

EXECUTIVE SUMMARY
OF
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

For
SAMANUR BLACK GRANITE QUARRY
over an extent of 7.80.0Ha.

At
Survey No: 324/I
Villages: Samanur
Taluk: Palacode
District: Dharmapuri
State: Tamil Nadu

By



M/s. Tamil Nadu Minerals Limited
No. 31, Kamarajar Salai,
Chepauk,
Chennai – 600 005

(Project termed under Schedule of I(a) Mining of Minor Minerals 'BI' category
as per EIA Notification 2006 and its Amendments thereafter and O.M issued
vide F. No. L-11011/175/2018-IA-II (M), dated: 12.12.2018)

EIA Consultant
HUBERT ENVIRO CARE SYSTEMS PRIVATE LIMITED, CHENNAI
OCTOBER 2020

EXECUTIVE SUMMARY

1. Project Description

The total extent area of the quarry is 7.80.0Ha, situated at S. F. No. 324/1, Samanur Village, Palacode Taluk, Dharmapuri District and Tamil Nadu State.

The Government of Tamil Nadu issued the precise area communication letter under Rule, 8-C (3b) of Tamil Nadu Mineral Concession Rules, 1959 vide their Lr. No. 12833/MME.1/2017-2, dated: 13.11.2018 for 20 years.

The project falls under B1 Category, Schedule 1(a) Mining of Minerals as per EIA Notification dated 14th September 2006 and its subsequent amendments. The EC application was submitted under category B1, schedule 1(a) to TN SEIAA vide File No. 6741/2019.

The proposal was appraised during 130th SEAC meeting held on 11.06.2019 and 349th SEIAA meeting held on 12.07.2019 and ToR was issued vide Lr No. SEIAA-TN/F.No.6741/SEAC/ToR-628/2019, dated: 12.07.2019 for the preparation of EIA/EMP report.

The draft EIA/EMP report has been submitted for Public Hearing (PH). After completion of Public Hearing, the minutes issued will be incorporated in the EIA report along with action plan by the proponent. Final EIA report will be submitted to TNSEAC for further appraisal of the project and obtaining Environment Clearance.

2. Management Commitment

Project Proponent will firmly address all the EC and its requirements and will execute the Environmental Management Plan.

3. Environmental Sensitive Areas

As seen in **Table-I** below, there are no notified ecologically sensitive areas, State and National boundary within 15km from Project Boundary. Thus the project does not attract the special conditions and general conditions as per EIA Notification.

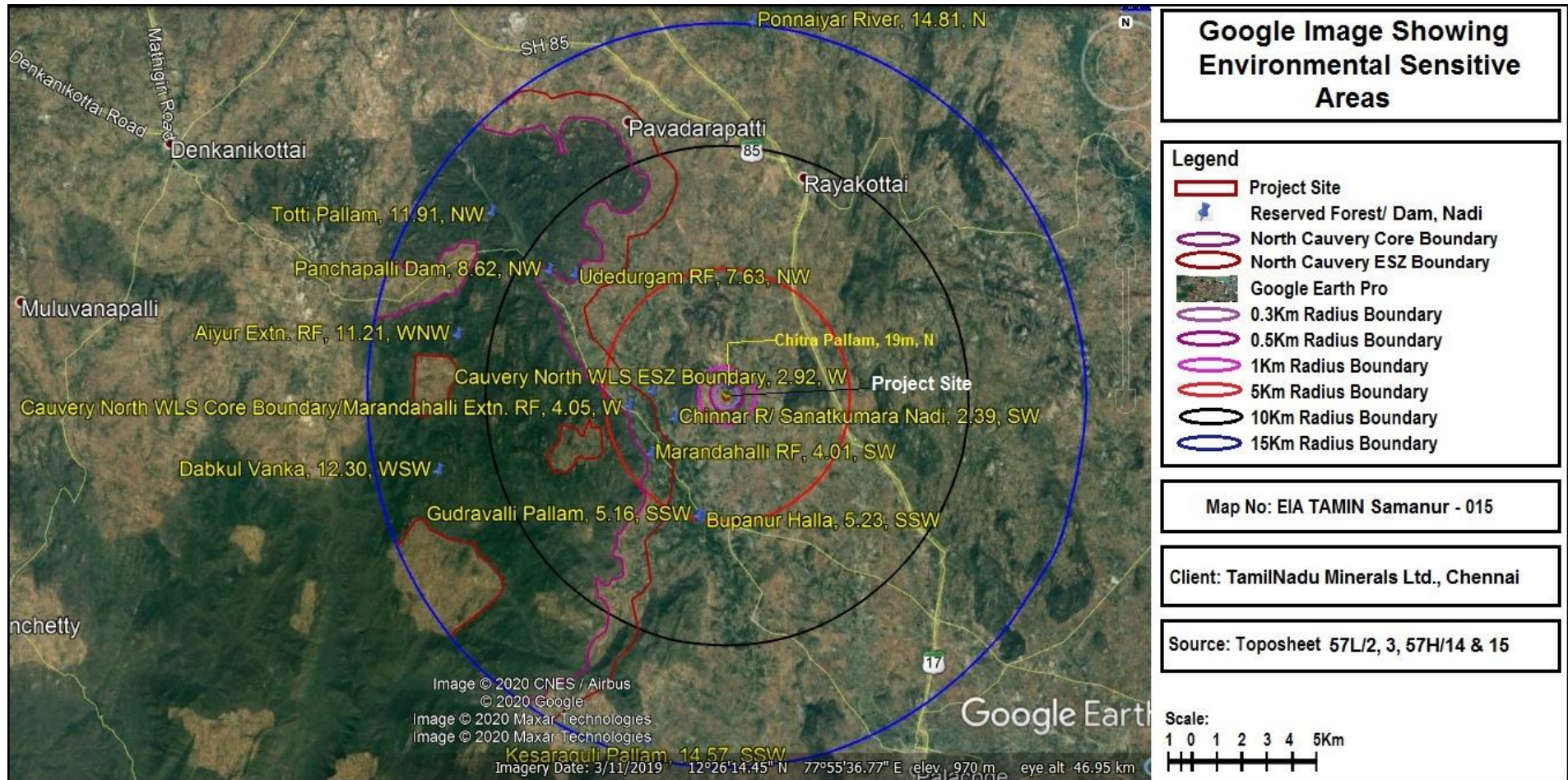


Table-1 Environmental Sensitive areas within 15km of the project

S. No.	Areas	Distance & Direction from project boundary			
		S. No	Places	Distance (~Km)	Direction
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	1	Hill Fort, Rayakottai	10.04	NNE
		2	Cauvery North WLS Core Boundary/MarandahalliExtn. RF	4.05	W
		3	Cauvery North WLS ESZ Boundary	2.92	W
2	Areas which are important or sensitive for ecological reasons – Wetlands, Watercourses or other water bodies, coastal zone, biospheres, mountains, forests	S. No	Places	Distance (~Km)	Direction
		1	ChitraPallam	0.019	N
		2	Chinnar R/ SanatkumaraNadi	2.39	SW
		3	Cauvery North WLS Core Boundary/MarandahalliExtn. RF	4.05	W
		4	AiyurExtn. RF	11.21	WNW
		5	TottiPallam	11.91	NW
		6	Udedurgam RF	7.63	NW
		7	Panchapalli Dam	8.62	NW
		8	Ponnaiyar River	14.81	N
		9	GudravalliPallam	5.16	SSW
		10	BupanurHalla	5.23	SSW
		11	Marandahalli RF	4.01	SW
		12	KesaraguliPallam	14.57	SSW
		13	DabkulVanka	12.3	WSW
14	Cauvery North WLS ESZ Boundary	2.92	W		
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	S. No	Places	Distance (~Km)	Direction
		1	Cauvery North WLS Core Boundary/MarandahalliExtn. RF	4.05	W
2	Cauvery North WLS ESZ Boundary	2.92	W		
4	Inland, coastal, marine or underground waters	S. No	Places	Distance (~Km)	Direction
		1	Chinnar R/ SanatkumaraNadi	2.39	SW
		2	Panchapalli Dam	8.62	NW
3	Ponnaiyar River	14.81	N		
5	State, National boundaries	NIL			
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	SH 17, ~3.87 Km, ENE			
7	Defence installations	NIL			
8	Densely populated or built-up area (Nearest Town, City, District)	S. No	Name of the villages	Distance (~km) & Direction	Population (Census 2011)



		1	Samanur	3.10 (SW)	4262
		2	Gummanur	1.71 (ENE)	2752
		3	Chikkadornabettam	2.80 (SE)	2525
		4	Namandahalli	3.80 (NW)	3960
		5	Marandahalli	4.80 (SE)	12451
9	Areas containing important, high quality or scarce resources, (groundwater resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	S. No	Places	Distance (~Km)	Direction
		1	Hill Fort, Rayakottai	10.04	NNE
		2	Cauvery North WLS Core Boundary/MarandahalliExtn. RF	4.05	W
		3	Cauvery North WLS ESZ Boundary	2.92	W
		4	Panchapalli Dam	8.62	NW
		5	Ponnaiyar River	14.81	N
		6	Chinnar R/ SanatkumaraNadi	2.39	SW
10	Areas already subjected to pollution or environmental damage (those where existing legal environmental standards are exceeded)	Nil			
11	Areas susceptible to natural hazard which could cause the project to present environmental problems, (earthquakes, subsidence, landslides, erosion or extreme or adverse climatic conditions)	The area under study falls in Zone-III(Moderately damage risk zone) according to Earthquake Hazard map of India			



Google Image Showing Environmental Sensitive Areas

- Legend**
- Project Site
 - + Reserved Forest/ Dam, Nadi
 - North Cauvery Core Boundary
 - North Cauvery ESZ Boundary
 - Google Earth Pro
 - 0.3Km Radius Boundary
 - 0.5Km Radius Boundary
 - 1Km Radius Boundary
 - 5Km Radius Boundary
 - 10Km Radius Boundary
 - 15Km Radius Boundary

Map No: EIA TAMIN Samanur - 015

Client: TamilNadu Minerals Ltd., Chennai

Source: Toposheet 57L/2, 3, 57H/14 & 15

Scale:
1 0 1 2 3 4 5Km

Figure-2 Google image for Environmental Sensitive areas demarcated within 15km radius of the project site

4. Black Granite Quarry Reserves

- The estimated Geological Reserves of Black Granite estimated based on the Geological cross sections was 5, 29,498m³. By applying the 5% recovery, the updated geological effective reserves as 26,475m³.
- The updated Mineable Reserves have been arrived as 3, 24,321m³ and by applying 5% recovery, the updated mineable reserves as 16,216m³.
- The Reserves during the Mining period is 1, 19,987m³ and the recovery of reserves at 5% is 5,999m³.

5. Summary of the Magnitude of Operation

- The black granite quarrying operation is proposed to carry out by opencast semi mechanized method by formation of benches. Benches are proposed with a height of 6m & 6m width. Major machineries are Compressor, Jack hammer, Diamond wire saw machine and excavator and DG set is used in proposed quarry. Tippers and dumpers will be used for transportation.
- Proposed Production Capacity is 1,201m³ per annum.
- The geological cross sections up to the economically average depth of 27m from the ground level and top surface of the granite body works out to 5,29,498m³
- The mineable reserves have been computed as 3, 24,321m³.
- The effective geological reserves and mineable have been worked out as 26,475m³ and 16,216m³ by applying the recovery factor 5%.

6. Project Requirements

I. Land requirement:

- The Black granite mine is over an extent of 7.80.0 Ha. The entire area is under possession of TAMIN. Lease area located at S. F. No. 324/1 located at Samanur Village, Palacode Taluk, Dharmapuri District, lies in the latitude of 12°26'05.50"N to 12°26'17.18"N and longitude of 77°59'58.17"E to 78°00'11.65"E.
- The lease area topography is hilly terrain; site elevation is 638m (max) AMSL. The area is marked in the survey of India Topo sheet No. 57 L/2 & L/3, 57 H/14 & H/15.
- Mining Lease obtained from Tamil Nadu Government for 20 years vide Lr. No. 12833/MME.1/2017-2, dated: 13.11.2018.
- Out of 7.80.0 Hectare of lease area 1.41.0 Ha is considered for mining, waste dump is 1.41Ha, & for Greenbelt 0.06.5 Ha is allocated.

Quarry Lease area breakup:

S. No	Description	Present Area (Ha.)	Area to be required at the present Mining Plan Period (Ha.)	Area at the end of life of quarry (Ha.)
1	Area Under Quarrying	-	1.41.0	2.54.5
2	Waste dump	-	1.41.0	3.64.0
3	Infrastructure	-	0.01.5	0.01.5
4	Roads	0.15.5	-	0.03.5
5	Green Belt	-	0.06.5	0.50.0
6	Un-utilized	7.64.5	4.74.5	1.06.5
Total		7.80.0	7.64.5	7.80.0

II. Water Requirement

- The total water requirement is 3.5KLD (Drinking & Domestic purpose-1.5 KLD, Wire Saw cutting -0.5 KLD, Dust suppression -1.0 KLD & for Greenbelt-0.5KLD). The total water requirement will be met from Road tankers.
- The granite quarry will not produce any toxic effluent in the form of solid, liquid or gas.
- No wastewater will be discharged by quarry operation. Domestic wastewater will be disposed to Septic tank followed by soak pit. Septic tank will be cleaned periodically.

III. Power & Fuel Requirement

- DG set of 1* 125 kVA capacity will be used. Diesel (HSD) will be used for quarrying machineries around 200 liters of HSD will be used per day.
- Diesel will be brought from nearby diesel pumps. No electricity is required for the project.

IV. Manpower

- Direct manpower will be 35 persons and indirectly 20 Nos.

V. Solid Waste Generation & Management

- Municipal solid waste (16 kg/day) will be segregated as Organic will dispose through local municipal bins and inorganic waste (10kg/day) will be disposed through TNPCB authorized recyclers.
- Waste diesel Oil will be collected in leak proof containers and disposed to TNPCB Authorized Agencies for Reprocessing/Recycling.

7. Project Cost

- The total capital investment on the project is Rs. 99, 97,000/- Lakhs including EMP cost is 2, 05,000/-

8. Description of Environment

Project Influence Area (PIA)/Study Area: An area covering 10 km radius from Samanur Black granite quarry boundary has been earmarked as study area for baseline studies.

Study Period: The baseline environmental surveys were carried out during (Jan to March 2020) within the study area.

Summary of Baseline Studies:

- Site has an undulating terrain with level 683m Above MSL.
- The project site falls under Zone- II (Low Risk Zone) as per IS 1893 (Part- I).
- The predominant wind direction is South East during study period.
- Max Temperature: 35°C Min Temperature: 15°C & Avg Temperature: 25.8°C
- Average Relative Humidity: 57.1 %
- Average Wind Speed: 2.3 m/s

Ambient Air Quality Monitoring:

The ambient air quality has been monitored at 8 locations for 12 parameters as per NAAQS, 2009 within the study area. Maximum concentrations of all the parameters are well within the National Ambient Air Quality Standards (CPCB, NAAQS, 2009):

- PM₁₀ ranged between 46.55 µg/m³ to 55.05 µg/m³ (NAAQ standard 100 µg/m³)
- PM_{2.5} values varied from 24.29 µg/m³ to 28.53 µg/m³. (NAAQ standard 60 µg/m³)
- SO₂ levels varied from 8.94 µg/m³ to 12.75 µg/m³. (NAAQ standard is 80 µg/m³)
- NO_x ranged between 18.87 µg/m³ to 26.50 µg/m³. (NAAQ standard is 80 µg/m³)

Noise Environment:

- In industrial area day time noise levels was about 49.3dB (A) and 40.7 dB (A) during night time, which is within the prescribed limit by CPCB (75 dB (A) Day time & 70 dB (A) Night time).
- In residential area day time noise levels varied from 52.3dB (A) to 54.8 dB (A) and night time noise levels varied from 40.9 dB (A) to 43.8dB (A) across the sampling stations. The field observations during the study period indicate that the ambient noise levels in Residential area is within the limit prescribed by CPCB (55 dB (A) Day time & 45 dB (A) Night time).

Ground Water Quality

- The prevailing status of water quality at 8 locations for ground water has been assessed during the study period. Groundwater samples are within the permissible limits specified for drinking water quality standards as per IS: 10500 (2012).
- The average pH ranges from 6.67 to 7.81.
- TDS value varied from varied from 382 mg/l to 922 mg/l.
- The chloride concentration ranged from 60.4mg/l to 271.4 mg/l.
- Sodium range from 27.3 mg/l to 129.4 mg/l.
- Potassium concentration range from 3.5 to 8.5 mg/l.
- Magnesium ranges from 22.38 to 47.52 mg/l within the permissible limit of the IS 10500: 2012.
- The sulphate content of the ground water of the study area is varied between 30.5 mg/l – 98.3 mg/l meeting the acceptable limit of the IS 10500: 2012.

Surface Water Quality

- Surface water sample are within the limits as per ISI-IS2296-1982 Class C (Drinking water source with conventional treatment followed by disinfection).
- pH ranges from 7.05 to 8.11
- Total Dissolved Solids range from 274 mg/l to 1013 mg/l.
- Chloride ranges from 53.7 mg/l to 286.5 mg/l.
- The sulphate content in the surface water of the study area varies between 16.4 mg/l – 98.3 mg/l.
- Total hardness ranges between 128.5 mg/l – 517.3 mg/l.
- The BOD value ranges from 1.4 mg/l to 4.1 mg/l
- COD value 12 mg/l to 52 mg/l.
- The concentration of heavy metals like As, Cd, Cr, Pb, Mn, Hg, Ni and Se at all locations are within the limits of IS 2296:1992(Class-C: Drinking water with conventional treatment followed by disinfection.)

Soil Quality

- Soil sampling was carried out at eight (08) locations in the study area. It is observed that, Soil types are Sandy Clay Loam, Loam, Loam sand, and clay and the soil samples are slightly alkaline in nature.
- The pH of the soil samples ranged from 6.89 and 8.27
- Conductivity of the soil samples ranged from 98 to 637µmho/cm

- Nitrogen content ranged from 118.92 mg/kg to 261.55 mg/kg
- Phosphorous ranged from 31.96 mg/kg to 63.16 mg/kg
- Potassium content ranges from 139.84 mg/kg to 431.39 mg/kg

Biological Environment

- None of the plant species and fauna recorded in the core area belongs to the Rare/Endangered/Endemic/Threatened category. Except Least Concern, -Vulnerable and None classified species are found.
- There is no Rare/Endangered/Endemic/Threatened category species were found in study area.

Socio-economic Conditions:

- The project site is located at Samanur Village, Palacode Taluk, Dharmapuri District, and Tamil Nadu. There are 40 villages around the study area (10Km) radius, the population around the area accounts to 126407. The literacy rate is less (53.69%), Literates are 67867. compared to the district literacy rate (68.5%) which can be improved by this project through CSR activities. The area has a good number of health facilities well connected by roads to avail the emergency services. The rapid industrialization in the locality creates job opportunities for many people and also increases the economic vibrancy in the area.
- Total Working Population is 66757 Nos, Main Workers is 57287 Nos, Marginal Workers is 9470 Nos, Cultivators are 22538 Nos, Agricultural Labourers is 25863 & other workers are 16573.

9. Anticipated Environmental Impacts with Mitigation Measures

Anticipated impacts on the environmental and social attributes, which are likely to arise due to quarry operations have been identified, predicted and evaluated.

- TAMIN has been granted a fresh lease for 20 years, over extent of 7.80.0 Ha, of Government poramboke land for Black granite mining at Samanur village, Palacode Taluk and Dharmapuri district and Tamil Nadu. There are no R&R issues.
- The lease areatopography is hilly terrain with site elevation is 683m AMSL. TAMIN will be provided with self-sufficient infrastructure like office, Toilets, to minimize impact/strain on the existing infrastructure.

- All the necessary Air pollution control measures will be adopted to control the fugitive emissions, particulates, SO₂ and NO_x. Stack will be provided with adequate height (6 m) for DG Sets.
- The impact on air environment was studied through air quality modeling studies. The 1st highest 24hour average concentrations of NO_x, PM₁₀, PM_{2.5} and SO₂ at all receptor locations are found to be well within the National Ambient Air Quality Standards (NAAQS), 2009. The maximum concentration observed due to proposed mining for PM₁₀, PM_{2.5}, SO₂ and NO_x are 25.8688µg/m³, 15.524µg/m³, 0.3072µg/m³ and 9.1316µg/m³ respectively. So it can be concluded that even after operation of quarry the impact envisaged is moderate.
- Baseline study showed that the noise levels in both Industrial area and in Residential area are observed that the day equivalent and night equivalent noise levels at all locations are within the prescribed CPCB standards. The designed equipment with noise levels not exceeding beyond the requirements of Occupational Health and Safety Administration Standard will be employed.
- The water demand for the project will be met from private tankers. Proper garlands will be provided around the quarry. Domestic sewage will be disposed to septic tank followed by soak pit. Septic Tank will be cleaned periodically. There is no effluent generation due to mining activities.
- The solid waste generated may impact soil quality, water quality and public health if not regulated properly. Municipal Solid Wastes including food waste are disposed to municipal bin. Waste Diesel oil will be properly disposed through authorized recycler as per the Hazardous and Other wastes (Management and Transboundary Movement) Rules 1989 and subsequent amendment in 2016. Top soil will be stored and used for afforestation within lease area.
- To reduce the adverse effects on flora/fauna status that are found in project area due to deposition of dust generating from mining operations, water sprinkling and water spraying systems will be ensured in all dust prone areas to arrest dust generation.

10. Greenbelt Development

An area of 0.06.5 hectare land was earmarked for greenbelt development during first 5 years of mining plan, at the end of life of quarry the green belt area will be 0.50. Ha, TAMIN proposed to plant 20 No's of trees per year and Rs. 30,000/- per year will spend for proposed greenbelt development and maintenance.

11. Analysis of Alternatives

The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise. No R&R, no Sensitive area etc., making the site suitable for the mining of black granite. The site meets the requirement of all critical factors that are important for success of mining in the state and could be a pre-eminent location.

12. Environment Monitoring Programme

Environmental monitoring programme has been formulated for the environmental attributes (Air, Water, Noise, and Soil) and the same will be implemented as per CPCB guidelines. The effective implementation and close supervision of the environmental management to mitigate the environmental impacts due to mining activities.

13. Disaster Management Plan

The salient features of Disaster Management Plan include

- Emergency shutdown procedure
- Fire protection system
- Emergency safety equipment & Reporting and response to emergency
- Emergency Help from nearby industries and tie up with nearby industries.

14. Corporate Environmental Responsibility

- TAMIN Samanur site had no Relocation and Rehabilitation.
- Most villages have benefitted mutually at Samanur where the mining industry has provided indirect jobs for labour and villages provide accommodation for the labour and staff. Supportive industries like food supply and essential shops are economic growth in the villages.
- 2 % (2.0Lakhs) on total cost will be allocated for CER activities as per MoEF&CC Office memorandum dated 1stMay, 2018.
- Computers (2 No's) will be provided to Govt School at Samanur village. & Solar Panel (2 No's) will be provided for Samanur village.

15. Benefits of the Proposed Project

- The quarrying activities in this belt will benefit to the local people both directly 35 persons & indirect persons are 20 Nos
- Improvement in Per Capita Income.
- The socio - Economic conditions of the village and distance will enhance due to the project, hence the project should be allowed after considering all the parameters like, 2% of the project cost under CER, 2% on profits under CSR, Seniorage fee for Rs.3859/- per cbm, DMFT: 10% of Seniorage fee & Professional tax.
- It can thus be concluded that the project is environmentally compatible, financially viable and would be in the interest of construction industry thereby indirectly benefiting the masses.