NATURAL RESOURCES OF ODISHA

Odisha is the store house of natural resources. Among these, water, wild life, forest and mineral resources are found in abundant and which are very essential for growth and development of the state. Government of Odisha is taking essential steps towards preserving and managing natural resources so that it can be available in the acceptable quantity, quality and at the required time for the all round development of the state.

- Water Resources
- Scenic Wild Life
- Large Forest Coverage
- Abundant Mineral Resources
- Vast Coastline

WATER RESOURCES

Odisha has plenty of water resources. But the rate at which the myth of water being an infinite resource is breaking, also pose genuine questions on the belief of Odisha being a water resource rich state. Warning bells already have started ringing. Despite efforts by the governments and huge investments, population not having access to adequate quantity of water is increasing in leaps and bounds with every passing year.

**Ground Water**

The people of Odisha depend on three sources – rivers, surface storage and ground water – for water. But over the years, the dependence on the first two has progressively dwindled. Most of rivers in Odisha, once perennial, have lost their features significantly. They flow for 6 to 10 months a year depending on the size and health of the catchments. Experienced people do unanimously inform that the rivers and their drainage lines are no more as dependable as they used to be. River flow statistics also substantiate such
perception. The state of the surface water bodies is no better. Improper management of surface storages, the quality of water, the dwindling number of common as well as private ponds due to the pressure on land, degradation of wetlands and water bodies etc. have seriously eroded the dependability of surface storages, most of which do not even last till the summer months. Depletion and deterioration of the first two sources has inevitably led to over-dependence on ground water for drinking, domestic and irrigation. Even industries have started using ground water. Technological advancements has helped in increasing preference for ground water as source for virtually every need, as they are less exposed to public, save time and cost. But the perception that Odisha has abundant ground water has led to promotion of ground water and as preferred source for all uses, including industry and agriculture.

RIVER

There are four groups of rivers which flow through Odisha into the Bay of Bengal. They are:

1. Rivers that have a source outside the state (the Subarnarekha, the Brahmani and the Mahanadi)

2. Rivers having a source inside the state (the Budhabalanga, the Baitarani, the Salandi, and the Rusikulya)
3. Rivers having a source inside Odisha and flow through other states (the Bahudu, the Vansadhara, and the Nagavali)

4. Rivers having a source inside Odisha, but tributary to rivers which flow through other states (the Machkund, the Sileru, the Kolab and the Indravati)

River Mahanadi

It is the major river of Odisha and sixth largest river in India. It originates from the Amarkantak Hills of the Bastar Plateau in Raipur district of Madhya Pradesh and Chhattisgarh. It is about 857 kms long (494 kms. in Odisha) and its catchment area spreads over 141,600 sq.km. (65,580 sq.kms in Odisha). The river carries average about 92,600 million of water.

River Brahmani

It is the second largest river in Odisha. It originates from two major rivers like the Sankh and the Koel from the Chhotanagpur Plateau of Bihar and both join at Veda Vyasa near Rourkela of Sundergarh district of Odisha forming the major River Brahmani. It flows through the Eastern Ghats in Sundargarh, Keonjhar, Dhenkanal, Cuttack and Jajpur districts into the coastal plains and enters into the Bay of Bengal along with a combined mouth with the Mahanadi and known as the Dhamra. The Brahmani is 799 kms long (541 kms in Odisha) and its catchment’s area spreads over 39,033 sq. kms in Odisha.

River Baitarani

It originates from the Gonasika Hills of the Keonjhar district. It is 365 kms long and its catchment area spreads over 12,790 sq. kms. It enters into the Bay of Bengal after joining River Brahmani at Dhamra mouth near Chandabali.

River Subarnarekha

It originates from Chhotnagpur Plateau of Bihar. It is 433 kms (70 kms. in Odisha) and has a catchment area of 19,500 kms. (3,200 kms. in Odisha) with a mean annual flow of 7,900 million.
River Budhabalanga

It originates from the eastern slope of the Similipala massif. It is about 175 kms. long having a total catchment area of 4840 sq. kms with an annual flow of 2177 million. Its major tributaries are the Sone, the Gangadhar, and the Catra etc.

River Rushikulya

It originates from Rushikulya Hills of the Eastern Ghats in Phulbani district. It is 165 kms. long with 8900sq.kms of catchments areas. Its tributaries are the Baghua, the Dhanei Badanadi etc. It has no delta at its mouth.

River Bahuda

It originates from the Ramgiri Hills of the Eastern Ghats in Gajapati district and joins the Bay of Bengal in Andhra Pradesh. Its length 73 kms. having a catchment area of 1250 kms.

River Bansadhara

It originates from the flanks of the Durgakangar Hills (Lingaraj Hills) of the Eastern Ghats in Kalahandi districts. It is 230 kms. out of which only 150 kms. in Odisha. It enters into Bay of Bengal at Kalingapatnam in Andhra Pradesh. It has a catchments area of 1150sq. kms.

River Nagabali

It originates from the Bijipur Hills of the Eastern Ghats near Lanjigarh. It is 210 kms. long out of which 100 kms. is in Odisha. It has a total catchment area of about 9410 sq.kms.

River Salandi

It originates from the Meghasan Hills of the Similipala massif in Keonjhar district. It is 144 kms. long with catchments areas of 1793 sq. kms.

River Indrabati

It originates from the Eastern Ghats in Kalahandi district. It is 530 kms. long with a catchment area of 4170 sq.kms. As a tributary it flows into the Godavari River.

River Kolab

It originates from the Sinkarn Hills of the Eastern Ghats in Koraput district. It has catchment areas of 20400 sq. kms.
WATERFALLS

Most of the rivers, either at the point of origin or over the mountainous bed, have waterfalls. The Barehipani and Joranda (Similipal) in Mayurbhanj district, Sanaghagara and Badaghagara in Keonjhar district.

Padhanpuri in Deogarh district, Khandadhar (Banei) in Sundargarh district, Phurliharan, Khandabaladhar, and Rabandhar in Kalahandi district, Kentamari and Putudi in Boudh and Phulbani district, Duduma in Malkangiri district and Bogra in Koraput district are some of the major waterfalls of Odisha.

Badaghagra

The Badaghagra falls (about 60 metres) situated around 10 km from Keonjhar is amongst the most popular picnic sites in the region. One look at the beauty and serenity of the place is enough to understand why visitors make a beeline for it.

Sanaghagara

The Sanaghagara falls (about 30 metres) situated around 5 km from Keonjhar. The surrounding here attracts visitors throughout the year.

Duduma

Known as Matsya Tirtha, Duduma is famous for its waterfall (157.5 metres), as well as for the Machhakund Hydro-Electric Project.

Barehipani - Joranda

These picturesque falls (Barehipani -399 metres and Joranda - 150 metres) situated in the core area of Simlipal National Park are perfectly complementary to their surroundings and are beautiful bonus to the visitors of the sanctuary.

Harishankar

On the southern slope of the Gandhamardan hills, around 81 km from Balangir, stands Harishankar, a place of pilgrimage, famous for its uncommon scenic charms and the presence of Hari and Shankar, the dual deities of the Vaishnav and Shaivite sects of
Hinduism. A perennial stream gushes forth onto its granite bed to form cascades at different stages, the last fall providing a natural water slide to bathers! As a cool resort in the lap of nature, Harishankar is a panacea for the heat in the summer.

**Hatipathar**

3 km from Rayagada, the river Nagavali flows through a deep cut valley, forming two lovely waterfalls. An ideal picnic spot known for its scenic beauty, the place gets its name from the huge elephant shaped boulders (in Oriya, Hati means elephant and Pathar means boulder) that litter the landscape.

**Khandadhar**

One of the prettiest districts on the tourist circuit is the Sundargarh region. Located amidst its lush forests is Orissa's most famous waterfall, the Khandadhar fall (about 244 metres). The beauty of this place makes it a site not to be missed.

**Khandualia**

The jungles of Karlapat Wildlife Sanctuary, situated around 32 km from Bhawanipatna, provide the setting for Orissa's another waterfall called Khandualia, so named because of the shrine of the Goddess Khandualia situated on the top of the hill.

**Miriglotah**

A beautiful waterfall and picnic spot situated 111 km from Rourkela is Orissa's lovely offerings to visitors. Nrusimhanath On the northern slopes of the Gandhamardan hills is the temple of Nrusimhanath located 165 km from Sambalpur. A murmuring rivulet engirdles the shrine forming various waterfalls at different stages. Bhimadhar, Gadadhar, Guptadhar, Pitrudhar, Kapiladhar and Chaladhar are picturesque waterfalls at Nrusimhanath.
Phurli Jharan

A perennial waterfall of about 16 metres high, Phurli Jharan located around 15 km from Bhawanipatna, has a special charm of its own. The multi-coloured rainbows created by the sun-rays falling on the scattered water particles of the fall, creates a thrilling and magical ambience. The evergreen forests around provide ample opportunity for visitors.

Pradhanpat

The Pradhanpat hill, with its picturesque waterfall, offers a rare scenic beauty. These falls are close to Deogarh, and are around 100 km from Sambalpur.

Putudi

Located 15 km from Phulbani, the natural beauty of the Putudi fall on the river Bada Saluki, with dense forests and hills on either side have attracted visitors over the ages.

LAKE OF ODISHA

Chilika Lake

It is brackish water lagoon located in the southern part of the Odisha coastal plane. Its salinity declines to a minimum during the monsoon. But in winter due to the overflow of the tidal water through the narrow opening from the Bay of Bengal, it has maximum salinity. Known as the largest brackish water lake in Asia, it is the largest wintering ground for migratory birds on the Indian sub-continent, housing various rare species of birds. Apart from various domestic birds, the lake also habitats many migratory birds from Iran, Afghanistan, Iraq,
and the Himalayas. The birds come to the Chilka Lake in between October and March, best time to visit being during the winter season.

Rich in waterbirds and other aquatic creatures as well, the major attraction of this place is the Irrawaddy Dolphin that one can see swimming in the waters of the lake. You can also see the famous Chilika Dolphins in Satapada (50 km from Puri), which is the junction of Chilika Lake and Bay of Bengal.

**Ansupa Lake**

It is a sweet water lake located in Banki of Cuttack district. It is 3 kms. in length and 1.5 kms. in breadth. Sara is another sweet water lake located near Puri. It is 5 kms. in length and 3 kms. in breadth. Kanjia is another sweet water lake with about 134 acres of area located in Nandankanan of Cuttack district near Bhubaneswar. Ansupa is small but extremely picturesque lake holds a prominent position in the tourist map of Odisha for its beauty, proximity to Cuttack and the fact that till the recent past, it used to play host to migratory birds during winter.

**HOT SPRINGS**

There are only three hot springs which drain out mineral water, containing a very high percentage of sulphur. One of them is at Deulijhara near Athamallik on the flood plains of the Mahanadi. The second one is at Atri situated about 42 km from Bhubaneswar, Atri is best known for its hot sulphur springs and the famous Shrine Lord Hatakeswar temple. The third is located on the eastern slopes of the Eastern Ghats at Taptapani of Ganjam district.

**TIDAL RIVERS**

The tidal sections of the rivers and their distributaries are confined to the lower reaches of the rivers in the Odisha Coastal Plain. They vary as per the shape of the mouth, depth of the channel, and extension of the sand bars in the river mouths. The tidal channels vary from a maximum
of 90km in Brahmani to a minimum of 5km in case of Baghuni from their respective mouths. The Mahanadi is tidal for about 35km whereas the Devi, distributaries of the Mahanadi, is tidal 45km.

**SCENIC WILD LIFE**

One of the greatest benefits of Odisha’s vast expanses of unspoilt natural landscape has been its ability to offer a protected yet natural habitat to the state’s incredible wildlife.

**NANDANKANAN**

A short distance from the capital city, Bhubaneswar, the Nandankanan Zoo lies in the splendid environs of the Chandaka forest, along the rippling waters of the Kanjia Lake. It also contains a botanical garden and part of it has been declared as sanctuary.

Famous for its white tiger population, Nandankanan or the Garden of Gods has become a hot favourite, with visitors getting an excellent opportunity to enjoy seeing these regal animals in their natural glory-in an environment conducive to their growth. Over 67 kinds of mammals, 18 varieties of reptiles and 81 species of birds coexist in these deeply forested boundaries.

The zoo enjoys an excellent reputation internationally, for successfully breeding back panthers, Gharial crocodiles and white tigers in captivity.

**White Tiger Breeding**

One of the rarest creatures in the world the regal white tiger received a new lease of life with the important research and concentrated efforts initiated to try and breed them in the natural environs of Nandankanan. In 1980 on a day full of excitement and jubilation the first litter of white tigers were born to Deepak and Ganga, two normal tawny tigers. Subsequent litters of white tigers have been distributed to zoos both at home and aboard. Currently Nandankanan is home to over 34 white tigers. Endangered species such as the Asiatic lion, 3 Indian crocodiles, Shanghai lion-tailed macaque, Nilgiri Langur, India Pangolin, mouse, deer and countless birds, reptiles and fish have been breeding successfully at Nandankanan.
Some of the other attractions of Nandankanan are the 34 aquaria which are home to a large variety of fresh water fishes. The reptile parks cave-like entrance is guarded by a life size dinosaur, inside, numerous species of crocodiles, lizards, turtles and snakes share the park with natural ease.

The rope way connecting the zoo with the botanical garden over the lake, the boating facilities and the toy train for children have added new features.

**SIMILIPAL**

Apart from Nandankanan, Similipal is a National Park of national reputation, which belongs to Mayurbhanj district of Odisha. In this sanctuary the visitors have liberty to glance the movements of wild animals from a safety distance, arranged by the authority. During winter a number of visitors visit this park. This park is well connected with road ways. The guest houses of OTDC make smooth arrangements for staying of visitors.

**Gharial Breeding**

For the first time ever, a captive breeding centre was created for Gharial crocodiles. This important task was also facilitated by the gift of an adult male from the Frankfurt Zoo.

**Safaris**

The White Tiger Safari established in 1991 offers visitors the heady excitement of viewing the rare white tigers from specially designed protected buses. The lion safari offers an adventurous zing to the trip to Nandankanan.

**The Chandaka Elephant Reserve**

Only one of its kinds, it is perfect for eco-tourism activities. Apart from the fabulous Elephants, Cheetah, Bear, Peafowl, Sambar and numerous other animals roam around doing their business unhampered.
**Bhitarkanika**

Bhitarkanika wild life sanctuary is in north eastern coastal plain of newly found Kendrapada district. It covers the area of about 650 sq.kms (anonymous, 1986) of which approximately 380 sq.kms is under forest cover (map No.2). However, the core area of Bhitarkanika is 141.44 sq. kms., which includes 115.5 sq. kms. of mangrove forest. It is bounded by the river Dhamra (Confluence of Brahmani and Baitarani), Brahmani and about 35 kms. long stretch of sea shore. It is indeed a treat to visit Bhitarkanika either through Chandbali or through Rajnagar/Gupti, from where one has to take a motor launch ride to visit this many splendoured estuary. The music of streams flowing from mud flats after the tide, as one navigates through the creeks, particularly in summer months is indeed breathtaking. Unlike many protected areas, one can visit this park round the year, except for short periods, when it is closed to visitors for census operation or for nesting etc. The fauna includes estuarine crocodile, fishing cat, cheetah, sambar, water monitor lizard, python, king cobra, dolphin and many species of resident and migratory birds, like white bellied sea eagle, Brahmani Pariah, kites, vulture, cormorant, darter, king fishers, open billed stork, white ibis, painted stork, whistling teals, Brahmani duck, bar headed geese, herons, and egrets.

**Gahiramatha**

It is close to Bhitarkanika. The list shall remain incomplete if mention is not made of Gahiramatha rockery of Olive Ridley Sea Turtles which have made this the largest nesting ground of the species in the world, where up to 6,00,000 female turtle nest. It is fascinating experience to cruise through the estuarine rivers flanked by dense mangrove vegetation and stay in a forest Rest Houses at Dangmal, Ekaula, Habelikhati or Gupti.
**Satakosia Gorge Wildlife Sanctuary**

Satakosia Gorge Wildlife in heart of Odisha has the potential of becoming one of the finest protected areas in the country but so far not much support has been given to this. This sanctuary along with Baisipalli spread on either side of Mahanadi boasts of Tiger, Leopard, Elephant Gaur, Sambar, Cheetal, Barking deer, Malabar giant squirrel, Gharial, Mugger, Python, King Cobra, Pea Fowl, Red Jungle Fowl, Hornbills, Hill Myna migratory birds in the rivers etc. A gharial research center and interpretation centre is located close to the forest Rest House at Tikarapada. A cruise through the Satakosia Gorge is an unforgettable experience.

**Ambapani**

Located 77 kms from Bhawanipatna and 45 kms from Nowrangpur, Ambapani is famous for the deity of Budharaja installed in a small temple at the foot of a hill. The picturesque Ambapani hills present a panoramic view of nature. A frolicking valley called Haladigundi in this range of hills exhibits some peculiar features due to the reflected rays of the sun. The whole area abounds in Spotted Deer, Sambar and Black Panthers which can be seen at the Behera reservoir. 5 kms away are the pre-historic cave paintings at Gudahandi.

**Balukhand**

This sanctuary is situated at convenient location along sea coast between Puri and Konark. The flora of the area includes casuarina, anacardium, neem, tamarind, karanja, etc. The prominent fauna include blackbuck, spotted deer, monkey, squirrel, jungle cat, hyena, jackel, mongoose and variety of birds and reptiles. Puri is located just 3 km. from entry point of the sanctuary and the Puri - Konark marine drive passes through it.
**Hadagarh**

Hadagarh sanctuary in the district of Keonjhar and Mayurbhanj is close to Hadagarh reservoir of Salandi dam. The area is rich in mixed deciduous forests and wildlife which includes tiger, leopard, fishing cat, hyena, elephant, langur, pangolin, a variety of birds and reptiles. The Baula hill range lying on the east and west of Salandi river, the valley occupied by the reservoir and its catchments are the main features.

**Belghar**

158 kms from Phulbani are the thick tropical forests of Belghar. The dense vegetation of the area is a host to a variety of flora and fauna. Wild elephants abound in this area which is inhabited mainly by tribal peoples.

**Khalasuni**

Khalasuni's undulating topography ranging from 223 mt. to 750 mt. offers a wide ranging scenic beauty of wild virgin forests. There are a variety of wildlife like tiger, leopard, elephant, gaur, sambar, spotted deer, barking deer, pea fowl, horn bill and a number of reptilian species. It is an ideal place for nature lovers and tourists.

**Karlapat**

About 35 kms from Bhawanipatna, the district headquarters of Kalahandi, on the Bhawanipatna-Thuamula-Rampur road is Karlapat, famous for its enchanting wildlife. Tigers, leopards, sambars, gaur and cheetal have a rich presence in these forest tracts.
LARGE FOREST COVERAGE

Forest : The symbol of Sustainability

Orissa, owing to its peculiar geographical location and wide range of physical features, embraces a diversified floristic composition and consequently a vast economic potential. The extensive range of hilly forests, several lofty peaks, long stretch of coastline, excellent river rain system, brackish waters and coastal plains altogether have endowed the state with a wide range of ecological habitats for a diverse and broad spectrum of vegetation. The forests of Orissa have innumerable number of medicinal and economically important species, all of which need a scientific and sustainable management.

Degradation of forests is largely responsible for the change in climate over the land, variation in rainfall patterns, global warming and rendering of plant oxygen/carbon dioxide cycle invalid. It has also led to loosening of the soil, due to absence of root systems and consequent erosion. This phenomenon is directly responsible for floods and droughts.

The total forest in the state in 1981 was 59,963sq.km constituting about 38% of the total geographical area. In 1989, it stood at about 30%; but according to 2001 census, the coverage of forest area is 37% of the total land area. Based on the relief, rainfall and vegetation types, the forest of Odisha are divided into the following types:

Northern Tropical Semi-Evergreen Forest

These occur in the lower hills and valleys above 600 m elevation in the forest divisions of Mayurbhanj, Dhenkanal, Athagarh, Puri, Nayagarh Parlakhemundi, Koraput and Kalahandi. While the top storey trees are deciduous and remain leafless for a short time, the second storey is evergreen. The important tree species are: Arjun, Mango, Makar Kendu (Diospyros embryopteris), Champak, Rai, Manda and Nageswa.

Tropical Moist Deciduous Forests also Known as Monsoon Forests

These occur in the lower elevations in Mayurabhanj and Keonjhar districts and the districts bordering of Madhya Pradesh and Andhra Pradesh. The top canopy is formed by sal (Shorea Robusta) and its allies Asan, Piasal, Kurum, Kangra and Dhawra and Daba Bamboo (Bamboosa arundinaceous)
**Tropical Dry Deciduous Forests**

They occur in the drier central and western areas in parts of Bolangir, Kalahandi, Sambalpur, Khariar, Deogarh and Gobindpur divisions. Teak instead of Sal, Salia bamboo (Dendrocalamus strictus) instead of Daba bamboo, predominates in these forests.

**Tidal Mangrove Forest**

These are limited in extent scattered and confined to the seacoast, especially in Bhitarakanika (Balasore) and the Mahanadi Delta. The characteristic tree species are Karika (Bruquiera), Sundari (Heritiera), Bani (Avicennia), Rai (Rhizophora), Guan (Expocaria), etc. As Hental (Phoenix Paludosa) grows here abundantly in clusters, the mangrove forests are locally called Hental Van or Hental Forests.

Forest are a major constituent of the natural resources in the form of timber, firewood and a large number of profitable forest products like sabai grass, lac, resin, catechu, tassar silk, honey, natural dyes, etc. The valuable timber species are Teak Seasum or Rose Wood, Piasal, Kassi, Kurum, Arjun, Gambhari, Giringa, and such other varieties of polishable wood that are used for furniture, and Sal, Asan, Dhau, Bandhan, Kangra, etc. which are hard and utilized in various construction works. Kendu (Diospyros Xylocarpus) leaves which are used for wrapping bidi constitute a profitable source of revenue as they are largely in demand all over the country.

Bamboo is of extensive utility not only in the life of the common man but also essential raw material for paper industry. It is used in the paper mills of the state and supplied outside, especially to West Bengal. Sabai Grass is also used for making paper pulp, but mostly for rope making. Sericulture, undertaken in the forest areas, provides a good source of income to the people. Certain parts of the forest, for example the Gandhamardan Hill in Bolangir, abound in medicinal plants and herbs. Nux vomica which grows widely in most forests and Rauwolfia Serpentira, which grows in the jungles of the south, are common examples.
**Abundant Mineral Resources**

The state is endowed with vast mineral deposits like Coal, Iron-ore, Manganese-ore, Bauxite, Chromite, Dolomite, Limestone, Graphite, etc. Besides that, other important mineral resources are also available abundantly in Odisha. The main exported minerals of the state are Chromite, Coal, Dolomite, Iron-ore, Manganese and Bauxite. The value of mineral production of Odisha in 2000-2001 (provisional) was 2,776.15 crore rupees and 5.23% share to all India value. The total production of mineral ores in the state during 2000-2001 registered an increase of 8.79% in quantity and 4.84% in value.

**Vast Coastline**

India has a long coastline of 6200 kms. The state of Odisha apart from other states of India is endowed with a long coast line of 480 kms. along the Bay of Bengal, interspersed with numerous ports like Paradeep, Gopalpur, Dhamra, (Chandbali), Bahabalapur, etc. The coast line of Odisha covers the distance of Chandaneshwar to Gopalpur.

**Beautiful Beaches**

All the sea beaches of Odisha are rated best in the country among all other beaches. All the beaches are spotlessly clean, absolutely quiet, with hardly any crowd. The beaches give a lot of opportunity to the visitors for swimming, bathing, strolling etc. All the sea beaches of Odisha are attractive round the year. The beautiful beaches of Odisha include Puri, Chandrabhaga near Konark, Balighai and Ramachandi (8 kms. from Puri), Gopalpur near (Berhampur of Ganjam District) Chandipur (Bhadrak District) Chandaneshwar (88 kms. from Balasore) etc.