

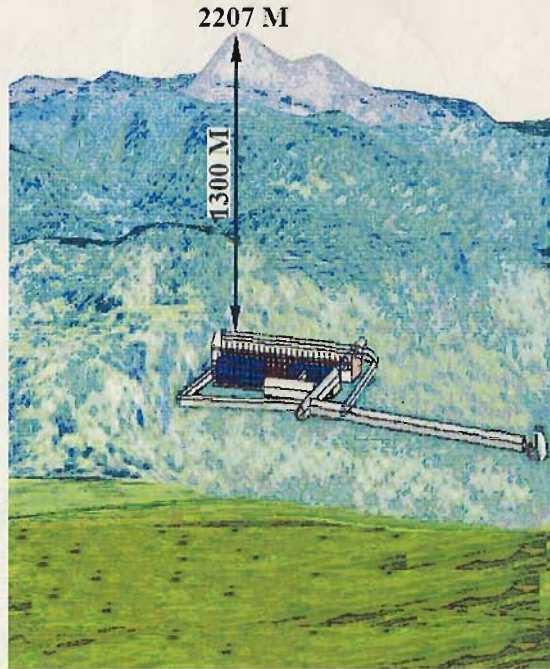
PR81

SACON Library



PR81

**RAPID ENVIRONMENTAL IMPACT ASSESSMENT OF THE  
INDIA-BASED NEUTRINO OBSERVATORY PROJECT, SINGARA,  
NILGIRIS, TAMIL NADU**



**Report submitted to  
INSTITUTE OF MATHEMATICAL SCIENCES, CHENNAI**

**PA Azeez, S Bhupathy, P Balasubramanian, Rachna Chandra and PP Nikhilraj**



**Sálim Ali Centre for Ornithology & Natural History**

**Coimbatore, Tamil Nadu**

**June 2007**

Library  
13.7.07

**RAPID ENVIRONMENTAL IMPACT ASSESSMENT OF THE  
INDIA-BASED NEUTRINO OBSERVATORY PROJECT, SINGARA,  
NILGIRIS, TAMIL NADU**



PR81

**Report submitted to  
INSTITUTE OF MATHEMATICAL SCIENCES, CHENNAI**

**PA Azeez, S Bhupathy, P Balasubramanian, Rachna Chandra and PP Nikhilraj**



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

**June 2007**



## Contents

1.	Introduction.....	1
1.1.	The India-based Neutrino Observatory (INO).....	3
1.1.1	Creation of the INO .....	3
1.1.2	The Site .....	4
1.1.3	The project .....	6
1.1.4	Components of the project.....	6
1.1.5	Land and other resources requirement.....	7
1.1.6	Construction technology and execution.....	8
2.	The present study .....	11
2.1.	Scope and objectives.....	11
2.2.	Study area.....	13
2.3.	Methodology .....	15
2.3.1	Methodology for the study of flora.....	15
2.3.2	Methodology for the study of fauna.....	16
3.	Observations .....	18
3.1.	Topography.....	18
3.2.	Climate.....	19
3.3.	Biodiversity.....	21
3.3.1	Vegetation in Bokkapuram .....	21
3.3.2	Vegetation in Mavana halla and Masinagudi.....	22
3.3.3	Vegetation towards south of Moyar village.....	22
3.3.4	Vegetation of Mudumalai Wildlife Sanctuary.....	22
3.3.5	Flora at the INO entry portal and nearby areas.....	24
3.3.6	Floral enumeration.....	25
3.3.7	Endemic plants.....	25
3.4.	Faunal Analysis.....	25
3.4.1	Amphibians.....	25
3.4.2	Reptiles .....	26
3.4.3	Birds.....	26
3.4.4	Mammals.....	27
3.4.5	Threatened Species .....	29
3.5.	Protected Areas and Wildlife Corridors.....	30
4.	Potential environmental threats and perturbations.....	32
4.1.	Key concerns.....	32
4.2.	Impacts during construction phase.....	32
4.2.1	Impacts due to erecting structures required for the project.....	33
4.2.2	Impacts arising from the sourcing of materials.....	34
4.2.3	Impacts arising from the vehicular and labourer movement .....	35
4.2.4	Blasting to excavate and clear routes of the tunnels and caverns .....	35
4.2.5	Ground vibration.....	36
4.2.6	Impacts due to the vibrations, smoke, noise during the construction .....	39
4.2.7	Impacts due to blasting during excavation and clearing routes .....	40
4.2.8	Impacts due to the workmen inhabitation during the construction.....	41





## India Based Neutrino Observatory – Rapid EIA

4.2.9	Impacts due to the over burden, debris and muck during disposal.....	41
4.2.10	Impacts due to the spills of wastes such as fuels and lubricants.....	41
4.3.	Impacts during the Operation Phase .....	41
5.	Mitigation measures and environmental management plan.....	43
6.	Summary and Conclusions .....	52
7.	Acknowledgement .....	53
8.	References.....	54
	Appendices.....	58



## 6. SUMMARY AND CONCLUSIONS

- A rapid Environmental Impact Assessment (REIA) of the proposed India-based Neutrinos Observatory (INO) project at Singara, Nilgiris district on the biological environment was done by Sálím Ali Centre for Ornithology and Natural History (SACON). The study was undertaken on request from the Institute of Mathematical Sciences (IMSc), Chennai.
- In all, 676 species of plants and 173 species of vertebrates (12 species of amphibians, 46 reptiles, 87 birds and 28 mammals) were recorded in the study area. Several endemic and endangered flora and fauna are found to occur in the area.
- The proposed project location falls near the Mudumalai Wildlife Sanctuary which is rich in wild biodiversity. Immense care is needed during the construction as well as operation phase as the area is a corridor for the movement of large mammals such as Elephants. Unplanned human activities would affect their activity adversely.
- Most of the construction work of the proposed project work will be carried out deep inside the earth surface. However, the construction activities are likely to have impacts on the local environment especially wildlife. Proper work plan, debris and waste disposal, blasting activities to the bare minimum, controlled vehicular activity and limiting the number of workers may help to reduce the impacts.
- Looking at the need for technology development of the country, the proposed project assumes global importance. Nevertheless, the project construction and operation is likely to have notable impact in the area, especially on wildlife. It may be possible to lower the impact on the environment, with proper planning and implementing appropriate measures.

