

**EXECUTIVE SUMMARY
OF
ENVIRONMENTAL IMPACT ASSESSMENT
For**

Shree Ram Clay

NADPA CHINA CLAY MINE

(Area: 9.45 ha)

Proposed Capacity: 2,50,000 TPA

Old Survey No:- 544

New Survey No:- 682

Village: Nadpa, Taluka Bhuj, District: Kutch,
Gujarat

Project Proponent:

Mr. Manoj P. Solanki

Madhapar, Taluka Bhuj, Dist.-Kutch,

State- Gujarat., Pin - 370020

Phone No.: 09824239575

Prepared by:

**GRASS ROOTS RESEARCH & CREATION INDIA
(P) LTD.**

**(An ISO 9001:2008 Certified Co., NABET & QCI
Accredited)**

F-374,375, Sector-63, Noida, U.P

Ph.: 0120-4044630 Tele fax: 0120-2406519

Email: info@grc-india.com, grc.india@yahoo.com

Website: <http://www.grc-india.com>

EXECUTIVE SUMMARY

1.0 INTRODUCTION

This is a proposal for producing 2,50,000 TPA of China Clay from Nadpa China Clay Mine (ML Area: 9.45 ha) located at Village – Nadpa, Taluka–Bhuj, District– Kutch (Gujarat).

Lease was granted in the favor of Vinod P.Solanki over an area of 9.45 ha in village: Nadpa, Taluka–Bhuj, District– Kutch, Gujarat, for China Clay mining, for a period of 20 years from 18th July, 1973.

The mining lease deed was executed and registered on 18.07.79 for a period of 20 years from 18.07.79 to 17.07.99.

The renewal of mining lease deed was executed and registered on 19.10.2000 for a period of 20 years from 18.07.98 to 17.07.2018.

Later lease was transferred to Sh. Manoj P. Solanki S/o Sh. Purushottam Solanki vide Govt. order No. MLN/3405/3335/CHH dated 18.01.2006. The transfer deed executed on 08.02.2006.

As per the EIA notification of Ministry of Environment and Forests, Govt of India (MoEF), dated 14th September, 2006 amended in December 2009 and April 2011, this project falls under category ‘B’ project, activity 1(a) of EIA Notification, and Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) is required for obtaining Environmental clearance based on ToR as approved by the statutory authority for renewal of lease of the China Clay mine. The ToR was presented to State Expert Appraisal Committee, Gujarat, and TOR was granted on dated 10.01.2011 (No EIA-10-2010-728-E-70504). This EIA has been prepared as per the Terms of Reference granted and the EIA Notification.

2.0 PROJECT DESCRIPTION

Location: The mining lease area is located in village Nadpa, Taluka Bhuj, District Kutch Gujarat. The mining lease area falls in Survey of India Toposheet No. 41E/15

Toposheet Details

Latitude : 23⁰17'22.46" N

Longitude : 69⁰54'53.52" E

Area & production: The total Mining Lease area is 9.45 ha

S. No.	Land Use Pattern	Land Used (%)	Area in Ha
1	Agricultural Land	--	--
2	Mining	32.22	3.0445
3	Water bodies & Tanks	--	--
4	Built-up land	---	---
5	Stony wasteland	67.78	6.4055
Total		9.45 Ha	

This is a case of mining lease renewal with proposed production of 2, 50,000 TPA Estimated cost of the project is Rs. 47 Lakhs.

Connectivity:

The lease area is connected by tar road upto Nadapa Village which is 4.5 kms north of lease area. The Coastal highway is passing at a distance of 5.0 Km at Dhaneti Village. Nearest railway station is Anjar (B.G.) on Bhuj Gandhidham section of western railway which is 22 km from the area. Bhuj is the nearest airport and is served by scheduled regular flights of Indian airlines and other Private Airlines. It is 30 Km from lease area.

2.1 Salient Features of Project

Name of the applicant	Mr. Manoj P.Solanki
Name of Mine	Nadpa China Clay mine
Village	Nadpa
District & State	Kutch, Gujarat
Latitude	23 ⁰ 17'22.46" N
Longitude	69 ⁰ 54 '53.52" E

Toposheet Number	41E/15
Number of Leases held by the lessee	Only one
Mineral	China Clay
Area (ha)	9.45
Postal Address	NADPA CHINA CLAY MINES Name : Mr. Manoj P.Solanki MADHOPUR, TALUKA BHUJ & DISTRICT: KUTCH, GUJARAT PIN : 370020 Phone : + 91-294-2484515
Period of Lease (Yrs)	20 Years
Status of Lease	Existing

2.2 Basic Requirements for the Project

SI. No.	Requirements	Quantity	Source
1	Land	9.45 ha	It's a Existing mine
2	Water	9.55 KLD	Natural spring or nearby villages
3	Manpower	32	Majority from nearby villages

2.3 Details of Mining

Method of mining	Opencast, Semi mechanized
Bench Height and Width	Height:5 m Width: More than 5 m
Mineable Reserve	17,34,838 tonne
Ultimate Pit Limit	12 m
Life of the Mine	9 years
Depth of Ground Water (bgl)	30-35 m

2.4 Use of Mineral

The China clay will be directly sold to the industries like ceramics, sanitarries, tile manufacturing, and crockery's etc. The China Clay is used in cement industry. The China Clay is used for ceramics.

2.5 Land Use Pattern

Sl. No.	Particulars of land use	Existing (Hectare)	End of fifth Year (Hectare)	End of Life Mine (Hectare)
1.	Pit & Quarries	3.0455	6.6300	8.095 (Backfilled & Reclaimed)
2.	Dumps of waste and overburden, mineral stack proposed	0.8200	1.0000	0.0000
3.	Infrastructure office building workshop and roads etc.	0.5600	1.16000	0.2300
4.	Plantation proposed	0.06000	0.1000	1.1250
5.	Unused	4.9645	0.560	0.0000
Total		9.45	9.45	9.45

3.0 DESCRIPTION OF THE ENVIRONMENT

The baseline environment quality was carried out over a radial distance of 10 km around the mine during post-monsoon season of **October 2012- December 2012**

3.1 Meteorology

The Summarized Meteorological Data for the Monitoring Period (**October 2012-December 2012**) is given below:

Month	Wind Speed (km/h)			Temperature (°C)			Rainfall (mm)	
	Max	Avg	Calm%	Max	Min	Avg	Total	No. of rainy

								Days
Oct 2012	7	1	35.5	38	18	29	0	0
Nov 2012	11	1	41.6	35	15	26	0	0
Dec 2012	18	1	37.02	34	7	22	0	0

3.2 Ambient Air Quality

To assess the ambient air quality level, six monitoring stations were set up. Ambient air quality monitoring was carried out twice a week with a frequency of 24 hours for 12 weeks.

The minimum and maximum level of PM₁₀ recorded within the study area was in the range of 69.8 µg/m³ to 134.5 µg/m³ with the 98th percentile ranging between 129.3 µg/m³ to 84.6 µg/m³

The minimum and maximum level of SO₂ recorded within the study area was in the range of 6.2 µg/m³ to 13.4 µg/m³ with the 98th percentile ranging between 9.7 µg/m³ to 12.8 µg/m³.

The minimum and maximum level of NO_x recorded within the study area was in the range of 14.0 µg/m³ to 27.5 µg/m³ with the 98th percentile ranging between 21.9 µg/m³ to 26.3 µg/m³

3.3 Noise Levels

The baseline noise levels have been monitored at 6 locations within the study zone, using a sound level meter and noise level measurement locations were identified for assessment of existing noise level status, keeping in view the land use pattern, industrial area, Silence Zone, residential areas in villages etc., if available within 10 km radius of the study area. Assessment of hourly night time Leq (Ln) varies from 40.3 to 50.9 dB (A) and the hourly daytime Leq (Ld) varies from 49.7 to 60.2 dB (A) within the study area.

3.4 Water Quality

To assess the water quality, 2 monitoring stations were set up for ground water. All the ground water samples analyzed can be considered fit for drinking purpose in the absence of alternate sources.

3.5 Soil Characteristics

The soil samples were collected in the month of November 2012. Soil samples were collected from 6 locations to assess the existing soil conditions representing various land use conditions and geological features and each of these locations were identified randomly from where soil was collected from 30 cm below the surface. Variations in the pH of the soil were found to be slightly alkaline (7.68 to 8.29). Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil. In the collected soil samples the conductivity ranged from 410-756 $\mu\text{mhos/cm}$.

3.6 Socioeconomic Scenario

The population Census 2001 was not held in Katchh district due to severe earth quake in 2001. The population data for the Katchh district was therefore estimated by the Census authority. The population Census 2011 was however, conducted in all the districts of Gujarat as per the time schedule. While the data at state and district level has been released by the Census Authority, the same at village level is yet to be released by them. Hence, an attempt was made to collect demographic particulars of the study area during the field survey. It has been estimated that the population of the study area is 18320. Out of Which 9955 is male and 8365 is female.

3.7 Biological Environment

Flora

Core Zone:-

No ecologically sensitive plant species has been reported from this area. There are very few plant species in the material dumping sites of the leased area and near the haul road like aritha, aal, Ber, Neem etc.

Buffer Zone:-

Buffer zone of the proposed project is mainly agricultural land. The flora of buffer zone comprises of plants growing on the edges of agricultural land and along the road side. Species observed during field visits are Neem (*Azadirachta indica*); Sisam (*Dalbergia sissoo*), *Prosopis juliflora* and Khair (*Acacia catechu*) with other associated tree species like *Acacia nilotica* are very common.

Agricultural land

The economy of Kutch is still agro-based and therefore in spite of shortage of water lot of emphasis is being laid on agricultural and farming activities. Major Agriculture crops are Bajra, Green gram, Castor, Groundnut, Cotton, Wheat, Moth bean, Sesame, Jowar and Maize. Horticulture crops are Mango, Sapota, Papaya and Banana are the main crops and vegetables like Cucurbits, Brinjal, Tomato and Okra.

Vegetation in and around human settlement

Vegetation pattern in villages and surrounding areas are slightly different from the rest of the areas. The common species grown near villages are mostly edible or useful plants Neem (*Azadirachta indica*); Sisam (*Dalbergia sissoo*), *Prosopis juliflora* and Khair (*Acacia catechu*) with other associated tree species like *Acacia nilotica* are very common.

Fauna

Core zone:

During the faunal survey in the area no wildlife corridor or movement of animals was recorded from proposed project area. No established habitats of any mammals or birds are noticed. No bird's habitats like nesting, breeding and foraging patterns are noticed in the core zone. Local birds are noticed crossing over the mine area in search of food.

Buffer zone:

The vast land of Kutch has long seashore and vast deserts which provide Kutch an extraordinary variety of wild life attracting a large number of avifauna. There is no forest land within 10 kilometers of the Buffer zone. Some wild animals observed during field visits and local interactions are Neelgai (Bojh), Wild Boar or Jungli Budhar (*Sus scrofa*), Indian Wolf (*Canis lupus*), Jackal or Shiyad (*Canis aureus*), striped Hyena or Jharak (*Hyena hyena*), Desert Hare or Sasla (*Lepus nigricollis outchensis*), Indian Fox or Lonkadi (*Vulpes bengalensis*), Mongoose or Nolia (*Herpestes smithii*).

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS

4.1 Impact on air - Various mining activities i.e. drilling, blasting, loading, removal of overburden and movement of other transport vehicles used in mining will generate dust

(PM10). Proper water sprinkling shall be carried out at the mine site. The mineral will be transported by road through covered trucks/tippers to reduce the fugitive emission caused by the wind.

4.2 Impact on water environment

4.2.1 Impact on surface water bodies- The terrain over the entire area is practically rocky in nature mostly outcropping with China Clay and shale. Soil forms as a thin mantle over most of the lease area. The highest and lowest contour in the area 99m. and 92 m. The drainage system of the lease area is towards south East. There is a Nallah flowing outside the lease area. The total surface water including that of Nallah goes into river.

4.2.2 Impact on ground water table- Ground water level of the plateau area in general is lower than mine pit depth. The mining activity has been restricted up to a moderate depth. The existing water table is in the level of 30-35 m. below surface RL and the relative positions of the pit bottom are 12 m below surface RL.

4.3 Noise Impact

The impact of noise on the villages is negligible as the villages are far located from the mine workings. Since there is no involvement of major machinery, the impact of noise levels will be very low.

4.4 Impact on Land Environment

Opencast mining activities may alter the landscape of the lease area and also cause some disturbance to the surface features of the surrounding areas. Thus out of 9.45 ha of mineable area envisaged at present, The mining activity will be carried out in 8.095 ha This area will backfilled and is available for agricultural purpose.

4.5 Impact on forest and vegetation

4.5.1 Impacts on Biodiversity- There are no endangered species, wildlife sanctuary, wildlife corridors, faunal migratory routes or eco-sensitive area near the whole study area.

4.5.2 Impacts on agriculture- Agriculture activities are practiced in nearby areas may get

impacted because of dust generation but mitigative measures such as regular water sprinkling on active areas for example haul roads, dump sites shall be strictly followed so that impact is minimized.

4.6 Socio economic environment

The impact of mining activity in the area is positive on the socio-economic environment of the region. Nadpa China Clay Mine is providing employment to local population and it will be give preference will be given to the local people whenever there is requirement of man power.

5.0 POST PROJECT MONITORING PROGRAM

Sl. No.	Description	Frequency of Monitoring
1	Ambient Air Quality	Quarterly/Half yearly
2	Meteorological data	Daily
3	Noise Level Monitoring	Half yearly
4	Water Level & Quality	Quarterly/Half yearly
5	Soil Quality	Yearly
6	Monitoring of Agricultural crops	Yearly

6.0 ADDITIONAL STUDIES

The Additional Studies conducted are Risk Assessment & Disaster Management / Hazard Management & Occupational Health & Safety.

7.0 PROJECT BENEFITS

The project will prove beneficial to the people as the company has already agreed to provide infrastructural facilities to the villagers like Educational facilities, Medical facilities, Transportation facilities, water supply etc. which will improve the socio-economic environment of the area.

8.0 ENVIRONMENT MANAGEMENT PLAN

8.1 Air Management

Following measures will be taken to control air pollution during mining operations:

- Adequate water spraying on the haul roads.
- Construction of proper haul roads in the lease area.
- Development of Green belt/plantation along mining lease, haul roads, mine office to arrest dust.
- Masks will be provided to drillers and persons employed in dusty area.

8.2 Water Management

There is no seasonal nalla or water channel flowing across the leasehold area however there is a Nallah flowing outside the lease area. The total surface water including that of Nallah goes into river. Adequate control measures will be adopted to check not only the wash-off from soil erosion but also uncontrolled flow of mine water.

8.3 Noise Management

- All precaution will be taken and noise level survey will be done at regular intervals.
- Ear protectors or earplugs will be given to persons working in higher noise level area or on machines.
- Regular measurement of noise level is proposed near drilling equipment and other heavy earth moving machinery & steps will be taken to improve the maintenance of all equipments so that the noise level will remain within permissible limits.
- Plantation of trees on internal roads and barriers.

8.4 Land Reclamation

Till the end of conceptual period, a total of 8.095 Ha area of the worked out portion of the pit will be used as reservoir which have positive impact on environment.

8.5 Green Belt/Plantation

The mining activity will be carried out in 8.095 ha in this area and at the end of conceptual period this area will be used as reservoir. And 1.1250 ha area will be developed under as green belt.

8.6 Budgets for Environmental Protection

SI. No.	Measures	Capital cost (in Rs.)	Annual recurring cost (in Rs.)
		Proposed	Proposed
1	Pollution Control (Separately provide break-up)	-	90,000
2	Pollution Monitoring (Separately provide break-up)	-	50,000
3	Occupational Health	20,000	5000
4	Green Belt	50,000	25000
5	Reclamation of mined out area	30,000	15,000
6	Others (specify)	-	-
Total		1,00,000	1,85,000

8.7 CONCLUSION

Based on the EIA study it is observed that there will be an increase in the dust pollution, which will be controlled by sprinkling of water and plantation. There will be an insignificant impact on ambient environment and ecology due to the mining activities moreover the mining operation will lead to direct and indirect employment generation in the area. Green belt development around the area will also be taken up as an effective pollution mitigative technique, as well as to control the pollutants released from the premises of the China Clay Mine.

Monitoring program will be followed till the mining operations continue. Around Rs. 1 lakhs as capital cost and Rs 1.85 lakhs as recurring budget for environmental protection have been formulated to achieve the environmental quality as desired. Hence, it can be summarized that the development of the mine will have a positive impact on the socio-economic of the area and lead to sustainable development of the region.

The china clay mining operation will not only fetch income to the state exchequer but also ensure healthy development of china clay mining in the state of Gujarat. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people engaged in industrial and business activities rather in agriculture.

The study area is still lacking in education, health, housing, water, electricity etc. It is expected that same will improve to a great extent due to proposed mining project and associated industrial

and business activities. Proposed activities and expenses on Corporate Social Responsibility will be as per CSR Mandate of the Government.
