation
Chromic acid (Cr(IV))	Welding, plating	Nasal inflammation and ulceration, rhinitis, pneumonitis with massive exposure
Cobalt	High temperature alloys, permanent magnets, hard metal tools (with tungsten carbide)	Acute bronchospasm and/or pneumonitis; chronic exposure can cause lung fibrosis
Formaldehyde	Manufacture of foam insulation, plywood, textiles, paper, fertilizers, resins; embalming agents; combustion products	Ocular and upper airway irritation; bronchospasm in severe exposure; contact dermatitis in sensitized persons
Hydrochloric acid	Metal refining, rubber manufacturing, organic compound manufacture, photographic materials	Ocular and upper airway inflammation, lower airway inflammation only with massive exposure
Hydrofluoric acid	Chemical catalyst, pesticides, bleaching, welding, etching	Ocular and upper airway inflammation, tracheobronchitis and pneumonitis with massive exposure
Isocyanates	Polyurethane production; paints; herbicide and insecticide products; laminating, furniture, enamelling, resin work	Ocular, upper and lower inflammation; asthma, hypersensitivity pneumonitis in sensitized persons
Lithium hydride	Alloys, ceramics, electronics, chemical catalysts	Pneumonitis, non-cardiogenic pulmonary oedema
Mercury	Electrolysis, ore and amalgam extraction, electronics manufacture	Ocular and respiratory tract inflammation, pneumonitis, CNS, kidney and systemic effects
Nickel carbonyl	Nickel refining, electroplating, chemical reagents	Lower respiratory irritation, pneumonitis, delayed systemic toxic effects
Nitrogen dioxide	Silos after new grain storage, fertilizer making, arc welding, combustion products	Ocular and upper airway inflammation, non-cardiogenic pulmonary oedema, delayed onset bronchiolitis



Chemical	Sources of exposure	Injury produced
Nitrogen mustards; sulphur mustards	Military gases	Ocular, upper and lower airway inflammation, pneumonitis
Osmium tetroxide	Copper refining, alloy with iridium, catalyst for steroid synthesis and ammonia formation	Severe ocular and upper airway irritation; transient renal damage
Ozone	Arc welding, copy machines, paper bleaching	Upper and lower airway inflammation; asthmatics more susceptible
Phosgene	Pesticide and other chemical manufacture, arc welding, paint removal	Upper airway inflammation and pneumonitis; delayed pulmonary oedema in low doses
Phosphoric sulphides	Production of insecticides, ignition compounds, matches	Ocular and upper airway inflammation
Phosphoric chlorides	Manufacture of chlorinated organic compounds, dyes, gasoline additives	Ocular and upper airway inflammation
Selenium dioxide	Copper or nickel smelting, heating of selenium alloys	Ocular and upper airway inflammation, pulmonary oedema in massive exposure
Hydrogen selenide	Copper refining, sulphuric acid production	Ocular and upper airway inflammation, delayed pulmonary oedema
Styrene	Manufacture of polystyrene and resins, polymers	Ocular, upper and lower airway inflammation, neurological impairments
Sulphur dioxide	Petroleum refining, pulp mills, refrigeration plants, manufacturing of sodium sulphite	Upper airway inflammation, bronchoconstriction, pneumonitis on massive exposure
Titanium tetrachloride	Dyes, pigments, sky writing	Upper airway injury
Uranium hexafluoride	Metal coat removers, floor sealants, spray paints	Upper and lower airway injury, bronchospasm, pneumonitis
Vanadium pentoxide	Cleaning oil tanks, metallurgy	Ocular, upper and lower airway symptoms
Zinc chloride	Smoke grenades, artillery	Upper and lower airway irritation, fever, delayed onset pneumonitis
Zirconium tetrachloride	Pigments, catalysts	Upper and lower airway irritation, pneumonitis

Note:

- TSPM - Total Suspended Particulate Matter
- RPM - Respirable Particulate Matter
- VOCs - Volatile Organic Compounds
- HCN Vapours - Hydrogen Cyanide

