Bio- Diversity and Sustainable Eco-development in Odishan Context

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Introduction:

The Orissa State located on the Bay of Bengal coast spreads over an area of 1,55,707 sq. km. It lies between 17°49'-22°.34' latitude and 81°27'-87°.29' E longitude. With its situation on the tropical zone, the Bay of Bengal coast on South-eastern side, the hills- studded easternghats and wetlands, the Orissa State has been an ideal resort for biologically diverse floral and faunal species. It has 55,11 hectares of forest cover (as per the government records but the recent remote sensing observation puts it at much less i.e. less than 14 per cent of the land area) and 482 km. of coast line.

Due to population pressure the forest cover has drastically shrunk and is now limited to a few relic patches in hill tracts. Yet these land masses are enriched with diverse kinds of biological species. There are also wetlands which are the epitomes of aquatic as well as terrestrial members. Some of these areas are protected and some are not protected. There are only 2 national parks such as Similipal National Park (845.70 sq. km.) and the Bhitarkanika National Park (367 sq. km.), one game reserve (Bhetonai Ramand) for Black Buck and 16 Wildlife Sanctuaries (6,529.77 sq. km.).

The elephant, tiger, deer, crocodile (all the three types Baula-Crocodylus Porosus, Gharial-Gavialis gangeticus, and Mugger-Crocodylus polustris) are the interesting animals in Orissa State. As on today 65 mammal, 446 bird and 84 reptile species have been identified in Orissa. Sal, asana, champa, mangroves are some of important plants in Orissa's forests and wetlands.

Proper awareness building and sustainable eco-development around the biodiversity habitats can only help protect and conserve biodiversity resources as well as promote the socio-economic condition of the people living around these habitats.

Some Important Biodiversity Habitats and their Wildlife Species:

Topographically the Orissa State is divided into 4 distinct zones. It will be in fitness of things to discuss atleast one or two natural sites of each such zone for the benefit of our information. They are (a) Chilika and Bhitarkanika in Coastal Plains, (b) Mahendragiri Hills in the Eastern Ghats, (c) Similipal Massif in the northern plateau and (d) Gandhamardan Hills in the central table land.

Chilika Lake:

The Chilika is a brackish water lake or lagoon unique in Asia. It covers a vast area of 1,055 sq. km. which swells to 1,165 sq.km. during the rainy season and shrinks to 906 sq.km. during summer. While the lake enjoys the status of wetland of International Importance under Ramsar Convention (as waterfowl habitat) the

State Government have declared a Sanctuary (in 1987) only in one island called Nalaban covering about 16 sq.km.

The lake is endowed with more than 300 angiospermic plant species. The vegetation comes under three categories (a) aquatic, (b) littoral and (c) psamophytic and sand dunes. The Potamogeton pectinatus is a well spread aquatic weed here and Aegiceras corniculatum, Clerodendron innerme and Carissa spinarum are some of the scrub species. In its fauna the lake hosts over 150 species of birds out of which 32 per cent aquatic. 22 per cent waders and about 46 per cent are terrestrial. Out of the 150 species only about 27 are indigenous and the rest are migratory in character. The Brahmini duck (Todorna ferruginea) is abundantly found. Besides, flamingos (Phoenicopterus reseus) -a magnificient bird, Bar-headed goose (Anser indicus), Shovellers (Anas clypeata), common teal (Anas creea), pintail duck (Anas accuta), red crested pochard duck (Netta rufina) and a number of bird species are the splendorous winged guests to this lake. The migratory birds find Chilika lake in Orissa as their paradise. About 5 to 6 lakhs of birds visit annually. The Caspanian region of Siberia, Lake Baikal, East Kirghiz steppes, Kieva region of Russia, Ladakh and Tibet region, Kazkh, Iran are some of the places from where the birds migrate.

The Chilika lake is the home of varied species of fish (about 150 types—27 are sweet water and 131 are salt water types), shrimp and crabs. The Tiger Prawn (Penacus monodon) is a cash crop here. Among terrestrial wild animals the Black Buck (Antelope cervicapra) is unique in the Savannas around the Lake. There are also dolphins (Orcaella brevirostris), lizards (Varanus salvator), in the waters.

Recently there was a move for intensive and semi-intensive prawn cultivation inside the lake. The local people were caught between two horns of a dilemma; the lake's deterioration and depletion of resources in one hand and the arrival of big farms with commercial interest in the other hand. The idea of intensive farming had to be abandoned due to people's resistance

Bhitarkanika Mangrove Swamp:

The Bhitarkanika mangrove swamp is a compact area spreading over about 700 sq.km., out of which 380 sq.km. area is covered by forests and the rest by estuarine waters. The mangrove forest occupies an area of 115 sq.km A sanctuary covering 672 sq.km. with a national park in 367 sq.km. have been declared in 1975 and 1988 respectively. The confluence of the mouth of Brahmani, Baitarani and Patsala form the estuary of Bhitarkanika.

The vegetation here comes under two categories namely (a) mangrove formation near the estuarine banks and (b) salt-bush formation in the littoral tracts of Satvaya and Gahirmatha sea shore. The top canopy of mangroves is mostly composed of Avicennia officinalis, A. alba, Heritiera formes, Xylocarpus molucornsis, Exceocaria aqallocha etc. There are scrub jungle or semideciduous forests in drier peripheral areas where Lannea coromandelica, Bridelia retusa, Strychnos nuxvomica, Pterospermum xylocarpum, etc. appear. The cerbera manghas (a small tree), Aeanthus volubilis (a robust climber), Xylocarpus granatum and Heritiera Kanikensis are some of the rare species which do not appear in other mangrove forests in Orissa.

Bhitarkanika is known for the rare salt water crocodile (Crocodylus porosus). The Pacific Olive Ridley Sea Turtle (Lepodichelys olivacea), a migrant reptile comes to the beach at Gahiramatha in lakhs during the breeding season (during December to March) for mass nesting. Among other aquatic animals water monitor lizard, mud skipper, lumulus, red crab and a variety of fish and prawn are notable. In the surrounding

forests terrestrial animals like spotted deer, wild bear, chital, jackal, hyena, porcupine, fishing cat, mongoose, python, king cobra etc. are found to be seen. The resident and migratory birds are also sighted in the area. They are open billed storks, white ibis, grey pelicans, bare headed goose, brahminy duck etc. migrating in large numbers during winter. The night heron, cattle egret, cormorant, grey heron, king fishers, water fowl, common sand piper, collard dove, parakeets are some of the resident birds.

Mahendragiri Hills:

The Mahendragiri Hills complex is one of the oldest ecosystems in the country. It is situated on 18°.5'-19°.10' N latitude and 80°.00'-84°.24' E longitude in Gajapati District of Orissa State, on Eastern Ghats. It is studded with numerous hills and the prominent ones are Mahendragiri (1501 m.) and Singraz (1516 m). This hill forest is rich with genetically diverse species but the forest is not dense. No protection measures like sanctuary, national park and biosphere reserve have been effected here. It harbours both Himalayan and South Indian peninsular species. The forests here mainly come under (a) Tropical Dry Deciduous and (b) Tropical Moist Deciduous types. The vegetation can be classified broadly into 4 types namely (i) Sal Forests, (ii) Mixed Forests, (iii) Grasslands and (iv) Scrubs. There are more than 650 species of flowering plants. The Sal (Shorea robusta) occurs in different plant communities. The common associates are Bahada (Terminalia bellerica), Harida (T. chebula) (a) Piasal (Pterocsrpus marsupium), Halanda (Adina cordifolia), Mahua (Madhuka indica), Dhaura (Anogeissus latifolia), Kendu (Diospyros melanoxylon) Bamboo (Dendrocalamus strictus), Kunkum (Mallotus phillippiensis) etc. as the dry deciduous species whereas Litsea monopetala, Grewia dispennia, Diospyros peregrina, Prunus pygeoides, etc. are some of the evergreen and semi-deciduous types. The forests are also rich with orchids. Out of 123 orchid species in Orissa Mahendragiri harbours 32 species.

In its fauna the forests have Panther (Panthera pardus) Tiger (P. tigris), Elephant (Elephas maximus), Spotted deer (Axis axis), Four-horned antelope (Tetracerus quadricornis), Wild boar, Wolves, Rat, Wild squirrel, etc. Besides Pythons, Garden lizard, Chameleon and nearly 20 types of snakes live in the hills.

Similipal Massif:

The Similipal Massif is a rare mixed tropical forest covering an area of 2,750 sq. km. in the northern plateau of Orissa State. It is located centrally in the Mayurbhanj District between 20°.17' - 22°.34' N latitude and 85°.41' - 87°.10' E longitude.

It has four types of forests namely (a) Northern Semievergreen forest (b) Northern-moist deciduous forest, (c) Dry deciduous hill forest and (d) High level Sal forest, grass-land and Savanna. Some of the floral species of Similipal—Meghasan complex reprsented the Australia-Africa-Peninsular India (Ancient Gondwana land). The Sal (Shorea robusta), Simili (Bombax ceiba), Arjuna (Terminalia arjuna), Asana (I. tomentosa), Champa (Michelia champaka), Jamu (Syzygium cumini), Kendu (Diospyros melanoxylon), Kumbhi (Careya arborea), Kusum (Scleichera olesa), Piasal (Pterocarpus morsupium), Mahua (Madhuca indica) are some of the principal timber species here. It harbours 92 orchid species out of 123 known in Orissa. There are 20 types of orchids representing the Himalayan Range and 8 from Nilgiri Hill Range.

In its wild animals it has Indian Elephant, Royal Bengal Tiger, Panther, Wild Boar, Asiatic Wolf, four-horned Antelope and a variety of deer, Gaur (Bos gaurus), many varieties of snakes, birds etc. The Similipal is popularly known for mimic bird Hill Mynah (Gracula religiosa). In the deep

river water it shelters the Mugger Crocodile (Crocodylus palustris).

Gandhamardan:

The Gandhamardan Hill complex is situated on 20°.56' N latitude and 82°.45' E longitude in western part of Orissa. It spreads over an area about 300 sq. km covering parts of Sambalpur, Balangiri and Kalahandi Districts. None of the modem protection measures like sanctuary, national park or biosphere reserve have been set up here.

It has 4 types of forests such as (a) Dry deciduous (b) Bamboo, (c) Semi-ever-green and (d) Grassland. The most common tree species are Sal, Piasal, Mohua, Asana, Arjuna, Kumbhi, Kusuma, Mango etc.

The common faunal species are Bear, Palmcivet, Jungle cat, Leopard, Wild Boar, Sambar and other deer, Blue Bull etc. It also hosts a variety of reptiles and birds like any other forest in Orissa such as peacock, Fowl, Shikra, Hill mynah etc.

Out of the total estimated bauxite reserves of 2484,21 million tonnes in the country more than 50 per cent of the reserve is in Orissa. Gandhamardan alone contains about 230 million tonnes of commercial grade bauxite which is the second largest site of deposit in Asia. The Bharat Alumunium Company (BALCO) was granted lease in 1981 for exploitation of bauxite. Apprehending the adverse impact of mining of the natural ecosystem the local people registered strong protest and the project had to be abandoned.

Conclusion:

The biological resources feed, clothe and provide us food, medicines, housing, spritural nourishment etc. The natural ecosystems of forest, savannahs, pastures, range lands, deserts, rivers, lakes, oceans, etc. contain most of the biodiversity. The loss of biodiversity is a global phenomenon arising out of habitat destruction, over-harvesting and pollution and such other activities. We must realise that, the biological resources constitute a capital asset with potential for yielding sustainable benefits.

Decades back one species was being wiped out from earth's surface in 190 years but today we are losing three species every hour. Proper awareness build up, promotion of eco-friendly forest and other natural resources based traditional income generating activities, benefit sharing among the indigenous people from whom the resources are harvested by non-indigenous people and agencies are some of the appropriate measures worth taken forthwith to protect and conserve our biological resources for posterity. The recently adopted Biodiversity Convention in the Earth Summit in Rio-de-Janerio is a significant event. The Convention has 3 components (a) Biodiversity Conservation (b) Sustainable use of resources and (c) Equitable distribution of profits from Biodiversity. So that, the economic condition of grassroot level people around biodiversity habitats is elevated which will ensure sustained protection of biological resources.

Collection of tubers, roots, leaf, gums, honey, resins, seeds, flowers, bamboo, cane, coconut fibres etc. for food, medicine, household materials, medicinal herbs, cultivation of mushroom, tassar etc. around biodiversity habitats like Mahendragiri, Similipal, Gandhamardan and traditional fish farming around wetlands through skill development of local inhabitants, application of bio-technology and judicious marketing of the products will go a long way for improvement of economic condition of the grassroot level people and conservation of biologically diverse biological species.

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