

The programme of work identifies policy issues that governments can consider when addressing such matters, while considering various ways and means to improve the capacity of stakeholders and to promote the mainstreaming and integration of agricultural biodiversity into sectoral and cross-sectoral plans and programmes at all levels. The programme of work also promotes studies the impacts of trade liberalization on agricultural biodiversity.

The programme of work on agricultural biodiversity was reviewed by SBSTTA13 (In-depth review of the implementation of the programme of work) for the ninth meeting of the Conference of the Parties in 2008 with the full participation of the Parties, relevant international and other organizations, the private sector, civil society, and local and indigenous communities. SBSTTA concluded that the programme is a relevant framework for achieving the objectives of the Convention on Biological Diversity, and to address emerging issues such as climate change.

BIODIVERSITY PROTECTION MECHANISM IN INDIA

Article 6(a) of the CBD calls upon Parties to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned.

At the Central Government level, MoEF is the focal point for biodiversity conservation as well as for all environment and forest related matters. Biodiversity being a multi-disciplinary subject, several other Ministries/Departments and affiliated agencies at the Central and State levels are also undertaking biodiversity related programmes. At the Central level, the Ministries/Departments of Agriculture, Health, Water Resources, Rural Development, Power, Industry, New and Renewable Energy, Urban Development, and Science and Technology, and others have important programmes relating to biodiversity.

India's strategy for conservation and sustainable utilization of biodiversity has evolved through various initiatives addressing specific issues viz., National Forestry Action Plan, National

Conservation Strategy, National Environment Action Programme, NWAP, etc.

In pursuance of Article 6 of the CBD, India within five years of ratifying the Convention, had developed a National Policy and Macro-level Action Strategy on Biodiversity, in 1999 through an extensive consultative process. Thereafter, an externally aided project on NBSAP was also implemented in the country during 2000 – 2004, adopting a highly participatory process involving various stakeholders, under which several sub-national level action plans were developed. On the basis of these action plans, a final technical report of NBSAP was prepared.

Meanwhile, India also enacted the BDA in 2002, Section 36 of which empowers the Central Government to develop National Biodiversity Action Plan (NBAP). After the approval of NEP in 2006, preparation of NBAP was taken up by revising and updating the document prepared in 1999 and by using the final technical report of NBSAP project. The NBAP 2008 draws upon the main principle in NEP that human beings are at the centre of concerns of sustainable development and they are entitled to a healthy and productive life in harmony with nature.

The NBAP which has been developed in consultation with various stakeholders, attempts to identify threats and constraints in biodiversity conservation. Taking cognizance of the existing legislations, implementation mechanisms, strategies, plans and programs, action points have been designed so as to integrate biodiversity concerns into various other sectors. The attempt has been to make the NBAP consistent with the ecological, social, cultural and economic mosaic of the country, and provide a focus and impetus to the current efforts towards biodiversity conservation. The NBAP also provides for a tabulated matrix for implementation of key activities, indicating the implementing agencies and timeframe for each of these activities.

This chapter highlights the current status of national policies, plans, strategies, and legislations relevant to the CBD. It also provides information on the progress of implementation of the action points listed in the NBAP.

National legislations, policies and plans

The Constitution of India contains specific



provisions for environmental conservation [articulated in the Directive Principles of State Policy (48-A) & (51-A(g)) and Fundamental Duties (51-A)]. Numerous legislations (acts, rules, circulars and orders) relating to environmental

protection as well as specific laws relating to forests, wildlife and biodiversity have been passed taking into account governmental and civil society concerns. Some key legislations relevant to biodiversity are listed below:

Legislations relevant to biodiversity conservation

Relevant key legislation	Key features
Wildlife (Protection) Act, 1972	Deals with protection of wildlife and habitats and provides for the protection of wild animals, birds and plants and related matters, with a view to ensuring the ecological and environmental security of the country.
Indian Forest Act, 1927	Designed for forest management and protection, the transit of forest and the duty leviable on timber and other forest produce.
Forest (Conservation) Act, 1980	Designed for the conservation of forests and related matters.
Biological Diversity Act, 2002	Provides for conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and related matters.
Biological Diversity Rules, 2004	Deals with operationalising the Biological Diversity Act.
Protection of Plant Varieties and Farmers' Rights Act, 2001	Provides for the establishment of an effective system for protection of plant varieties, the rights of farmers and plant breeders, and to encourage the development of new varieties of plants.
The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	Recognizes and vests the traditional rights to forest dwelling communities over access to forest goods and occupation in forest lands.

Some of the key policy documents of the Government along with a brief outline of their priorities too need to be discussed. These are:

Policies, plans & strategies	Brief outline of priorities
National Forest Policy, 1988	Provides for national goals and guidelines relating to areas under forests, afforestation, social forestry and farm forestry, management of state forests, rights and concessions, diversion of forest lands for non-forest purposes, wildlife conservation, tribal people and forests, shifting cultivation, damage to forests from encroachments, fire and grazing, forest-based industries, etc. The policy also covers forestry education, research, management, survey and database, legal support, infrastructure development and financial support.
National Conservation Strategy and Policy Statement for Environment and Sustainable Development, 1992	Outlines the nature and dimensions of environmental problems in India as well as actions taken and constraints and agenda for action.
National Policy and Macro-level Action Strategy on Biodiversity, 1999	Outlines a series of macro-level statements of policies, gaps and strategies needed for conservation and sustainable use of biodiversity.



Policies, plans & strategies	Brief outline of priorities
National Agricultural Policy, 2000	Seeks to actualize the vast untapped growth potential of Indian agriculture, rural infrastructure, value addition, secure a fair standard of living for the farmers and agricultural workers, discourage migration to urban areas and face the challenges arising out of economic liberalization and globalization.
National Seeds Policy, 2002.	Thrust areas include varietal development production, quality assurance, seed distribution and marketing, infrastructure facilities, etc.
National Wildlife Action Plan (2002-2016)	Calls for adoption and implementation of strategies covering strengthening and enhancing the PA network, effective management of PAs, conservation of wild and endangered species and their habitats, restoration of degraded habitats outside PAs, control of poaching, and illegal trade in wild animal and plant species, monitoring and research, HR development, ensuring peoples' participation, awareness and education, wildlife tourism, domestic legislation and international conventions, enhancing financial allocation and integration with other sectoral programmes.
Comprehensive Marine Fishing Policy, 2004	Aims to maximize yield from marine fishery resources while balancing the development needs of the various categories of fishing communities.
National Environment Policy, 2006	Stated objectives include: i) conservation of critical environmental resources; ii) intra-generational equity: livelihoods security for the poor; iii) inter-generational equity; iv) integration of environmental concerns in economic and social development; v) efficiency in environmental resource use; vi) environmental governance; and vii) enhancement of resources for environmental conservation.
11th Five Year Plan (2007-2012)	Calls for a development strategy that is sensitive to growing environmental concerns and calls for careful evaluation of threats and trade-offs.
National Forestry Action Programme (2000-2020)	Envisages developing coordinated programme for the sustainable management of forests and forest lands to meet the environmental, socio-economic and cultural needs of the present and the future generations.
National Biotechnology Development Strategy (2007)	Prioritizes key policy recommendations and interventions relating to human resource, infrastructure development and manufacturing and regulatory mechanisms.
National Forestry Commission Report (2006)	Contains over 350 recommendations regarding organizational structure and functions of the forestry sector.
Final Technical Report National Biodiversity Strategy and Action Plan Project (2005)	Identified a detailed set of priority issues for the overall planning and governance as well as for the conservation of wild as well as domesticated biodiversity.
National Action Plan on Climate Change (2008)	Eight national missions envisaged and among these four (National Mission on Water, Sustaining Himalayan Ecosystems, Sustainable Agriculture and Green India) are directly relevant to biodiversity conservation.



IN-SITU CONSERVATION

Conserving the animals and plants in their natural habitats is known as in situ conservation. The established natural habitats are:

- National parks and sanctuaries
- Biosphere reserves
- Nature reserves
- Reserved and protected forests
- Preservation plots
- Reserved forests

The first such initiative was the establishment of the Corbett National Park in 1936. National Parks are highly protected by law. No human habitation, private land holding or traditional human activity such as firewood collection or grazing is allowed within the park. Sanctuaries are also protected but certain types of activities are permitted within these areas.

Biosphere Reserves are another category of protected areas. Under this, a large area is declared as a Biosphere Reserve where wildlife is protected, but local communities are allowed to continue to live and pursue traditional activities within the Reserve. The Government of India has set up seven biosphere reserves: Nokrek (Meghalaya), Nilgiri (Karnataka, Kerala, Tamil Nadu), Namdapha (Arunachal Pradesh), Nanda Devi (Uttar Pradesh), Sundarbans (West Bengal), Great Nicobar (Andaman & Nicobar Islands), Gulf of Mannar (Tamil Nadu).

Several special projects have also been launched to save certain animal species which have been identified as needing concerted protection effort. These projects are designed to protect the species in situ, by protecting and conserving their natural habitat. Project Tiger, Project Elephant, Save the Barasingha campaign are examples of this initiative. Other strategies include offloading pressure from reserve forests by alternative measures of fuelwood and fodder need satisfaction by afforestation of degraded areas and wastelands.

A programme "Eco-development" for in-situ conservation of biological diversity involving local communities was initiated. It integrates the ecological and economic parameters for sustained conservation of ecosystems by involving local communities with maintenance of earmarked regions surrounding protected areas.

Approximately, 4.2 % of the total geographical area of the country has been earmarked for extensive in-situ conservation of habitats and ecosystems. A protected area network of 85 national parks and 448 wildlife sanctuaries has been created. The results of this network have been significant in restoring viable population of large mammals such as tiger, lion, rhinoceros, crocodiles and elephants.

NATIONAL PARKS IN INDIA

National parks in India are IUCN category II protected areas. India's first national park was established in 1936 as Hailey National Park, now known as Jim Corbett National Park, Uttarakhand. By 1970, India only had five national parks. In 1972, India enacted the Wildlife Protection Act and Project Tiger to safeguard the habitats of conservation reliant species. Further federal legislation strengthening protections for wildlife was introduced in the 1980s. As of April 2012, there were 112 national parks. All national park lands then encompassed a total 39,919 km² (15,413 sq mi) , comprising 1.21% of India's total surface area.

A total of 166 national parks have been authorized. Plans are underway to establish the remaining scheduled parks. All of India's national parks are listed below alongside their home state or territory, area and the date that they were established. See Protected areas of India for an overview of all Indian protected.

BIOSPHERE RESERVE (BR)

Biosphere Reserves (BRs) are representative parts of natural and cultural landscapes extending over large area of terrestrial or coastal/marine ecosystems or a combination thereof and representative examples of bio-geographic zones/provinces.

Criteria for designation of BR

- A site that must contain an effectively protected and minimally disturbed core area of value of nature conservation.
- The core area should be typical of a bio-geographical unit and large enough to sustain viable populations representing all trophic levels in the ecosystem.
- The management authority to ensure the involvement/cooperation of local communities to bring variety of knowledge and experiences



- to link biodiversity conservation and socio-economic development while managing and containing the conflicts.
- Areas potential for preservation of traditional tribal or rural modes of living for harmonious use of environment.

International Status of Biosphere Reserves (BR)

The UNESCO has introduced the designation 'Biosphere Reserve' for natural areas to minimize conflict between development and conservation. BRs are nominated by national government which meet a minimal set of criteria and adhere to minimal set of conditions for inclusion in the world network of Biosphere reserves under the Man and Biosphere Reserve Programme of UNESCO. Globally 621 BRs representing from 117 countries included in the network so far.

Structure and functions of BR

Biosphere reserves are demarcated into following 3 inter-related zones:

1. Core Zone

Core zone must contain suitable habitat for numerous plant and animal species, including higher order predators and may contain centres of endemism. Core areas often conserve the wild relatives of economic species and also represent important genetic reservoirs having exceptional scientific interest. A core zone being National Park or Sanctuary/protected/regulated mostly under the Wildlife (Protection) Act, 1972. Whilst realizing that perturbation is an ingredient of ecosystem functioning, the core zone is to be kept free from human pressures external to the system.

2. Buffer Zone

The buffer zone, adjoins or surrounds core zone, uses and activities are managed in this area in the ways that help in protection of core zone in its natural condition. These uses and activities include restoration, demonstration sites for enhancing value addition to the resources, limited recreation, tourism, fishing, grazing, etc; which are permitted to reduce its effect on core zone. Research and educational activities are to be encouraged. Human activities, if natural within BR, are likely to continue if these do not adversely affect the ecological diversity.

3. Transition Zone

The transition area is the outermost part of a biosphere reserve. This is usually not delimited one and is a zone of cooperation where conservation knowledge and management skills are applied and uses are managed in harmony with the purpose of the biosphere reserve. This includes settlements, crop lands, managed forests and area for intensive recreation and other economic uses characteristics of the region.

WILDLIFE SANCTUARY

India has 515 animal sanctuaries also referred to as Wildlife sanctuaries. Among these, the 41 Tiger Reserves are governed by Project Tiger, and are of special significance in the conservation of the tiger. Some wildlife sanctuaries are specifically named Bird Sanctuary, e.g. Keoladeo National Park before attaining National Park status. Many National Parks were initially wildlife sanctuaries. The conservative measures taken by the Indian Government for the conservation of Tigers was awarded by a 30% rise in the number of tigers in 2015.

Wildlife sanctuaries are of national importance to conservation, usually due to some flagship faunal species, are named National Wildlife Sanctuary, like the tri-state National Chambal (Gharial) Wildlife Sanctuary for conserving the gharial.

There is a major difference between National Parks & Wildlife Sanctuaries is that no human activity is allowed inside National Parks while limited activities are permitted within Wildlife sanctuaries. In biosphere reserves limited economic activity (sand mining and stone mining) is permitted.

EX-SITU CONSERVATION

Ex-situ conservation of plants and animals preserve/ or protect them away from their natural habitat. This could be in zoological parks and botanical gardens or through the forestry institutions and agricultural research centres. A lot of effort is under way to collect and preserve the genetic material of crops, animal, bird and fish species. This work is being done by institutions such as the National Bureau of Plant Genetic Resources, New Delhi, the National Bureau of Animal Genetic Resources, etc. Reintroduction of an animal or plant into the habitat from where it has become extinct is another form of ex situ



conservation. For example, the Gangetic gharial has been reintroduced in the rivers of Uttar Pradesh, Madhya Pradesh and Rajasthan where it had become extinct. Seed banks, botanical, horticultural and recreational gardens are important centres for ex-situ conservation. Ex-situ conservation measures complement in-situ conservation.

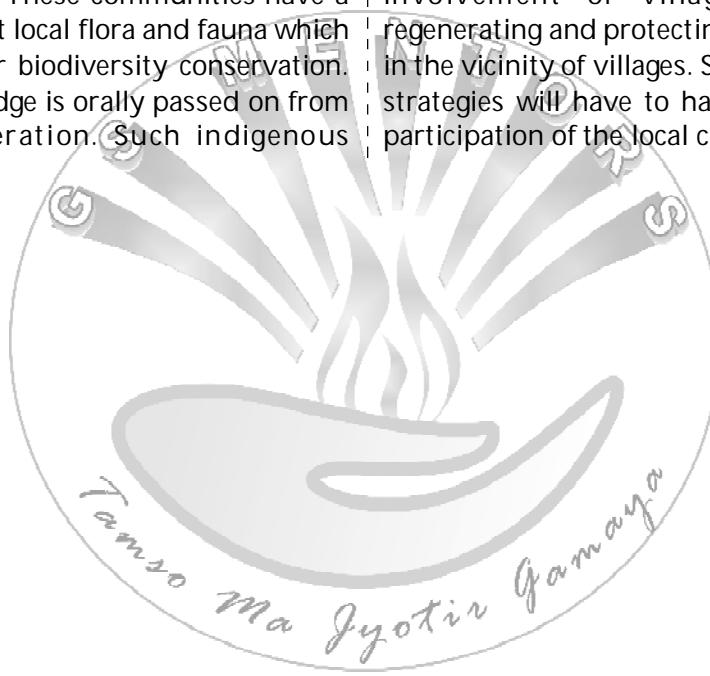
RECORDING INDIGENOUS KNOWLEDGE

The lives of local communities are closely interwoven with their environment, and are dependent upon their immediate resources for meeting their needs. These communities have a vast knowledge about local flora and fauna which is very important for biodiversity conservation. Much of this knowledge is orally passed on from generation to generation. Such indigenous

knowledge needs to be recorded and preserved before it is lost. Several organizations have recognized this and are working to record the knowledge and preserve it for posterity.

COMMUNITY PARTICIPATION IN BIODIVERSITY CONSERVATION

It is being recognized that no legal provisions can be effective unless local communities are involved in planning, management and monitoring conservation programmes. There are several initiatives to do this, both by government as well as non-governmental organizations. For example, the Joint Forest Management philosophy stresses involvement of village communities in regenerating and protecting degraded forest land in the vicinity of villages. Successful conservation strategies will have to have the confidence and participation of the local communities.



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WASTEFUL ENERGY (WASTE TO ENERGY)

CHAPTER

Waste-to-energy is the process of generating energy in the form of electricity and/or heat from the incineration of waste. WtE is a form of energy recovery. Most WtE processes produce electricity and/or heat directly through combustion, or produce a combustible fuel commodity, such as methane, methanol, ethanol or synthetic fuels.

INCINERATION

Incineration, the combustion of organic material such as waste with energy recovery, is the most common WtE implementation. All new WtE plants in OECD countries incinerating waste (residual MSW, commercial, industrial or RDF) must meet strict emission standards, including those on nitrogen oxides (NO_x), sulphur dioxide (SO₂), heavy metals and dioxins. Hence, modern incineration plants are vastly different from old types, some of which neither recovered energy nor materials. Modern incinerators reduce the volume of the original waste by 95-96 percent, depending upon composition and degree of recovery of materials such as metals from the ash for recycling.

Incinerators may emit fine particulate, heavy metals, trace dioxin and acid gas, even though these emissions are relatively low from modern incinerators. Other concerns include proper management of residues: toxic fly ash, which must be handled in hazardous waste disposal installation as well as incinerator bottom ash (IBA), which must be reused properly.

Incinerators have electric efficiencies of 14-28%. In order to avoid losing the rest of the energy, it can be used for e.g. district heating (cogeneration). The total efficiencies of cogeneration incinerators are typically higher than 80% (based on the lower heating value of the waste).

The method of using incineration to convert municipal solid waste (MSW) to energy is a relatively old method of WtE production. Incineration generally entails burning waste (residual MSW, commercial, industrial and RDF)

to boil water which powers steam generators that make electric energy and heat to be used in homes, businesses, institutions and industries. One problem associated with incinerating MSW to make electrical energy, is the potential for pollutants to enter the atmosphere with the flue gases from the boiler. These pollutants can be acidic and in the 1980s were reported to cause environmental damage by turning rain into acid rain. Since then, the industry has removed this problem by the use of lime scrubbers and electrostatic precipitators on smokestacks. By passing the smoke through the basic lime scrubbers, any acids that might be in the smoke are neutralized which prevents the acid from reaching the atmosphere and hurting the environment. Many other devices such as fabric filters, reactors and catalysts destroy or capture other regulated pollutants. According to the New York Times, modern incineration plants are so clean that "many times more dioxin is now released from home fireplaces and backyard barbecues than from incineration." According to the German Environmental Ministry, "because of stringent regulations, waste incineration plants are no longer significant in terms of emissions of dioxins, dust, and heavy metals".

WtE technologies other than incineration

There are a number of other new and emerging technologies that are able to produce energy from waste and other fuels without direct combustion. Many of these technologies have the potential to produce more electric power from the same amount of fuel than would be possible by direct combustion. This is mainly due to the separation of corrosive components (ash) from the converted fuel, thereby allowing higher combustion temperatures in e.g. boilers, gas turbines, internal combustion engines, fuel cells. Some are able to efficiently convert the energy into liquid or gaseous fuels:

Thermal technologies

- Gasification (produces combustible gas, hydrogen, synthetic fuels).



- Thermal depolymerization (produces synthetic crude oil, which can be further refined).
- Pyrolysis (produces combustible tar/biooil and chars) Waste_Conversion_Pyrolysis
- Plasma arc gasification or plasma gasification process (PGP) (produces rich syngas including hydrogen and carbon monoxide usable for fuel cells or generating electricity to drive the plasma arch, usable vitrified silicate and metal ingots, salt and sulphur)

Non-thermal technologies

- Anaerobic digestion (Biogas rich in methane)
- Fermentation production (examples are ethanol, lactic acid, hydrogen)
- Mechanical biological treatment (MBT)
 - MBT + Anaerobic digestion
 - MBT to Refuse derived fuel.

Global WtE developments

During the 2001-2007 period, the WtE capacity increased by about four million metric tons per annum. Japan and China built several plants that were based on direct smelting or on fluidized bed combustion of solid waste. In China there are about 50 WtE plants. Japan is the largest user in thermal treatment of MSW in the world with 40 million tons. Some of the newest plants use stoker technology and others use the advanced oxygen enrichment technology. There are also over one hundred thermal treatment plants using relatively novel processes such as direct smelting, the Ebara fluidization process and the Thermo-select -JFE gasification and melting technology process. In Patras, Greece, a Greek company just finished testing a system that shows potential. It generates 25kWatts of electricity and 25kWatts of heat from waste water. In India its first energy bio-science center was developed to reduce the country's green

house gases and its dependency on fossil fuel. As of June 2014, Indonesia had a total of 93.5MW installed capacity of WtE, with a pipeline of projects in different preparation phases together amounting to another 373MW of capacity.

Biofuel Energy Corporation of Denver, CO, opened two new biofuel plants in Wood River, NE, and Fairmont, MN, in July 2008. These plants use distillation to make ethanol for use in motor vehicles and other engines. Both plants are currently reported to be working at over 90% capacity. Fulcrum BioEnergy incorporated located in Pleasanton, CA, is currently building a WtE plant near Reno, NV. The plant is scheduled to open in early 2010 under the name of Sierra BioFuels plant. BioEnergy incorporated predicts that the plant will produce approximately 10.5 million gallons per year of ethanol from nearly 90,000 tons per year of MSW. (Biofuels News).

Waste to energy technology includes fermentation, which can take biomass and create ethanol, using waste cellulosic or organic material. In the fermentation process, the sugar in the waste is changed to carbon dioxide and alcohol, in the same general process that is used to make wine. Normally fermentation occurs with no air present. Esterification can also be done using waste to energy technologies, and the result of this process is biodiesel. The cost effectiveness of esterification will depend on the feedstock being used, and all the other relevant factors such as transportation distance, amount of oil present in the feedstock, and others. Gasification and pyrolysis by now can reach gross thermal conversion efficiencies (fuel to gas) up to 75%, however a complete combustion is superior in terms of fuel conversion efficiency. Some pyrolysis processes need an outside heat source which may be supplied by the gasification process, making the combined process self-sustaining.



BIODIVERSITY IN INDIA: REGION WISE



India has been classified as one of the most biodiversity rich regions of the world. Four major regions of the country have been classified as Biodiversity Hotspot, these are:

1. The Himalayan Region
2. The Eastern Himalayas (This hotspot has nearly 163 globally threatened species including the One-horned Rhinoceros (*Rhinoceros unicornis*), the Wild Asian Water buffalo (*Bubalus bubalis* (Arnee)) and in all 45 mammals, 50 birds, 17 reptiles, 12 amphibians, 3 invertebrate and 36 plant species. The Relict Dragonfly (*Epiophlebia laidlawi*) is an endangered species found here with the only other species in the genus being found in Japan. The region is also home to the Himalayan Newt (*Tylototriton verrucosus*), the only salamander species found within Indian limits.)
3. The Nilgiri Region or Western Ghats (region harbors over 450 bird species, about 140 mammalian species, 260 reptiles and 175 amphibians.)
4. The Nicobar Islands Region (Part of Sunda Biodiversity Hotspot of South-East Asia)

But as we speak of diversity, it first starts with the human species. Arguably, only the continent of Africa exceeds the linguistic, genetic and cultural

diversity of the nation of India. The country houses 1.2 billion people speaking 1652 languages and dialects, spread out over more than two thousand ethnicities and over every major religion.

There is a huge species diversity in India, with several of the species being endemic to their native ranges in India.

Group	Number	% of world species
Mammals	350	7.6%
Birds	1224	12.6%
Amphibians	197	4.4%
Reptiles	408	6.2%
Fishes	2546	11.7%
Flowering plants	15000	6%

However, we will be discussing state-wise profile of biodiversity in India. India presently has 30 States and 6 Union Territories, most of these States and Union Territories are repositories of a staggering numbers of species (both Flora and Fauna). A visible result of which are the numbers of Biosphere Reserves and the potential Biosphere sites. Our discussion will become somewhat easier if we structure it in a chart format where we will be taking stock of the biosphere reserves, Flora and Fauna in an individual state.



The state-wise list

State	Forest Type	Description	Location	Notes
Tamil Nadu	Montane evergreen forest	Mornean, the species of trees seen in the forest type visible here.	Chittar evergreen forest	
Tamil Nadu	Andamanic tropic evergreen forest	2. Andamanic tropic evergreen forest	Southern hilltop	3. Vulture (Gyps bengalensis) and black kite habitat
Tamil Nadu	Andamanic tropic evergreen forest	3. Andamanic tropic evergreen forest	Cane brakes	4. Vulture (Gyps bengalensis) and black kite habitat
Tamil Nadu	Wet bamboo brakes	5. Wet bamboo brakes	5. Vulture (Gyps bengalensis) and black kite habitat	6. Vulture (Gyps bengalensis) and black kite habitat
Tamil Nadu	Andamanic subtropical evergreen forest	6. Andamanic subtropical evergreen forest	6. Vulture (Gyps bengalensis) and black kite habitat	
Tamil Nadu	Andamanic moist deciduous forest	7. Andamanic moist deciduous forest	7. Vulture (Gyps bengalensis) and black kite habitat	
Tamil Nadu	Secondarily moist deciduous forest	8. Andamanic secondarily moist deciduous forest	8. Vulture (Gyps bengalensis) and black kite habitat	
Tamil Nadu	Mountain forest	9. Mountain forest	9. Mountain forest	10. Blackish water mixed forest
Tamil Nadu	Blackish water mixed forest	10. Blackish water mixed forest	10. Blackish water mixed forest	11. Vulture (Gyps bengalensis) and black kite habitat
Tamil Nadu	Sabotanum forest	11. Sabotanum forest	11. Sabotanum forest	12. Vulture (Gyps bengalensis) and black kite habitat
Tamil Nadu	Acacia forest	12. Acacia forest	12. Acacia forest	13. Vulture (Gyps bengalensis) and black kite habitat
Tamil Nadu	Chittar forest	13. Chittar forest	13. Chittar forest	14. Vulture (Gyps bengalensis) and black kite habitat
Tamil Nadu	Seethathalum forest	14. Seethathalum forest	14. Seethathalum forest	15. Vulture (Gyps bengalensis) and black kite habitat
Tamil Nadu	Chittar (Pothigai)	15. Chittar (Pothigai)	15. Chittar (Pothigai)	16. Vulture (Gyps bengalensis) and black kite habitat
Tamil Nadu	Namakkal (Pothigai)	16. Namakkal (Pothigai)	16. Namakkal (Pothigai)	17. Vulture (Gyps bengalensis) and black kite habitat



1	S. Hill, 1990 C. V. Rao, 1990 S. S. Rao, 1990	Region of Khasi Hills and Meghalaya Hills (CS)	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	2. Nohkalikai 3. Hornbill 4. Rhinoceros 5. Elephants 6. Rhinoceros 7. Tengmala 8. Hornbill 9. Hornbill	2. Nohkalikai 3. Hornbill 4. Rhinoceros 5. Elephants 6. Rhinoceros 7. Tengmala 8. Hornbill 9. Hornbill	2. Nohkalikai 3. Hornbill 4. Rhinoceros 5. Elephants 6. Rhinoceros 7. Tengmala 8. Hornbill 9. Hornbill	2. Nohkalikai 3. Hornbill 4. Rhinoceros 5. Elephants 6. Rhinoceros 7. Tengmala 8. Hornbill 9. Hornbill	2. Nohkalikai 3. Hornbill 4. Rhinoceros 5. Elephants 6. Rhinoceros 7. Tengmala 8. Hornbill 9. Hornbill
2		Khasi and West Garo Hills (POential)	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. One-horned Rhino 2. Water buffalo 3. Elephants 4. Rhinoceros 5. Krait 6. Python 7. Lizard 8. Hornbill 9. Hornbill	1. One-horned Rhino 2. Water buffalo 3. Elephants 4. Rhinoceros 5. Krait 6. Python 7. Lizard 8. Hornbill 9. Hornbill	1. One-horned Rhino 2. Water buffalo 3. Elephants 4. Rhinoceros 5. Krait 6. Python 7. Lizard 8. Hornbill 9. Hornbill	1. One-horned Rhino 2. Water buffalo 3. Elephants 4. Rhinoceros 5. Krait 6. Python 7. Lizard 8. Hornbill 9. Hornbill	1. One-horned Rhino 2. Water buffalo 3. Elephants 4. Rhinoceros 5. Krait 6. Python 7. Lizard 8. Hornbill 9. Hornbill
3		North East India (POential)	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong
4		Central India (POential)	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong
5		South India (POential)	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong
6		North Bihar (POential)	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong
7		Aboriginal Potential	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong	1. Meghalaya 2. Assam 3. Dibrugarh 4. Shillong 5. Dooars 6. Dooch 7. Tura 8. Shillong



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S.No.	State/Union Territory	Name of the site	Category	List of World Heritage Sites		Reference
				Number	Name	
1	Karnataka	Bandipur National Park	Natural	11	elephant or spotted deer	
				12	murufie	
				13	banded muntjac	
				14	slender loris	
				15	common palm civet	
				16	small Indian civet	
				17	sloth bear	
				18	dubie	
				19	striped hyena	
				20	golden jackal	
2	Karnataka	Chitradurga Fort	Cultural	1	City of the 1000	
				2	flowering plant species	
				300	species are	
				medicinal plants 15-22	of which are endemic	
				of which are endemic	to Karnataka	
3	Karnataka	Shantiniketan	Cultural	1	Santopurh snake like	
				2	Purple frog	
				3	Nesia (Uzara)	
				4	Acontias (Snake like	
				snakes)	species)	
				5	lion tailed macaque	
				6	Bidian elephant	
				7	Bengal tiger	
				8	Indian leopards	
				9	Mugger crocodile	
				10	Nilgiri tulu	
				11	common John civet	
				12	grizzled gaur	
				13	spotted deer	
				14	Malabar giant	
				15	elephant or civet	
				16	small Indian civet	
				17	golden jackal	
				18	striped hyena	
				19	dubie	
				20	sloth bear	
4	Karnataka	Khajuraho Group of Monuments	Cultural	1	Khajuraho	
				2	Colocasia	
				3	Drummond	
				4	Portuguese fort	
				5	ark fort	
				6	Reddi fort	
				7	Kadur	
5	Karnataka	Badami Fort	Natural	1	Badami	
				2	Colocasia	
				3	Drummond	
				4	Portuguese fort	
				5	ark fort	
				6	Reddi fort	
				7	Kadur	
6	Karnataka	Belur-Madikeri Forts	Natural	1	Belur	
				2	Madikeri	
				3	Colocasia	
				4	Drummond	
				5	Portuguese fort	
				6	ark fort	
				7	Reddi fort	
				8	Kadur	
7	Karnataka	Gavi Fort	Natural	1	Gavi	
				2	Colocasia	
				3	Drummond	
				4	Portuguese fort	
				5	ark fort	
				6	Reddi fort	
				7	Kadur	
8	Karnataka	Shivagange	Natural	1	Shivagange	
				2	Colocasia	
				3	Drummond	
				4	Portuguese fort	
				5	ark fort	
				6	Reddi fort	
				7	Kadur	
9	Karnataka	Shanthala	Natural	1	Shanthala	
				2	Colocasia	
				3	Drummond	
				4	Portuguese fort	
				5	ark fort	
				6	Reddi fort	
				7	Kadur	
10	Karnataka	Shore Temple	Cultural	1	Shore temple	
				2	(Potential)	

