

**RAPID ENVIRONMENT IMPACT ASSESSMENT REPORT
(REIA)
AND
ENVIRONMENT MANAGEMENT PLAN**

EXECUTIVE SUMMARY

Project Proposal

**1.0 MILLION TPA IRON ORE MINING, 0.5 MILLION TPA
BENEFICIATION PLANT AND AT 0.5 MILLION TPA
PELLETIZATION PLANT**

at

**Kavuthi Malai & Vediappan Malai, Imum Karianthal Village,
Chengam Taluk, Thiruvanna Malai District.**

PROJECT PROPONENT

**M/s TAMIL NADU IRON ARE MINING CORPORATION LTD
POTTANERI & M.KALIPATTI VILLAGE, METTUR (T.K).
SALEM.**

EXECUTIVE SUMMARY

Introduction:

Project	:	Kavuthimalai & VEDIAPPANMALAI Iron Ore Mine
Proponent	:	M/s Tamil Nadu Iron ore Mining Corporation Ltd.
Project Location	:	Village Inumkarianthal, Chengam Taluk, Thiruvannamalai District., Tamil Nadu-
Area (Ha.)	:	325.0
Nature of the Area	:	Forest Land
Project Proposal	:	1.0 MTPA Iron Ore, Beneficiation and Pelletization Plants of capacities 0.50 MTPA each

M/s Tamil Nadu Iron ore Mining Corporation Ltd., has applied for a mining lease in Kavuthimalai reserve Forest of Thiruvannamalai Distt, for mining of iron ore over an extent of 325.0 ha. The deposit is low grade banded magnetite quartzite (BMQ) having an average grade of 41.78% Fe.

Environmental study has been conducted during summer 2008 and the findings are summarized as follows:

Salient Features of the Project

Mining Plan	:	Applied
TOR	:	Obtained J – 11015/38/2008 – IA. II(M) Dated: June 10, 2008
Environmental Clearance	:	Applied
Forest Clearance	:	Applied

Ecologically Fragile Areas

The project is in the forest area. There are no ecologically fragile areas within the study area.

Project Details

- ❖ The terrain is rugged and hilly having alternate spurs and valleys
- ❖ The highest elevations at Kavuthimalai is 578m msl and the lowest 240m where as the highest elevations of VEDIAPPANMALAI is 416m and the lowest RL is 220m above msl.
- ❖ Opencast mechanized mining is adopted
- ❖ The net mineable reserves of the mine is 92910300 tonnes
- ❖ The proposed production is about 1.0 mtpa iron ore
- ❖ Mining is achieved by making benches of 10 m height and about 30 m width.
- ❖ The proposed bench levels shall be highest 361 m and lowest RL of the working shall be 280 m.
- ❖ It is planned to work in maximum 8 benches during the mining plan period
- ❖ The drilling and blasting in mining would be close to 100 %. The proposed ore to waste ratio works out to be 1: 0.36 during the plan period.

- ❖ During the plan period entire proved ore zone shall be worked in systematic and scientific way.
- ❖ The waste shall be dumped in the pre-determined dumping place outside the mine area. Backfilling proposal will be made after detailed exploration and obtaining permission from IBM.
- ❖ Blasting is carried out by deep hole drilling. Hydraulic excavators are employed for moving and loading the broken material into 30 T tippers
- ❖ No top-soil is expected to be generated in the mining plan period.
- ❖ The expected overburden and side burden to the extent of 1184160 tonnes are likely to be encounter in this plan period.
- ❖ The total employment will be around 180 Nos

Baseline Description

Wind Direction: From WNW sector during summer – 2008

Ambient Air Quality

Two (2) ambient air stations were fixed in the core zone i.e. within the mine lease area and about eight (8) ambient air stations were fixed in the buffer zone i.e. within 10 km radius around the mine lease area.

S NO.	Code	Name of Sampling Location	Direction w.r.t Mines	Distance (Km)
CORE ZONE				
1	A-1	ML Area (Kavuthimalai)	-	-
2	A-2	ML Area (Vediappanmalai)	-	-
BUFFER ZONE				
3	A-3	Kil Padur	N	5.0
4	A-4	Gandhinagaram	NNE	3.5
5	A-5	Karunduvambadi	NE	7.0
6	A-6	Vengayavelur	E	4.5
7	A-7	Ponakkadu	SE	2.0
8	A-8	Paliappattu	SSW	2.5
9	A-9	Voda Mattur	NNW	4.5
10	A-10	Oryandavad	NW	8.5

From the statistical analysis of baseline air quality data obtained during study period it is observed that the baseline air quality status is within the prescribed NAAQ standards.

Predictions are carried out using ISC-AERMOD VIEW and the overall scenario after expansion will be as follows:

Overall Scenario (predicted on 98th percentile value)

Location	Dir w.r.t Mines	Dist. km	Background Level	Predicted Conc.	Resultant Conc.	Standard
ML Area (Kavuthimalai)	-	-	127.4	30.26	157.66	500
ML Area	-	-	118.7	30.26	148.96	500

(Vedippanmalai)						
Kil Padur	N	5.0	114.08	< 0.5	114.58	200
Gandhinagaram	NNE	3.5	109.78	< 0.5	110.28	200
Karunduvambadi	NE	7.0	110.62	< 0.5	111.12	200
Vengayavelur	E	4.5	113.32	< 0.5	113.82	200
Ponakkadu	SE	2.0	111.78	< 0.5	112.08	200
Paliappattu	SSW	2.5	109.08	< 0.5	109.58	200
Voda Mattur	NNW	4.5	110.62	< 0.5	111.12	200
Oryandavad	NW	8.5	118.62	< 0.5	119.12	200

Pollution Abatement Measures

- ❖ Regular water sprinkling at dust emanating sources, haulage roads etc
- ❖ Regular Maintenance of transport vehicles
- ❖ Green belt development to act as pollution sink
- ❖ Avoiding overload of trucks and carrying the ore in covered trucks etc

Noise Environment

Noise level monitoring was carried out at all the AAQ locations and the noise levels were found to be within the prescribed standards

The minimum and maximum noise levels obtained were as follows:

Zone	Minimum dB (A)	Maximum dB (A)
Core Zone	36.7	56.0
Buffer Zone	35.7	52.0

Noise Pollution Sources

- ❖ Stationary Mining Equipment
- ❖ Mobile Mining Equipment
- ❖ Transportation Vehicles
- ❖ Blasting Operations

The management plan for controlling noise pollution is as follows.

- ❖ Selection of suitable machinery and equipment, proper mounting of equipment, providing noise insulation/padding wherever practicable and machinery fitted with properly designed silencers
- ❖ Proper maintenance of noise generating parts of the machine
- ❖ Provision of earmuffs to workers as a measure to protect their ears
- ❖ Thick plantation in and around the mine

Water Quality

Water Samples were collected from ground water sources in the study area and the analysis results were in compliance with the water quality standards

Water Requirement

The total water required is be about 560m³/day. About 135 m³/day is used for dust suppression, 3 m³/day is used for green belt development and 2 m³/day is used for drinking purpose and 400 m³/day for Beneficiation plant.

Wastewater Generation

There is wastewater generation during beneficiation process, the waste water will sent to tailing pond.

Impact on Ground Water

The workings are on the hillock and are carried well above the ground water table hence there will be no impact on ground water aquifers.

Storm Water Management

The storm water drains will be constructed around the pit which will direct the rain water into the pit.

As permanent preventive measures in the mining area, the following proposals are made in this mining plan to control the water quality flowing out of the mining area during monsoons. The supernatant flows out which is clean water.

	Gully checks	Check dams / Garland drains	Retention walls
At the plan period	50	4	1000m X 3

Solid Waste

No top-soil is expected to be generated in the plan period. The expected overburden and side burden to the extent of 1.18 million tonnes are likely to be encountered in this plan period. As the lease area is only 325.0 ha and the ultimate working pit will be 260.0 ha, there is not enough space to accommodate this total generated waste within lease area. The generated waste will be taken out of lease area. However, once the exploration is completed a fresh plan shall be prepared to accommodate waste as backfilling in the exhausted area.

Built up dumps are going to be adopted, starting the dumping operations at lower most contours of the proposed dumping area and proceeding towards the high-wall side. This is particularly very advantageous and eco-friendly dumping operations because the dumping periphery is pre determined at the beginning itself allowing a permanent retaining wall constructed at the toe end and also it allows the simultaneous afforestation of the dead dump slopes lying at the bottom slopes. Retention / toe walls are proposed around the dump bottom to prevent the rolling down of boulders and wash off of fine material.

The dead slopes of the dump as well as the level surfaces left between the stages/lifts will be afforested.

Biological Environment

The entire ML area is forestland. Because of the mining activities there will be impact on the forest area, flora & fauna inhabiting the area. However the Management as per Forest Conservation Acts & Rules implements necessary initiatives to conserve or minimize the impacts caused by mining to the forest area.

The management of M/s Tamil Nadu Iron and Mining Corporation will undertake compensatory afforestation plan as recommended by forest authority while obtaining Forest Clearance and all other recommendations from the forest authority will be strictly followed.

Occupational Health & Safety

Iron ore does not contain any toxic elements. Hence the possibility of any health hazards does not arise. The most significant occupational health hazards are Noise Induced Hearing Loss (NIHL) and Occupational Lung Disease (OLD) due to inhalation of silica dust and fine iron ore dust. However the management will take enough care in minimizing the impacts due to these activities. Occupational Health

Impact Assessment will be done at Labour Welfare Organization's with specialized doctors.

Rehabilitation

The mine area does not cover any human habitation. Hence the mining activity does not involve any displacement of human settlement. The mining operations will not disturb/relocate any village or need resettlement. Thus, no adverse impact is anticipated.

Afforestation Plan

The degraded lands due to various mining operations within the lease area need restoration or reclamation by taking suitable management methods.

In this mining plan period, totally 6.50 ha area shall be used for mining and 1.90 ha for green belt.

For the afforestation over the waste dump slopes, area shall be prepared for plantation by spreading/utilizing the topsoil segregated and stacked separately. Later over this area, initial reclamation crops with mulches, soil stabilizers, grass species and leguminous plants shall be planted as a first measure to improve the soil fertility and bind the loose material. Later the slopes of contour benches of the static dumps shall be planted at closure intervals with suitable fast growing shrubs, root bearing and hardy species, like Acacia. This work shall be undertaken concurrent through the mining operations, during and after the offset of monsoon.

The level surfaces of the dumps, along the toe wall erected surrounding the waste dump, surroundings the buildings and along the permanent roads green belts will be developed with tree species having broad leaves, with a minimum of three rows, keeping 2x2m interval.

The implementation of the development of green belts around the dumps will be of paramount importance as it will not only add up as an aesthetic feature, but also act as a pollution sink. The species to be grown in the areas should be dust tolerant and fast growing species so that a permanent green belt is created.

Apart from above green belts are proposed surrounding the proposed ML area and along the permanent approach roads to the mine. .

Deciduas and semi-deciduas plants are proposed to improve the soil quality with humus and carbon content. It is also proposed to carry out plantation during the subsequent years to fill the gaps of those plants which have not survived.

Conclusion

Continued mining activities benefit the local people due to provision of infrastructural facilities provided by local industry, as mining industry boost up the local market.

Since the ore reserves of this area are economically viable, their utilization improves the economic status of the people and the country as a whole and also that the management is committed to environmental protection which leads to sustainable development of the region.
