# Biodiversity, Ecology and Socio-Economic Aspects of Gundia River Basin in the context of proposed Mega Hydro Electric Power Project

[Report prepared at the invitation of Prof. Madhav Gadgil, Chairman, Western Ghats Ecology Expert Panel, Ministry of Environment and Forests, Government of India]

## EXECUTIVE SUMMARY

Gundia River is one of the most important tributaries of river Kumaradhara originating at an elevation of about 1400 m in Saklasheshpura taluk in Hassan district. Gundia River is formed by the streams namely Yettinaholé and Kempholé to which the streams Kadumaneholé and Hongadahallé join in the course. The Gundia catchment region is surrounded Hemavathi river water-shed on its right, Barapole river catchment on its left and Netravathi River on downstream side. The Gundia catchment comes under influence of the South-west monsoon in months of June to September. This region harbours nearly 36% of plant species, 87% of amphibians, and 41% of fishes, which are endemic to Western Ghats. The presence of four critically endangered and 14 endangered animal species in the region further emphasises the need for conservation of this region on priority as it provides a unique habitat and ecological niche.

This study re-affirms **'hottest hotspot' status of the Gundia Basin in central Western Ghats**, a repository of biological wealth of rare kind, both in its aquatic and terrestrial ecosystems and indicates strongly the need for adoption of holistic eco-system management for conservation of particularly the rare and endemic fauna of the Western Ghats. **The premium should be on conservation of the remaining evergreen and semi-evergreen forests, which are vital for the water security (perenniality of streams) and food security (sustenance of biodiversity). Through appropriate management there still exists a chance to restore the lost natural evergreen to semi-evergreen forests.**

The region is Ecologically Sensitive as it fulfills the criteria of ***Eco-sensitive region*** as per sub-section (1) with clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986), such as

i) **Species based criteria**:

- The presence of high endemic, rare and endangered species of flora and fauna
- Centre of evolution of domesticated species

| TAXA | SPECIES | STATUS AS PER WILDLIFE PROTECTION ACT (1972) |
|---|---|---|
| **Birds** | *Anthracoceros coronatus* (Boddaert) | Schedule - I |
| | *Buceros bicornis* (L.) | Schedule - I |
| | *Pavo cristatus* (L.) | Schedule - I |
| | *Gallus sonneratti* Temminck | Schedule - II |
| **Reptiles** | *Varnus bengalensis* (Daudin) | Schedule – I |
| | *Python molurus* (L.) | Schedule - I |
| | *Naja naja* (L.) | Schedule - II |
| | *Ophiophagus hannah* (Cantor) | Schedule - II |
| | *Ptyas mucosus* (L.) | Schedule - II |
| | *Xenochrophis piscator* (Scheidner) | Schedule - II |
| | *Atretium schistosum* (Daudin) | Schedule - II |
| | *Daboia russelii* (Shaw & Nodder) | Schedule - II |
| **Mammals** | *Elephas maximus* (L.) | Schedule - I |
| | *Loris lydekkerianus* (Cabrera) | Schedule - I |
| | *Manis crassicaudata* (Gray) | Schedule - I |
| | *Petinomys fuscocapillus* (Jerdon) | Schedule - I |
| | *Panthera tigris* (L.) | Schedule - I |
| | *Macaca silenus* (L.) | Schedule - I |
| | *Bos gaurus* (H. Smith) | Schedule - I |
| | *Panthera pardus* (L.) | Schedule - I |
| | Tragulus meminna (Erxleben) | Schedule - I |
| | *Macaca radiata* (E. Geoffroy) | Schedule - II |
| | *Melursus ursinus* (Shaw) | Schedule - II |
| | *Herpestes edwardsi* (E. Geoffroy Saint-Hilaire) | Schedule - II |
| | *Presbytis entellus* (Prater) | Schedule - II |
| | *Felis chaus* (Schreber) | Schedule - II |
| | *Ratufa indica indica* (Erxleben) | Schedule - II |
| **Butterflies** | *Hypolimnas misippus* (L.) | Schedule - I |
| | *Lampides boeticus* (L.) | Schedule - II |
| | *Appias albina* (Boisduval) | Schedule - II |

## ii) The ecosystem-based criteria

- migratory species,
- specialised habitats,
- special breeding site/area, areas with intrinsically low resilience,

**Gundia River Basin is a**

| | |
|---|---|
| Habitat for endangered, endemic species – Presence of Schedule I fauna of INDIAN WILDLIFE PROTECTION ACT (1972) | Details in Section 2 |
| Part of Mysore Elephant Reserve | Details in Section 3 |
| Part of Elephant Migratory Corridors<br><br>These corridors also facilitate multi mega species (tiger, leopard, and gaur) movement. Hence should be given high priority and efforts should be made to jointly secure these corridors along with National Tiger Conservation Authority (NTCA). | Details in Section 3 |

iii) Presence of sacred groves and sacred water sources

iv) Geomorphological features – origin of Kumaradhara, Yettinaholé and Kempholé to which the streams Kadumaneholé and Hongadahallé join in the course and form Gundia river

Thus the Gundia River Basin merit Ecologically Sensitive status due to:

| **JUSTIFICATION FOR ECO-SENSITIVE REGION STATUS** | **PERMISSIBLE LAW** |
|---|---|
| This region is declared as 'Eco-sensitive Region' as it is very rich in biodiversity and is a high centre of endemism with 36% of plant species, 87% of amphibians and 41% of fishes present in this region. This region also harbours endangered species like Elephants, Threatened species like Slender Loris, Grey headed bulbul and Malabar pied Hornbill. Presence of Lion Tailed Macaque which acts as a flagship species for rainforests also signifies the ecological importance of this region. | As per sub-section (1) with clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) and clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 |

| | |
|---|---|
| Mammals like Slender Loris, Elephant, Leopard cat, Tiger, Lion Tailed Macaque and Gaur present in this region are listed under Schedule-I of WPA (1972) which signifies highest level of legal protection is assigned for them. Whereas, mammals like Jungle cat, Asian Palm civet and Brown Palm civet are included in Schedule-II signifying second highest level of priority assigned for them. | Schedule-I, II and III animals under Indian Wildlife Protection Act (1972) |
| According to a Gazetted notification by the Karnataka State Govt. this region forms a part of the designated **Mysore Elephant Reserve**. The Mysore Elephant Reserve was notified by the Karnataka Government in November, 2002 (Vide GO FEE 231 FWL 2000, 25/11/2002). It covers the total area of 6,724 sq.km. The Bisle Reserve Forest of Gundia Basin, vide the said GO, constitutes a vital part of the Mysore Elephant Reserve. It covers an area of 3,339 ha (Survey number I and II – Bisle Reserve forest). | Section 36-A of The Wildlife (Protection) Act, 1972as amended by The wildlife (Protection) Amendment Act, 2002 |

Considering the ecological significance and rich biodiversity, this region should be declared as an ***Eco-sensitive region*** as per sub-section (1) with clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) and clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 in concurrence with the provisions of the Indian Forests Act, 1927 (16 of 1927) and Forest (Conservation) Act, 1980 (69 of 1980) the Wildlife (Protection) Act, 1972 (53 of 1972). This is imperative to prevent the erosion of Biodiversity, Ecology and associated Hydrology.

The Karnataka Power Corporation Limited (KPCL) has proposed to implement the **Gundia Hydro Electric Project (GHEP)** on the Gundia River. This project involves the construction of 3 weirs and 2 dams and aims to produce 200 MW of electricity. However, this short sighted developmental project poses a threat to the ecology and biodiversity of the area. The submergence of forest region and other associated activities will cause habitat fragmentation and shrinkage. This will ultimately enhance the Human – Animal conflicts in this region. The large scale land cover changes will affect the hydrology, biodiversity and ecology.

The proposed project **(GHEP)** is ecologically unsound and economically unviable because of the following reasons:

1. The construction of this project will cause large scale land cover changes in Gundia (Section 1)
2. The proposed project would deteriorate the biodiversity of the region (Details in Section 2)
3. The proposed region is a part of an Elephant reserve and forms a vital link of two Elephant corridors (Details in Section 3).
4. The proposed project would cause habitat fragmentation and shrinkage resulting in enhanced Human - Animal conflicts (Details in Section 3)
5. The economic value of the region is clearly higher (> 200 Billion Rs.). The forests are ecologically and economically beneficial to humans (Details in Section 4).
6. Alters the hydrological regime – Kumaradhara River, a perennial source of water to Subramanya temple, which will lose the water source due to diversion to Bettakumri dam. This would hurt the religious sentiments apart from the revenue from ecotourism. Also, due to large scale land cover changes, the catchment yield will dwindle and current perennial streams will become seasonal (as in Sharavathi river basin). This would affect ecosystem people.

   ***Presence of Mahseers***: Several species have been reported from India and from southern India, the *Tor khudree* and *Tor mussullah*. Mahseers prefer running water with deep pools and rocky substrate. They rule the Indian waters like tiger do the jungle. Three protected sites for fishes along downstream region of Kumaradhara and Nethravathi, indicates the fish richness of the region as well as the **conservation priority** given to these rivers.

Considering the above, the proposed GHEP hence **would be ecologically and economically unviable as it would weaken the food and water security of the region**.

Ecosystem people request the Government to designate “Eco sensitive status” to Gundia Region and Moratorium of the Proposed GHEP, which would be an apt way of celebrating the International Year of Biodiversity – Year 2010.


Biodiversity is life
Biodiversity is our life