

Fig.2.1 Location Map of the proposed sand quarry

### 2.3 Need for the project and its importance to the country and or region:

- i) The Vaipparu river should be desilted often during off season of rainy period so as to remove obstacles of flowing of water in the river, failing which the rain water will be flooded into down line stream and cause damage of paddy fields and other agricultural lands.
- ii) Water demand and supply can be met during summer season and avoid water scarcity in this area.
- iii) The sand is a non-sticky material which is useful for construction and other civil purposes. Therefore this project is beneficial to the society as well as to the applicant to get some income out of this work.
- iv) No damage of land, no reclamation or back filling is required. Pollution out of this project is absolutely negligible.

### 2.4. Demand-Supply Gap

Demand of sand required for civil and other construction purposes is very high in this district.

### 2.5. Export Possibility

It is a low cost product and therefore the Lessee would like to sale out the sand in domestic market through bullock cart on royalty basis as per the order of state Govt.

### 2.6 Domestic Export / Markets

Lessee will like to sale out in domestic market as per requirement. No export is proposed.

### 2.7 Employment generation (direct and indirect) due to the project.

The managerial supervisory staff will be a PWD Assistant Engineers and other workers will be employed by experience. About 2 staff members and 30 labours about 32 persons will be engaged for proposed mining project. The tentative man power required for the proposed mining project shall be as follows: -

**Table No.2.3. Employees detail**

Skilled		
S.No	Designation	Nos
1	PWD Assistant Engineer	1
2	Technical Assistant	1
3	Poclain Operator	2
4	Poclain Co-Operator	2
<b>Total</b>		<b>6</b>

Unskilled			
S.No	Designation	Nos	
5	Permit Slip issuer	3	
6	Traffic Regulator	Entrance	2
		Exist	2
		Quarrying Site	3
7	Bucket Watcher	3	
8	Office Helper	1	
9.	Track Maintainer	6	
10	Watchman(Two Shift)	4	
<b>Total</b>		<b>24</b>	
<b>Grand Total</b>		<b>30</b>	

### 3. PROJECT DESCRIPTION

#### 3.1 Type of project interlinked and interdependent projects, if any.

This project is located in Nenmeni village, Sattur taluk, Viruthunagar District. It is mandatory to obtain environmental clearance for all mining project of minor minerals irrespective of mining area as per the order of the Honorable Supreme Court of India in I.A.No. 12-/13/2011 in S.L.P.No. 19628-19629 of 2009 etc., dated 27.02.2012, the Ministry of Environmental and Forest Office Memorandum dated 18.05.2012 clearance has to be obtained from the State Level Environmental Impact Assessment Authority, Tamil Nadu.

As per above order all projects less than 5 hectares falls in 'B2' Category of Schedule 1 (a). The extent of this lease area is 4.95.5 hectares, and falls in 'B2' Category of Schedule 1 (a).

#### 3.2 Location (Map showing general location, specific location, and project boundary & project site layout) with coordinates.

The area is represented by Geological Survey of India Toposheet No.58G/15 and falls between **Latitude of, N9°19'08.1037"to N9°19'16.9688"** and **Longitude of E77°59'30.6180" to E77°59'42.8811"**.

**Table No.3.1. Geo Coordinates of Applied area by DGPS Survey**

P.No	Latitude	Longitude	Northing	Easting	Elevation
1	9°19'14.0982"	77°59'30.6180"	1031686.065	828692.765	45.657
2	9°19'16.9688"	77°59'33.7996"	1031775.16	828789.197	46.482
3	9°19'13.1709"	77°59'42.8811"	1031660.72	829067.573	46.489
4	9°19'08.1037"	77°59'40.8007"	1031504.361	829005.349	47.912

The area is accessible from Virudhunagar to reach Irukankudi via Sattur by 38Km Further 2.5Km to reach the site. A Village road is available nearby the site on North Eastern side. The PWD make temporary road which connects the village road for transportation of Materials.

Details of infrastructures and communication are given in the table below,

**Table No.3.2. Details of infrastructures and communication**

S.No.	Description	Place	Distance (km)	Direction
1	Railway	Sattur	8.5	NW
2	Post office	Sattur	8.5	NW
3	Airport	Madurai	58	NE
4	Police station	Irukkankudi	1.6	NE
5	Fire service	Sattur	9	NW
6	Primary Health centre	Sattur	8.5	NW
7	DSP Office	Sattur	9	NW
8	School	Mettuppatti	1.5	NE
9	Nearest Town	Sattur	8	NW
10	<b>Villages</b>			
	i)	Nenmeni	1	NW
	ii)	Sattur	1.5	N
	iii)	N. Mettuppatti	2	NE
	iv)	M. Nagalapuram	2	E

### 3.3 Details of alternate sites considered and the basis of selecting the proposed site.

This is a mining project, which is site specific due to availability of sand. Hence the site cannot be shifted. The opencast mining is proposed in the area for excavation of minerals and overburden.

### 3.4 Size or Magnitude of operation

Targeted production of Sand removal will be 49550 m<sup>3</sup> and 32084m<sup>3</sup> of silt by open cast mining.

### 3.5 Project description with Process Details

#### Mining Process Details

- 1) Fixing boundaries of lease area covering an extent of 4.95.5Hectares
- 2) Loading of sand into tippers by Excavator.
- 3) Transport of sand to the Stack yard by Tippers.
- 4) Mined out land shall be used for refilling of same type of sand by natural replenishing.

**Proposed Method of Mining:**

Being loose sand, it is proposed to remove the materials by Excavator and loading directly into the Stock yard area shall be connected by proper approach roads. The Layout of infrastructure such as workings and its sections are shown in the approved Mining Plan.

**Removal of over burden**

No overburden is proposed in the approved Mining plan.

**Extent of Mining****a) Mining**

As the Sand is loose gritty material and it does not require any drilling or blasting. Sand shall be loaded directly into the Tippers to transport to the Stock yard.

**Table No.3.3. Details of Machineries**

Type	No	Bucket/Capacity(m <sup>3</sup> )	Make	Motive Power	H.P
Hydraulic excavator	2	0.90 m <sup>3</sup>	L&T	Diesel	110
Tipper	20	15MT	AMW	Diesel	110

**b) Loading equipment**

Loading of sand shall be done by Excavator into Tippers

**c) Transportation**

Haulage of minerals will be done by Tipper directly carry from mining site to the stock yard.

**Table No.3.4. Details of Production**

Year	Silt (m <sup>3</sup> )	ROM of sand (m <sup>3</sup> )	Saleable sand (m <sup>3</sup> )	Sub grade ore / mineral	Mineral Rejects	Ore to overburden ratio
Six Months	32084	49550	49550	0	32084	1:0.64

**3.6 Raw Material required along with estimated quantity, likely source, Marketing area of final product/s, Mode of transport of raw Material and finished products.**

This is a mining project for mining of sand, therefore no need of raw material except water for drinking and utilities. The Product is natural river sand; it will be transported to the Stock point directly. No stocking is permitted anywhere inside the lease area the area of lease.

**3.7. Resource optimization/recycling and reuse envisaged in the project.**

Removal of sand is made for the purpose of clearing the obstacles of the river for free flowing of water. The sand will be replenished being a natural resource and therefore recycling is not possible for this project.

### 3.8. Availability of water its source, energy/power requirement and source.

Whole some drinking water shall be provided as per the Mines Rules, 1955. Quantity for Drinking and utilities is 2 KLD. Dust suppression and Green belt of water is 3KLD. Total 5 KLD water required per Day. The drinking water is obtained from Mineral water suppliers in the nearby areas. Dust suppression and green belt is obtained from the open wells of proponent site. Water will be drawn from the adjacent open well in The Vaipparu river itself. No separate arrangements shall be made to bring water from external sources or by pumping. No electricity or fuel is required for this project.

### 3.9. Water balance chart:

Water balance chart on per day basis is given as under:

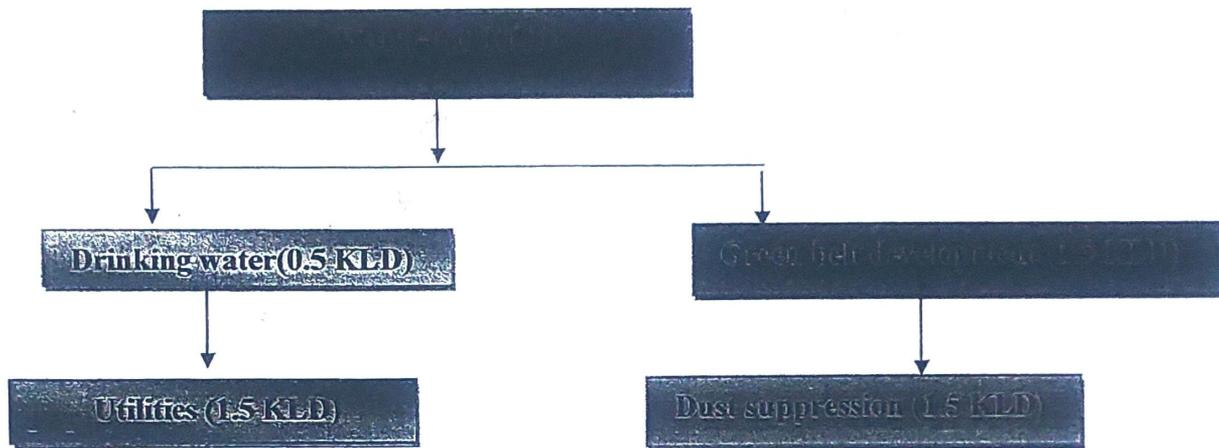


Fig. 3.2 :Water Balance Chart

### 3.9 Quantity of waste to be generated (liquid and solid) and scheme for their Management/disposal.

There is no waste material to be removed from this river basin.

### 3.10 Schematic representations of the feasibility drawing which give information of EIA purpose.

As per the order of the Honorable Supreme Court of India in I.A.No. 12-/13/2011 in S.L.P.No. 19628-19629 of 2009 etc., dated:27.02.2012, the Ministry of Environmental and Forest Office Memorandum dated:18.05.2012 clearance has to be obtained for Minor Minerals from the State Level Environmental Impact Assessment Authority, Tamil Nadu. Form I and Pre-Feasibility report is required to get Environmental Clearance for the project from SEAC. EIA Report identifies all of the issues and technical requirements of a proposed operation, with particular attention to potential Environmental, Health and Safety, Social and Economic Impacts.

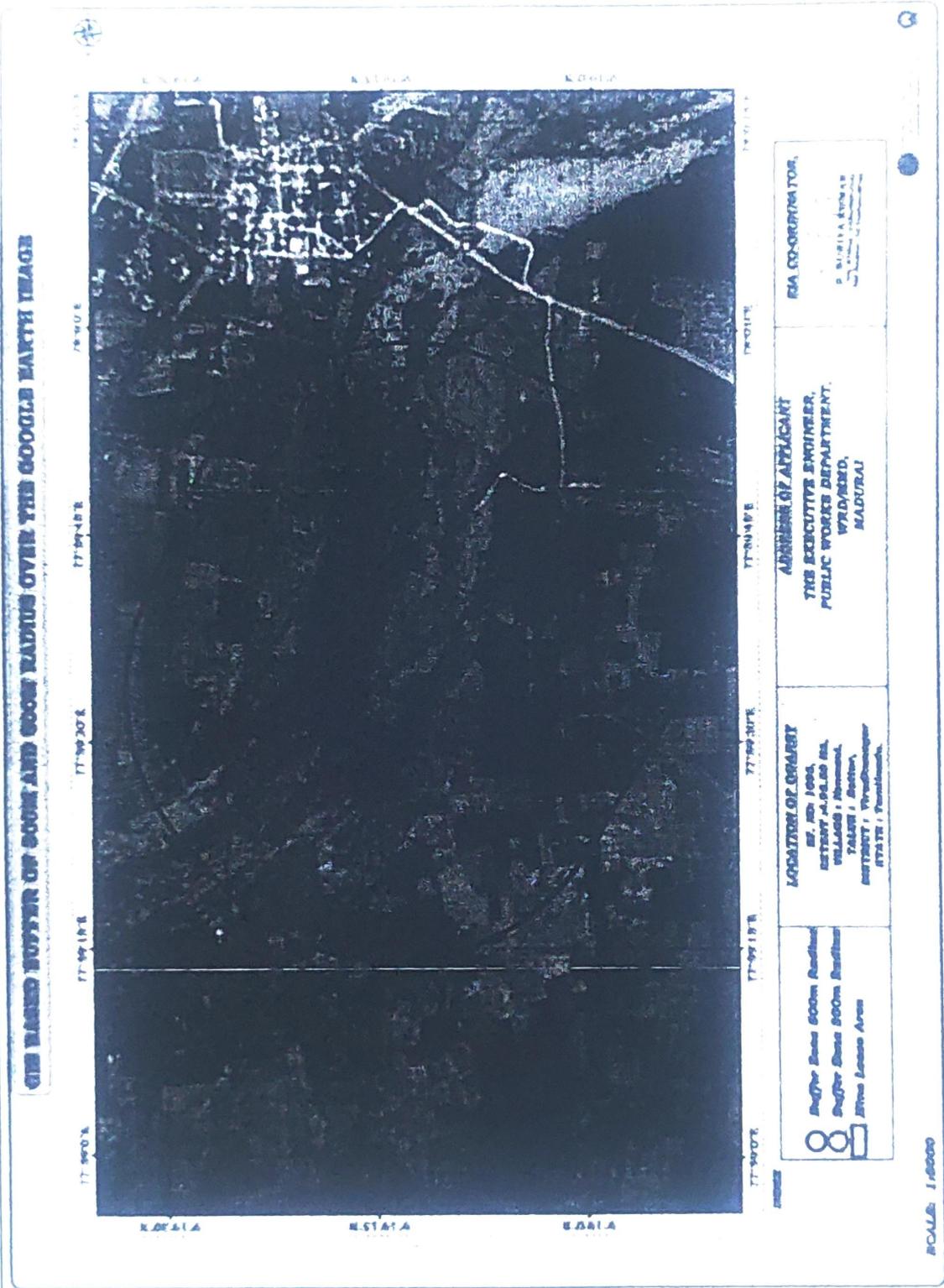


Fig.3.1: Google earth Image showing 300m/500m radius from the sand quarry lease boundary

The purpose of EIA is to ensure the protection and conservation of the environment and natural resources including human health aspects against uncontrolled development. The long-term objective is to ensure a sustainable economic development that meets present needs without compromising future generations ability to meet their own needs. EIA is an important tool in the integrated environmental management approach.

The aim of Environmental Impact Assessment (EIA) is to enable the approving authority, the public, local and central government and the developer to properly consider the potential environmental consequences of a proposal, and to make recommendations to reduce the environmental consequences if necessary. It is important to provide sufficient information for the approving authority to make a decision on whether to approve a proposal and if so, under what conditions. The EIA provides the basis for sound ongoing environmental management.

## 4. SITE ANALYSIS

### 4.1 Location and Connectivity:

The area is accessible from Virudhunagar to reach Irukankudi via Sattur by 38Km Further 2.5Km to reach the site. A Village road is available nearby the site on North Eastern side. The PWD make temporary road which connects the village road for transportation of Materials.

### 4.2. Land form, land use and land ownership.

Table No.4.1 ownership details

District & State	Tehsil	village	Area in Hect.	Type of land
Viruthunagar District, Tamilnadu	Sattur	Nenmeni	4.95.5	Government Poromboke land, Vaipparu river

### 4.3. Topography (along with Map):

The area applied for mining lease is a River bank, with an elevation of 46.83m (minimum) 46.83m (Max) above MSL. The area is represented by Geological Survey of India Toposheet No.58G/15 and falls between **Latitude of N9°19'08.1037"to N9°19'16.9688"** and **Longitude of E77°59'30.6180" to E77°59'42.8811"**. This is riverbed with huge amount of sand deposit. The area receives only scanty rainfall mostly during the northeast monsoon period of October to December. There is no reserve forest, wild life sanctuary, national monument etc nearer to the area around 15kms.

4.4 Existing land use pattern ( agriculture, non-agriculture, forest, water bodies ( including area under CRZ ), shortest distances from the periphery of the project to periphery of the forest, national park, wild life sanctuary, eco sensitive areas, water bodies( distance from the HFL of the river), CRZ. In case of notified industrial area, a copy of the gazette notification should be given.

The lands applied for removal of sand is a part of Vaipparu river which carries rain and flood water to the sea during rainy season. It should be deepened or the silted area should be removed periodically for free flow of water without any obstacles.

**Table No.4.2 Land use pattern**

S. No.	Description	Area of Land Use (In Hec.)	
		As at Present	At the end
1.	Mining	0.0	4.95.50
2.	Waste Dump	0.0	0.00.0
3.	Infrastructure	0.0	0.00.0
4.	Safety zone & Plantation	Nil	0.00.0
5.	Mine Roads	0.00	0.00
6.	Undisturbed area	4.95.50	0.00
<b>Total</b>		<b>4.95.50</b>	<b>4.95.50</b>

#### 4.5. BASELINE ENVIRONMENT

##### 4.5.1. Land environment

In the proposed Mining activity there will not be much impact on the land environment due to the following reasons.

- There is no removal of vegetation such as plants, bushes in the reach area
- No effluent generation as any further processing of mineral is proposed. Hence no ground water contamination due to the proposed mining activity.

However, the quarrying activity will result in disturbance of the land use pattern of the quarry lease area. The land degradation is unavoidable during mining activities like excavation, overburden dumping, etc. Land requirement for the project has been assessed considering functional needs.

#### 4.5.2. Sources of Air Pollution

Table No.4.3. Sources of Air Pollution

S.No	Activities in Mines	Air Pollutants
1.	Drilling	Nil
2.	Blasting	Nil
3.	Loading & Unloading	SPM
4.	Haul Road	SPM
5.	Transportation	PM, SO <sub>2</sub> , NO <sub>x</sub>
6.	Waste / Top soil handling	Nil

#### 4.5.3 Air Pollution Control Measures

Some of the air pollution control measures are mentioned below. The APC system requirement should be assessed based on the mining activity and location aspects.

Table No.4.4. Air Pollution Control Measures

Potential sources of air pollution	Magnitude of air pollution	Control Measures
Drilling	High Dust Generation Risk of occupational hazard	No drilling
Blasting	Air emission	No blasting
Loading of material on dumper	Air emission	Closed Air conditioned cabin for loading operator and provide mask and ear muffs in addition to helmet for persons working nearby.
Transportation	High dust potential	<ul style="list-style-type: none"> <li>• Water spraying over haul road using sprinklers.</li> <li>• Development of Green belt with the native species of trees having leaves and dense growth to control spreading of dust to villages and minimize noise level from vehicles operation.</li> </ul>
Storage	High dust emission	No storage applicable for this project

#### 4.5.4.Mine Drainage

The natural flow of water will not be affected any way and drainage will improve by proper gradient.

**4.5.5.Noise Levels**

Noise level has to be studied prior to mining and after opening the quarry for production.

**4.5.6.Vibration Levels**

Muddy sludge shall be removed prior to removal of Sand and keep along the bank of the tank for growing trees.

**4.5.7.Measures for Ground Vibrations Due to Blasting:** Not applicable

**4.5.8. Solid waste Management:**

**Solid Waste Generated:** No solid waste removal

**Disposal of waste**

**Overburden waste Management:** No overburden shall be removed or dumped elsewhere.

**Top soil Management:** No top soil removal

**Other wastes:** The removed bushes on the site clearings are conveyed and dumped along the bank of the river.

**4.5.9 Power requirement & supply/source:** No power requirement.

**4.13. OTHER PERMANENT STRUCTURES****4.13.1 Habitations / Village:**

Population of Nenmeni village 1032, it is small village in Manamelkudi Taluk and Pudukottai District. Other Village hamlets were given in the following table,

**Table No.4.9. Human settlement**

Direction	Name of Village	Distance from Mines in Km. (Approx)	Population
NW	Nenmeni	1	10425
N	Sattur	1.5	1825
NE	N. Mettuppatti	2	7184
E	M.Nagalapuram	2	911

**4.13.2 Power Lines (HT / LT):** There is no HT or LT lines is found nearby.

**4.13.3 Water Bodies:** The site is a part of river basin. There is no other major river or water body, nallah and ponds are situated around 500m radius.

**4.13.4 Archaeological / historical Monuments:** There are no archaeological monuments around 500m radius.

**4.13.5 Road (NH, SH others):**

- The NH-44 Connecting Madurai – Tirunelveli situated at Western side, about 16km away from the area.

- SH-28 Connecting Aruppukkottai - Tuticorin- situated at Eastern side, about 17km away from the area.
- Irukkankudi Village road is available in 1.5km North.
- A village road situated nearby the site on the Southern side for transportation of materials.

#### 4.13.6 Places of worship: Nil

4.13.7 Reserved forest / Forest / Social forest / wild life sanctuary etc., : Nil

#### 4.7 Climatic Conditions

The district receives the rain under the influence of both southwest and northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district. Most of the precipitation occurs in the form of cyclonic storms caused due to the depressions in Bay of Bengal. The southwest monsoon rainfall is highly erratic and summer rains are negligible. Rainfall data from seven stations over the period 1901-2000 were utilized for analysis and a perusal of the data shows that the normal annual rainfall over the district varies from about 724 to 913 mm. Average rain fall is reported as 812mm per annum. It is minimum around Sathur in the south eastern part of the district. The district enjoys a subtropical climate. The period from April to June is generally hot and dry. The weather is pleasant during the period from November to January. Usually mornings are more humid than afternoons. The relative humidity is on an average between 65 and 85% in the mornings. Humidity in the afternoon is generally between 40 and 70%. The annual mean minimum and maximum temperatures are 23.78 and 33.95° C respectively. The daytime heat is oppressive and the temperature is as high as 40.2°C. The lowest temperature recorded is of the order of 19.3° C.

#### Summers

The sun is at its glory and shines very brightly during the summers. During the summer months, i.e. from May to June, the temperature varies between 27 deg C and 40 deg C. Therefore, the climate is quite hot. May is the hottest month. Cottons are recommended during this time.

#### Winters

In winters, which starts from December and lasts till February, the temperature ranges between 20° C and 30° C. The climate remains pleasant during this time, as the temperature rarely falls below 20° C.

#### Monsoon

Though the rainfall is very frequent and uniform throughout the year, just like the flow of pilgrims and tourists, the city receives the major share of rainfall between the months of July and October. The average rainfall is 85 cm.

## Temperature

The annual maximum and minimum temperature normal (1970-2000) of the district are 33.1°C and 24.9°C respectively. 4 Projections of maximum temperature over Virudhunagar for the periods 2010-2040 (2020s), 2040-2070 (2050s) and 2070- 2100 (2080s) with reference to the baseline (1970- 2000) indicate an increase of 1.1°C, 2.2°C and 3.2°C respectively. Similarly, the projections of minimum temperature for the same periods indicate an increase of 1.1°C, 2.3°C and 3.4°C respectively.

## 5. PLANNING BRIEF

### 5.1 Planning concept (type of industries, facilities, transportation etc) town and country planning/development authority classification.

It is opencast mining project. The mine is proposed to work for a period of Two year only. The proposed working is by opencast manual mining method and which will also continue in future. The mining will be carried out by removing and transporting the sand found in the project area.

Mining will be done by open cast method to a depth of 1.0m after scrapping a thin layer of sludge materials containing bushes. Being a shallow mining with single bench no much planning required for slope stability issues. However the proponent shall maintain 45° slope as per safety practices.

### 5.2 Population Projection

In Sattur taluk, Nenmeni village had a total household 557 in 2001 which is increase to 698 in according to census 2011. Village had a total person of 2425 in 2011 census previous census had about 2274 persons in 2001. There were about 1176 men according to 2011 census and 1149 men in 2001 census marking decreased 27men over the previous census. During 2001 there were about 1125 women (49%), which is an increased to 1249 (51 %) in 2011 census.

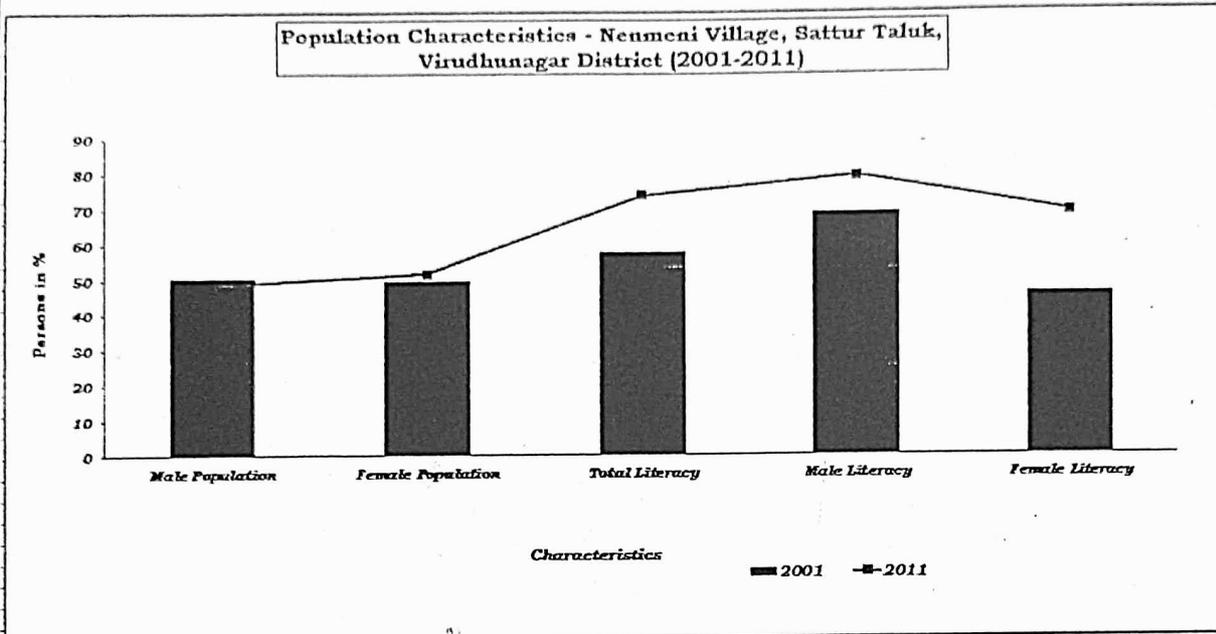
Sex composition is the most important demographic characteristic that affects the incidence of birth and death. The average sex ratio in Sattur taluk, Nenmeni village was 979 during 2001 and increased to 1062 in the year of 2011. The highest sex ratio may be either due to the migrants for educational purpose and employment opportunities and due to infant birth of female high in this village..

**Table No: 5.1 Population Characteristics- Nenmeni Village, Viruthunagar District (2001-2011)**

Sno	Characteristics	2001	%	2011	%
1	Total Household	557		698	
2	Total Population	2274		2425	
3	Male Population	1149	50.53	1176	48.49
4	Female Population	1125	49.47	1249	51.51

5	Total Literacy	1312	57.70	1793	73.94
6	Male Literacy	794	69.10	933	79.34
7	Female Literacy	518	46.04	860	68.86
8	Sex Ratio		979.1		1062

Source: As per census 2001, 2011 Viruthunagar district



### c) Literacy Characteristics - Nenmeni Village

Nenmeni village had a literate accounted for 1312 persons (57%) in 2001 and increased to 1793 persons in 2011. There were about 69 percent male literacy in 2001 census. Decrease to 79 percent male literacy in 2011 census. But female literacy has an increase to 69% compare previous census had decreased about 46%. It is shows that male literacy well educated in this village. Female literacy rate is low because most of female's working in secondary of Household industries had involved. Like matchbox, Crackers, etc. It depends on make money. In addition to that female to improve the knowledge to educate go for employment opportunity.

Table No: 5.2 Literacy Characteristics - Nenmeni Village

Sno	Characteristics	2001	%	2011	%
1	Total Literacy	449	45.91	494	56.78
2	Male Literacy	299	62.82	277	67.89
3	Female Literacy	150	29.88	217	46.97
4	Total Illiteracy	529	54.1	376	43.2
5	Male Illiteracy	177	37.2	131	32.1
6	Female Illiteracy	352	70.1	245	53.0

Source: As per census 2001, 2011 Viruthunagar District

#### d) Occupational Characteristics - Nenmeni Village

The term **workers** denote the population engaged in primary, secondary and tertiary activities classified in the census reports of Indian government. During the year 2001 Nenmeni village had 1035 workers accounting for 45percent of the total population of the Village. During 2011 there were about 1205 (49.6%) according to the census. There were about 578 men (50%) during 2001 which has an increase to 674 persons (57%) according to census 2011. There were about 457 female according to 2001 and 2011 census has marking of increase to 531 women as per census.

This group includes the employment of workers in manufacturing activities. Agro based industries, located in the study area engages a sizeable amount of workers. The distribution of secondary workers in the study area is calculated as percent to the total workers. The proportion of secondary workers to total workers has experienced decreasing trend in the Nenmeni village area between 2001 and 2011. Secondary workers during 2001 and 2011 it could be stated that this may be due to the opening of a number of industries and household manufacturing units in the study area.

The study area has experienced a change in the occupational structure in the form of a decline in the proportion of cultivators, agricultural laborers are increase in the proportion of secondary workers and tertiary workers.

In Nenmeni village the non-workers population accounted for 1220 (50% of the total population) according to census 2011, which had about previous census 2001 with a population of 1239 (54%). There were about male non workers of 571(49% of the male population) during the census 2001, which had decreased to 502 (42% of the male population) according to census 2011. As more number of people are educated, most of the people living in the villages have own household industries and mostly small shoppers, and business and mining industries earn money in daily life.

The study area has experienced a change in the occupational structure in the form of a decline in the proportion of cultivators, agricultural laborers are increase in the proportion of secondary workers and tertiary workers.

#### Occupational Characteristics of Population -Nenmeni Village, Sattur Taluk, Virudhunagar District (2001-2011)

S.No	Characteristics	2001	%	2011	%
1	Total Population	2274		2425	
2	Male Population	1149	50.53	1176	48.49
3	Female Population	1125	49.47	1249	51.51

4	Total Workers	1035	45.51	1205	49.69
5	Male Workers	578	50.30	674	57.31
6	Female Workers	457	40.62	531	42.51
7	Total Main workers	860	37.82	1185	48.87
8	Male Main workers	516	44.91	661	56.21
9	Female Main Workers	344	30.58	524	41.95
10	Total Cultivators	54	5.22	18	1.49
11	Male Cultivators	42	7.27	13	1.93
12	Female Cultivators	12	2.63	5	0.94
13	Total Main Agricultural Labourers	180	17.39	731	60.66
14	Male Agri.Labourers	121	20.93	365	54.15
15	Female Agri.Labourers	59	12.91	366	68.93
16	Total Main HHI	21	2.03	12	1.00
17	Male HHI	18	3.11	11	1.63
18	Female HHI	3	0.66	1	0.19
19	Total Main Other Tertiary workers	605	58.45	424	35.19
20	Male OT	335	57.96	272	40.36
21	Female OT	270	59.08	152	28.63
22	Total Nonworkers	1239	54.49	1220	50.31
23	Male Nonworkers	571	49.70	502	42.69
24	Female Non workers	668	59.38	718	57.49

#### Benefits:

The local people have been provided with either direct employments or indirect employment such as business, contract works and development work like roads, etc. and other welfare amenities such as medical facilities, conveyance, free education, drinking water supply etc.

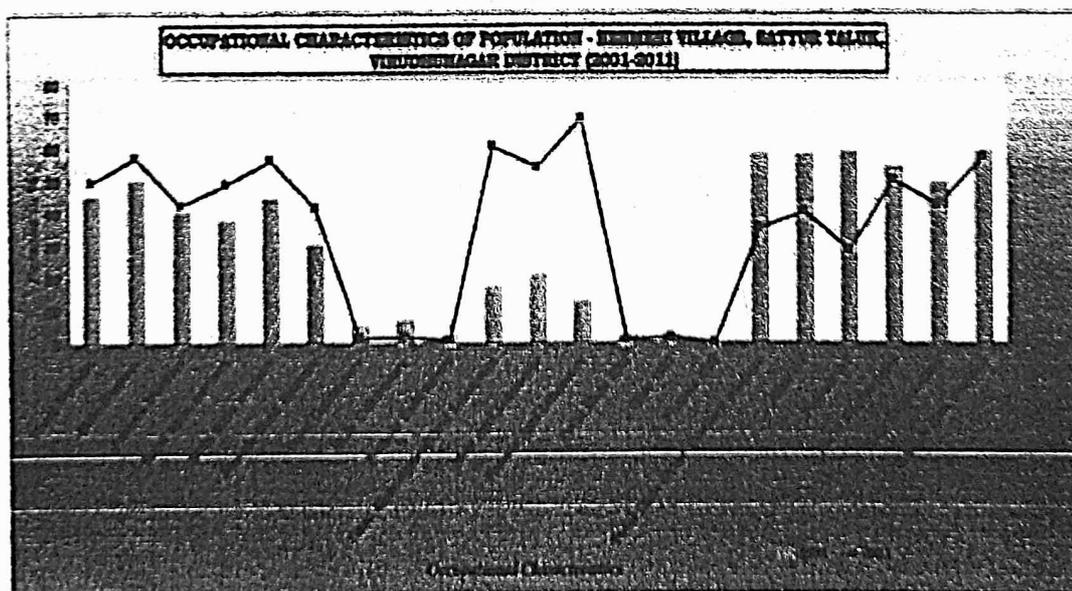


Fig No: 22 Occupational Characteristics of Nenmeni Village

Awareness and opinion of the people about the project for the assessment of awareness about the project activities and opinion about it, following salient observations were recorded:

- during survey it was observed that only nearby villagers are aware and other villagers are not aware about the proposed project
- People in the region expect job opportunities and improvement in educational, transportation and sanitation facility from project authority.

### 5.3. Assessment of infrastructure demand (physical & social):

#### Physical Infrastructure

The road facility is already available which shall be used and maintained. The labour requirement is taken from the nearest villages like Nenmeni. Other requisite infrastructure as transport of mine labours is available by way of jeep and two-wheeler. Medical facility is available for first aid at project site. Government Dispensary is available nearest to ML area in Nenmeni and Sattur in addition facilities in Viruthunagar. Rest room to meet the demand of shelter and Office room for project management will be made with portable container in the project area.

The will convey the excavated sand outside the quarry site to the end users.

The following measures may be taken for temporary soil erosion of bank:

Initiate stabilization measures as soon as practicable by dumping top soil over bank of the river for stability and afforestation purposes. General safety precaution shall be taken as per mining practices.

#### Access Roads

- The NH-44 Connecting Madurai – Tirunelveli situated at Western side, about 16km away from the area.
- SH-28 Connecting Aruppukkottai - Tuticorin– situated at Eastern side, about 17km away from the area.
- Irukkankudi Village road is available in 1.5km North.
- A village road situated nearby the site on the Southern side for transportation of materials.

#### Social Infrastructure

The area is accessible from Virudhunagar to reach Irukkankudi via Sattur by 38Km Further 2.5Km to reach the site. A Village road is available nearby the site on North Eastern side. The PWD make temporary road which connects the village road for transportation of Materials

#### (iv) Amenities/facilities:

As the workers are from nearby villages, the shelter room with toilet facilities & the first aid room will be built in a portable container since the project area itself a river bed and therefore all sanitary

provisions shall be made outside The Vaipparu river or in a portable container with disposal system. An office-cum-store shall be constructed. The water is required for drinking purpose as well as Drinking water is available by the water tankers from nearby area. Power is available at proximity. First aid box with all necessary materials will be kept all time in the office building for use as and when required.

## 6. PROPOSED INFRASTRUCTURE

### 6.1 Industrial area (processing area):

No processing unit is required; the sand material can be directly consumed. An office-cum-store will be constructed at mine site. A shelter room with toilet facilities & the first aid facilities will be built in a portable container.

### 6.2 Residential area (non processing area):

Not applicable, local personnel will be employed and there is no residential area proposed.

### 6.3 Green belt:

There would not be any adverse impact in the existing environment arising from the mining activities. To protect the environment, the Applicant Company would do adequate a forestation program with 150 trees per annum along the bank of the river.

Suggested plant species for Greenbelt development around the project:

**Table No.6.1 Suggested plant species**

S.No	Botanical Name	Tamil Name	Characteristics
1.	Azadirachta indica	Vepa or Neem	Semi ever-green, 5-8m height and spreading type
2.	Thespesia populnea	Poovarasam	Quick growing evergreen tree of 18m
3.	Samanea saman	Thoongu moonji	15-20m tall spreading tree
4.	Pongamia pinnata	Pongam	15-20m evergreen tree
5.	Albizia lebbak	Vagai	15-20m tall tree
6.	Prosopis juliflora	Neer Karuvai	A bushy thorny tree

### 6.4 Social infrastructure:

The area is accessible from Virudhunagar to reach Irukankudi via Sattur by 38Km Further 2.5Km to reach the site. A Village road is available nearby the site on North Eastern side. The PWD make

temporary road which connects the village road for transportation of Materials. The PWD make temporary road which connects the village road for transportation of Materials. Positive community relationship proposed will be adopted by following methods:

- Care will be taken to ensure Mining Industrial Traffic not degrading public roads or jeopardize public safety
- Consulting with local people in a sincere manner
- Protecting drinking water and all water sources
- Minimize visual impacts to the landscape
- Minimize disruption of local footpaths and public areas
- Mine Supervisor and Workers will be aware and at all times meet the following requirements:
- Usage of Personal Protective equipments
- Necessary signage at mine access point
- First Aid Kits
- Gates, Fences, Signs (Or) Other barriers to ensure the mine site is secured against unauthorized and / or accidental entry
- Ensure the mine site is not used for any other purpose other than mining

#### **6.5 Connectivity:**

- The NH-44 Connecting Madurai – Tirunelveli situated at Western side, about 16km away from the area.
- SH-28 Connecting Aruppukkottai - Tuticorin– situated at Eastern side, about 17km away from the area.
- Irukkankudi Village road is available in 1.5km North.

A village road situated nearby the site on the Southern side for transportation of materials

#### **6.6 Drinking water Management (source & supply of water):**

The requirement of water will be of drinking water need for the labours, which will be around 0.5 KLD. Drinking water is obtained by Mineral water industries by water canes. Dust suppression and green belt is obtained from the open wells of proponent site.

#### **6.7 Sewerage system:**

There is no Sewerage System available in the Mining proposed area. No sewage will be generated from this project.

#### **6.8 Industrial waste Management:**

No wastes are anticipated

## 7. REHABILITATION AND RESETTLEMENT (R&R) PLAN

(i) Policy to be adopted (central/state) in respect of the project affected persons including home owners, land owners, and landless labours.

a) PAP

There is no hutment in the lease area. No human being will be displaced from the project area so no person will be affected contrary local people will get job opportunities and better facilities. There is no rehabilitation & resettlement of people is required.

**Mine Closure:** Once the process of economical extraction of a mine is complete there is need for scientific mine closure which will not only restore ecology and regenerate bio mass but also take into account the socio-economic aspects of such closure. When mining activities carries out, mining communities get established and closure of the mine means not only loss of jobs but also disruption of community life. At the mine closure, it will be orderly and systematic and so planned as to help the workers and the dependent community to rehabilitate them without undue hardship. But in this case the excavation is made to deepen the water tank for storage and avoid flooding of storm water into villages and paddy fields. Therefore Mine closure plan should have proper leveling of the area before closing is advisable for this project.

## 8. PROJECT SCHEDULE AND COST ESTIMATION

(i) Likely date of start of construction and likely date of completion

The proposed mining operation will commence from the date of execution of quarry lease.

(ii) Estimated project cost along with analysis in terms of economic viability of the project.

Rs. 20lakhs as investment for Machineries, however being a short term project, the proponent is advised to hire machineries instead of buying or they may apply for additional area for continuity and provide work for the men and machineries.

### PROJECT COST & EMP BUDGET

a) Project cost

i) Land Cost	:	Nil
ii) Machinery (Hire)	:	Rs 20,00,000
iii) Construction of Bank of river .	:	Rs 2,00,000
iv) Laboures Shed	:	Rs 1,00,000
v) Sanitary facility	:	Rs 1,00,000
vi) Other items	:	Rs 1,00,000
<b>Total</b>	:	<b>Rs 25.0 lakhs</b>

b)	<b>Expenditure</b>	
	Environmental Monitoring	= Rs 100,000
ii.	Sanitary arrangements	= Rs 50,000
iii.	Safety kits,	= Rs 50,000
iv.	Internal road & Maintenance	= Rs 100,000
v.	Afforestation etc.	= Rs 100,000
	<b>Total</b>	<b>= Rs 4.0 lakhs</b>

## 9. Analysis of Proposal

(i) **Financial and social benefits with special Emphasis on the benefit to the local people including tribal population, if any in the area.**

### Social Benefits:

Mining in the project area will provide employment to nearby villagers. This employment will help in raising the standard of living on the people in the area. The mining activity in this belt will benefit the locals both directly and indirectly. The direct beneficiaries will be those who get employed in the mines as skilled and un-skilled workers. The indirect beneficiaries will be those who open small business to sell goods required by the residents whose "Per Capita income will be enhanced by the mining activity, and thereby their purchasing power. In the long run a lot of social goods are expected in the comparatively backward area when the inhabitants will be able to send their children to school, the change, though slow, is bound to be perceptible.

**Financial Benefits:**

It is clear from the objectives of the project that it will have significant positive impacts since it will:

- Provide filling material to the society.
- Give a boost to economic development in the region.
- Make a significant contribution to the construction and infrastructure sector of India.
- The Management will ensure good production and in turn there will be good revenue to the Government of Tamil Nadu and Government of India through taxes. The industry is an asset to the nation.

This project is planned keeping in view the above mentioned advantages.

The quarrying operations will be carried out scientifically and systematically with an integrated mining plan and the same may not disturb the environment and ecology of the area.

*[Signature]*  
Assistant Engineer, PWD/WRD  
Section - II  
Mining and Monitoring Sub Division  
Signature of Applicant  
Along with address

*[Signature]*  
Assistant Executive Engineer, PWD/WRD  
Mining and Monitoring Subdivision,  
Signature of EIA Co-ordinator

*[Signature]*  
Executive Engineer PWD/WRD  
Mining and Monitoring Division  
18/5/22  
Madurai - 625 002.  
The Executive Engineer  
Project Proponent

Mr. Aadhi Boomi Mining & Envrotech (P) Ltd.,  
*[Signature]*  
Director

Water Resources Organization,  
Mining and Monitoring Division,  
Madurai

S.Suriyakumar  
M.Sc., M.Phil, F.C.C. (Min)  
PGDBA, DIPIC  
EIA Co-ordinator (Mining)

Date: 09.05.2022

Place : Salem

### RISK MANAGEMENT FOR SAND QUARRY

The proposed mining lease for this area is for a period of six months only and the excavation of the mineral is by means of open cast semi mechanized mining. The approved depth of mining is 1m and the mining activity is shallow in nature. Drilling and blasting is not required to excavate the mineral. Machineries like hydraulic excavator and tippers will be deployed to exploit and transport the mineral.

The machineries will be periodically maintained to control the emission and thereby arresting air and noise pollution. Dust suppression will be done by sprinkling water on the haulage roads. Moreover the trucks carrying Sand will be covered with tarpaulin to stop spillage there by arresting the dust pollution. Every tipper will be loaded with prescribed quantity of material which will not cause any damage to the panchayat roads.

The depth of quarrying is also limited to shallow depth & no toxic substance is either used or released while mining, there will not be any disturbance to the drainage pattern and to the water table in the area.

Hence, there is no adverse impact on the environment in and around this area. Adequate steps shall be taken to protect the ecological system and environment and the entire area of excavation shall be leveled as per the Rules and the Guidance of AD Mines.