

PR75

# ENVIRONMENTAL ASSESEMENT OF THE KUNDAH PUMPED STORAGE HYDRO ELECTRIC PROJECT, THE NILGIRIS, TAMIL NADU

Submitted to  
TAMIL NADU ELECTRICITY BOARD

PA Azeez, S Bhupathy and P Balasubramanian

Sálim Ali Centre for Ornithology & Natural History  
Coimbatore, Tamil Nadu

26-6-06

June 2006

SACON Library



PR75





**ENVIRONMENTAL ASSESEMENT OF THE KUNDAH PUMPED  
STORAGE HYDRO ELECTRIC PROJECT,  
THE NILGIRIS, TAMIL NADU**

SACON Library



PR75

**Submitted to  
TAMIL NADU ELECTRICITY BOARD**

PA75

**PA Azeez, S Bhupathy and P Balasubramanian**



**Sálim Ali Centre for Ornithology & Natural History  
Coimbatore, Tamil Nadu  
June 2006**



## CONTENTS

1.Introduction .....	1
2.The Kundah pumped storage hydroelectric project - KPSHEP .....	1
3.The present study .....	3
3.1. Scope and objectives .....	4
4.Study area and methodology .....	9
4.1. Methodology for the study of flora .....	10
4.2. Methodology for the study of fauna.....	11
5.Nilgirs' environment: a brief.....	12
6.Vegetation and Floristics .....	16
6.1. Ecological analysis of the vegetation.....	16
6.1.1 Shola Forests .....	16
6.1.2 Plantations .....	18
6.2. Fauna in the project locations and its environs.....	22
6.2.1 Amphibians and Reptiles .....	22
6.2.2 Birds and mammals.....	24
6.2.3 Endangered species .....	28
7.Impacts of the hep – Key concerns of the biological environment.....	29
7.1. Impacts during the construction phase.....	29
7.1.1 Impacts arising directly from erecting various structures for the project.....	31
7.1.2 Impacts arising from the sourcing of materials such as stones .....	32
7.1.3 Impacts arising from movement of men and materials.....	33
7.1.4 Impacts from the operation of powerful earth moving machinery .	33
7.1.5 Impacts from blasting to excavate and clear routes of the tunnels and caverns.....	34
7.1.6 Impacts from the workforce making the project vicinity as temporary residences.....	34
7.1.7 Impacts of disposal of muck and other debris.....	35
7.1.8 Impacts from spills of fuels, lubricants, other oils and dispersed wastes from machinery and equipments. ....	35
7.1.9 Impacts on ambient abiotic environmental characteristics .....	36



7.1.10	Loss of biodiversity – that include loss of species or community	39
7.1.11	Reduction in habitat availability, feeding or breeding habitats, sites for nest, den or hideouts,.....	39
7.1.12	Interference in the movement of wild species .....	39
7.2.	Impacts during the operation phase .....	40
8.	Mitigatory measures.....	41
9.	Summary and Conclusion .....	45
10.	Acknowledgements .....	47
11.	References .....	48
12.	Appendices.....	51

## 9. SUMMARY AND CONCLUSION

- Sálím Ali Centre for Ornithology and Natural History undertook the present rapid study on the request of the Tamil Nadu Electricity Board. The scope of the study was limited to examination of the ecological impact of the Kundah pumped storage hydroelectric project, the Nilgiris District.
- The present study examined the project sites and its environs focussing on the impact of the project on biological components and ecological environment. The project does not propose development of any storage structures and intends to pump water from the lower Avalanche-Emerald reservoir to Porthimund reservoir situated at an upper level. For this, the cheaply available surplus power available during the off-peak demand hours will be used. During the peak hours the generator of KPSHEP will be operated to produce power that will be evacuated to the grid.
- Major components of the project such as Head Race Tunnel, Power House and Tail Race Tunnel will be located underground, while surges and switchyard are the major components located over ground. The project requires about 13 ha of reserve forest land, mostly of exotic wattle plantations, to be diverted for its use.
- Field survey of the project sites and its environs were undertaken from November 2005 to March 2005. Standard methods were adopted for collection of the primary data on flora and fauna.
- In total 64 species of plants, 64 birds, 10 reptiles and 6 amphibians were recorded in the study site during November 2005 to April 2006. Of these 15 species are enlisted in schedule 1& II of Wild life Protection Act. Six animal species is red listed while 10 plant species are endemic that needs attention from the standpoint of conservation. The Shola forests are conservationally highly important. Hence activities that will put stress on Sholas may be avoided.
- Since the project area and its environs fall within the forestry (manipulation) zone of the Nilgiri Biosphere Reserve the TNEB should take utmost care in minimising disturbances during the construction phase of the project.
- A shift in alignment of the Adit I exit, which currently opens to a species rich shola is



suggested so that its opening is in non-forested area close to the nearby road and the shola patch into which it currently opens could be protected. A shift in the alignment of road to Switchyard is also suggested to save another shola patch. During alignment and laying the roads TNEB has to take utmost care to avoid any Sholas.

- Most of the installations of KPSHEP are to be placed underground and no new water storage (submergence) is expected. All major over-ground components of the project are located in wattle plantations and hence, the project is expected to cause minimum damage to the local environment. Proper scheduling of the project execution, some realignment of the project structures away from ecologically important vegetation, stringent control on traffic and access to roads, proper management of debris and wastes, reduction in blasting to the bare minimum, and control of workers can help considerably in reducing the impacts.

