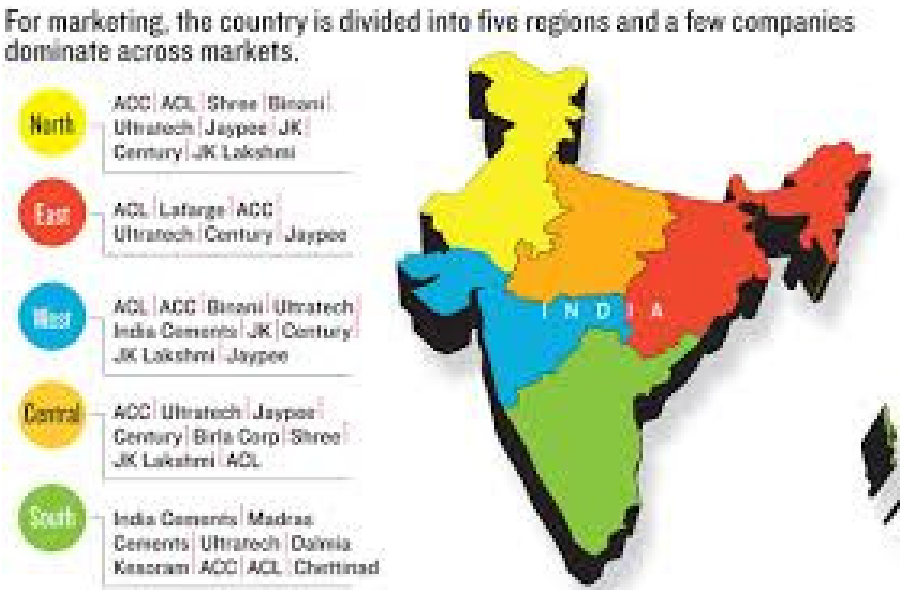
Cement Plants in Chattisgarh

Report of a Joint Visit by Environics and NTUI

June 2010



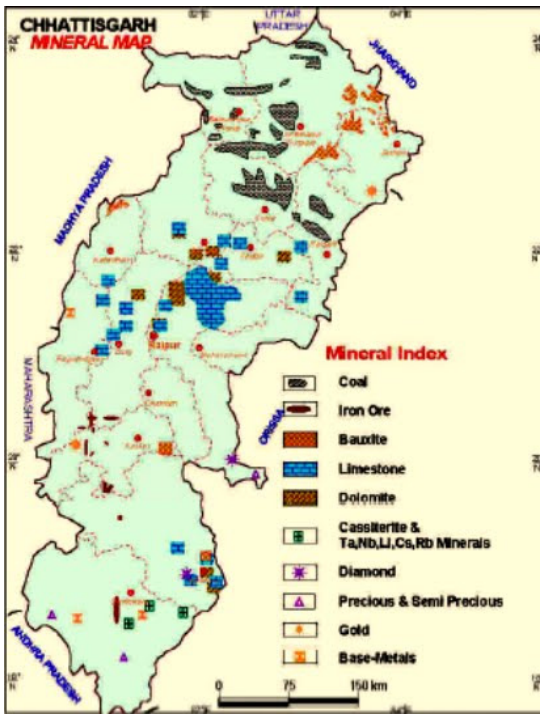
Background

The State of Chhattisgarh, formerly a part of Madhya Pradesh was formed on November 1, 2000 as the 26th state of the Indian Union. The districts of the state are Koriya, Sarguja, Jashpur, Bilaspur, Korba, Raigarh, Champa, Mahasamund, Raipur, Kawardha, Durg, Rajnandgaon, Kanker, Dhamtari, Bastar and Dantewara, with Raipur as the capital.

Area	:	1,35,194 Sq Km
Population	:	20,795,956
Districts	:	18

More than 80 per cent population depends on agriculture. The area under cultivation is 43 per cent. Main crops are paddy, wheat, maize, groundnut, pulses and oilseeds. Forests occupy 45 per cent of the area.

Apart from Bhilai Steel Plant with 40 lakh tonnes capacity, eight sponge iron plants in the private sector, 13 ferro-alloy plants, 125 steel rolling mills and one H.R. strip plant has been established. Besides, iron casting units, engineering and fabrication units, agro-based food processing, chemical and plastic industries are also present.



Chhattisgarh is rich in mineral resources. Twenty per cent of the country's steel and cement is produced in the State. Iron-ore, limestone, dolomite, coal, bauxite are found in abundance. It is the only tin-ore producing state in the country. Other minerals such as korandum, garnet, quartz, marble, diamond are also found in Chhattisgarh.

As the result of the conscious policy followed by the Government, from the inception of planning, for promotion of investment in strategic and key areas through public sector, a few pockets of concentration of industrial activities, have been formed in the Chhattisgarh state viz. Korba, Bhilai, Raipur, Bilaspur and Bailadila. Because of their proximity to natural resources and infrastructure support, industries were established in these areas. Korba has become a growing urban town, wherein, many major industries e.g. power plants, aluminium/coal complex etc. of the district are located. While in the case of Bhilai, though the resources are at a distance, because of its having a

better communication and railway net-work, many industries including country's largest steel plant have come up. Raipur has become an important industrial centre and providing all kind of support services to the Bhilai area. It has many medium and large size industries. Quite a few large cement plants are located in Raipur area. At Bailadila, a big mining complex came into being, primarily due to high grade iron ore export commitment to Japan.

The purpose of industrial development of any region is to provide opportunities of better living and employment to the people. While industrial development almost inevitably creates more employment in the region, adverse effects on the environment and population also increases. Thus there occurs a situation in which the material goods increase but the quality of life deteriorates.

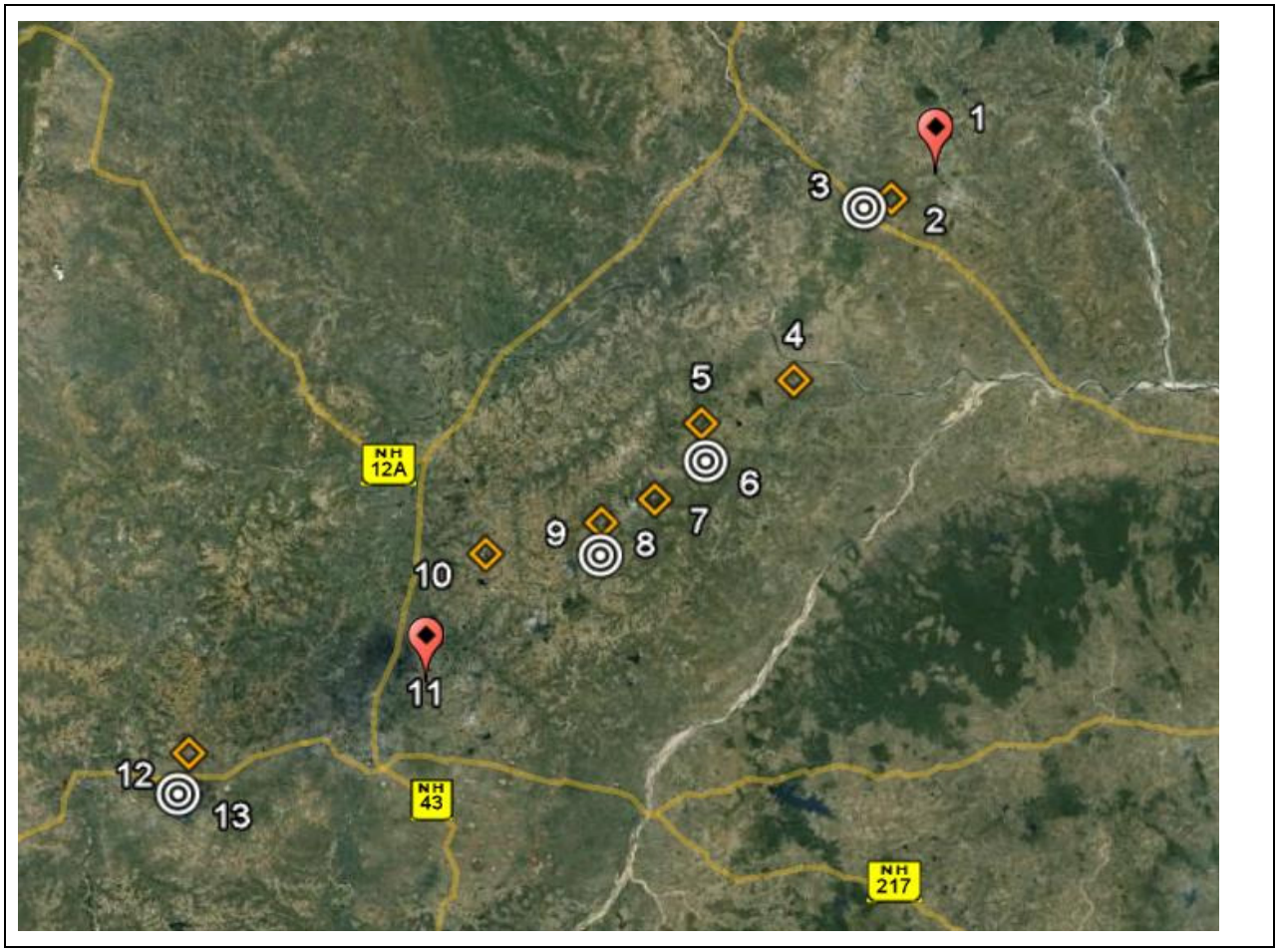
However, the industrialisation of the predominantly tribal areas has led to the degradation of environment due to industrial pollution. The population around the industrial complexes are exposed to the hazards of industrial pollution thereby, influencing their quality of life. Prior to the establishment of the industrial projects, these centres (excluding Raipur/Bilaspur) were secluded and inaccessible due to lack of transport system and absence of proper infrastructure. Today, these centres have earned dubious distinction of becoming centres of pollution and environmental degradation.

At the time of establishing industrial units, the pollution problems in the industrial operations were given very little or no attention. These industries were set up with practically no pollution control measures and have led to the environmental degradation beyond permissible limits. Therefore, a stage has been reached where adequate and effective pollution control measures are required to be adopted in such industries so that the adverse effects, to the environment and local population, are minimized.

The establishment of industries brought about the promise of material wealth, direct / indirect employment opportunities, modern amenities, better health and educational facilities to the local population.

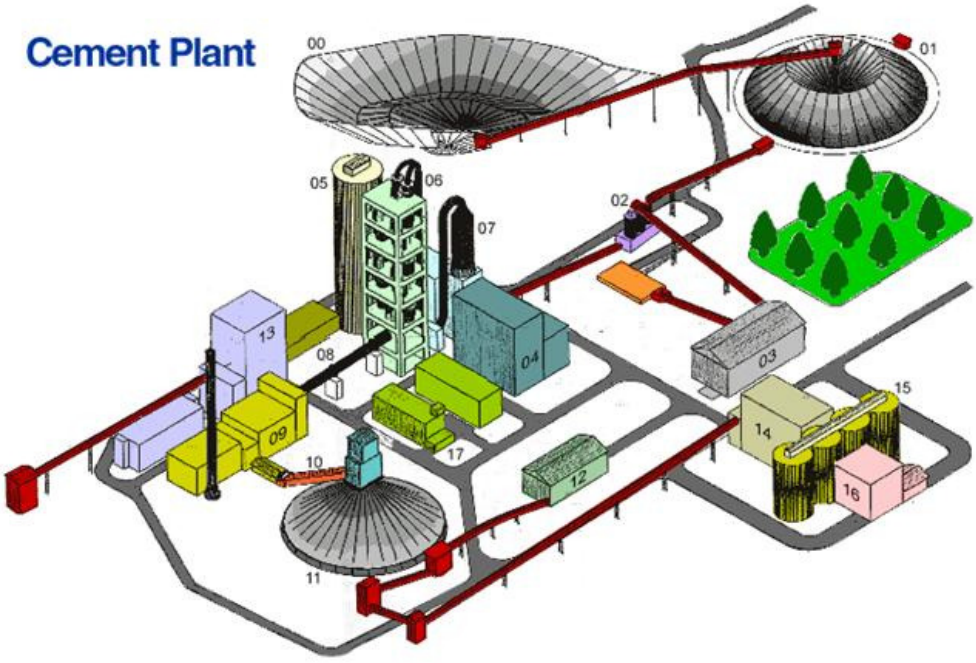
Contrary to popular belief, the reality is strikingly different on ground. On a fact finding mission to various cement plants in the Durg – Raipur - Bilaspur region of the state between 7 – 2 June, many harsh realities were found.

There are 9 major cement plants located in Chhattisgarh between Durg and Bilaspur. The 2 plants of CCI Ltd are currently non-operational



There are 13 cement plants proposed in the region out of which environment clearance has been given for 5 plants despite severe villagers protests and land acquisition has started. Kolkata-based Imami Cement has proposed to set up its plant with an investment of Rs.16 billion with a capacity of 4.05 million tons, and has identified 406 hectares of land while Jindal Steel has applied for 80.90 hectares. Shree Cements Ltd has proposed a plant in Simradhi village of capacity 5.2 million tons with clinker production of another 3.0 million tons. Monnet Cement, part of Monnet Ispat & Energy conglomerate has proposed to set up a three million tonne cement plant in Chhattisgarh, close to its existing sponge iron and steel melting facilities in Raipur, with a total investment of Rs 1,400 crore. The facility will use limestone from 220 MT mine that has been allotted to the company by the state government. Besides, ash and slag generated from its existing and upcoming units in the state will also be used as basic feed for the cement plant.

Typical Cement Manufacturing Process



A typical Cement Plant Organisational Setup (Photo Courtesy ACC Cement Ltd)

- The major raw material for cement production is limestone. The limestone most suitable for cement production must have some ingredients in specified quantities i.e., calcium carbonates, silica, alumina, iron, etc. The quarrying operations are done by the cement producer using the open cast mining process.
- The raw material is stored at either the quarry or at the plant. The extraction of different qualities of raw material is monitored and controlled in order to maintain the desired composition of raw meal, suitable for feeding into the kiln. In order to get the required composition of raw material, certain additives such as iron ore, bauxite, laterite, quartzite and flourspar are added in required quantities. These additives are stored at the plant in separate hoppers and are extracted using belt conveyors
- The raw material is finish-ground before being fed into the kiln for clinkering. In order to blend and homogenize the raw materials properly, continuous blending silos are used. The most important activity in cement manufacturing is clinkering (or burning) of raw material. Clinkering takes place in the kiln and the pre-heater system. The conditioning tower is used to reduce the temperature and to increase the moisture level of the dusty exhaust gas from the kiln, before it is passed through the bag house and ESPs
- A kiln is the heart of any cement plant. It is basically a long cylindrical-shaped pipe, and rotates in a horizontal position. Its internal surface is lined by refractory bricks. Limestone and additives are calcined in this. The output of the kiln is called clinker. The clinker coming out of the kiln is hot. It is cooled in a set-up called a cooler. In the cooler, cold air is blown to effect heat exchange between hot clinker and cold air.

- The output of the kiln is stored before it is fed to the cement mill for conversion to cement. This storage is called clinker storage
- Clinker, along with additives, is ground in a cement mill. The output of a cement mill is the final product viz. Cement.

Environment Issues

During the fact finding trip, the workers reported several Environmental impacts due to cement plants in the vicinity.

Cement companies require limestone to produce Cement. The limestone is mined from the mines which are located close to the manufacturing plant. The mines are all open cast mines. Blasting is done daily to break the rocks into transportable sizes. Limestone is transported to the plant either using huge dumpers (as in the case of ACC, Jamul) or conveyor belts depending upon the distance between the plant and the mine.

The mineral is not covered nor any dust suppression technology used during transportation as a result, dust keeps flying all around in the atmosphere. Small stones and dust keeps falling from the belt. Further, due to blasting, villages in surrounding areas feel the shockwaves and as a result

Truck Carrying Limestone from ACC Jamul, Mine. The mineral is not covered and the dust keeps flying throughout the journey from mine to the plant – ACC Jamul

Conveyor belt at Ultratech Cement Plant and Ambuja Cement Plant

cracks have appeared in the houses. Villagers fear for their safety every time there is a blast in the mine which is every day. In many cases rocks from blasting fall in the villages creating serious health risk.

Several roads leading to villages have been taken over by the mining companies and converted into mine area restricting access to the villages. In case of Ultratech Cement plant in Hirmi Village, the village is just 20 mtrs from the mine.

Ground water is extracted from the mines (in all the mines', mining has gone below the water table). The water is pumped into the cement plant (using pipes) and is used during the manufacturing process. In case of ACC cement, Jamul, we were informed that the plant is filtering all the water and is using it for drinking purposes as well. The water is quality tested; however, the report is never disclosed. This has also resulted in lowering of the water table and wells and taps in the villages have run dry. Water in villages has never been quality tested by either the company or pollution control board so one cannot check about the safe use. Further, villagers have also noticed an increase in skin infections after bathing in the local ponds since the cement plants started functioning.

Ultratech Cement Hirmi

Transportation of Coal for burning in kilns or power pants also cause a lot of dust in the environment. Hoarding of coal is common and good quality coal is sold off to offset costs and instead material like soap, detergent, plastic etc is burned to maintain appropriate temperature in the furnace causing environment pollution.

Fly ash generated by the power plant inside the cement plants is not stored properly. The ash is dumped in open without creation of a proper ash pond covered with water. Villagers complained of the ash flying all across the streets. Ash is transported to cement plants (manufacturing PPC cement) using Capsule containers.

The ESP system employed to prevent pollution is also shut down during night hours to save on costs resulting in gross violation of laws and causing pollution and environmental damage.

Agriculture around the plants has been destroyed because either agricultural land has been acquired for plant construction or because of the thick cement dust that settles on the plants and results in loss of quality and quantity of agriculture produce.

Dust even settles on the electricity wire which needs regular cleaning. Water after washing clothes is black with coal or cement dust. If one sleeps in open, in the morning the bed is littered with dust.

Mosquito population has also shown an increase and cases of malaria have increased.

There are no permanent toilets in the villages. In one of the village near Ultratech Cement plant, Hirmi, Government had constructed toilets under Jawahar Lal Nehru construction scheme. However, the toilets were dilapidated and not usable. The village head, however tries to force villagers to use those toilets. (put photo oftoilet).

In case of Lafarge cement plant in Sonadih, a check dam has been built on river Shivnath to help the company store water for its operations. The river is also used to dump waste and pump out excess water from the mine. The company has one of the biggest mines in the region.

Health Problems

Employee State Insurance or ESI is almost unheard of in villages near the plants. There are only 2 ESI dispensaries (not even a hospital) in the entire Industrial region of Bhillai which has over 20000 contract workers (1 in Supela and 1 in housing board). None of the cement plant workers are covered under the ESI scheme. The only function of the dispensaries if to give sick and fit forms to the workers. There is a company hospital only for permanent workers inside the housing colony (contract workers are not allowed inside the housing colony) which lack basic infrastructure and even maternity and delivery facilities.

Workers do not have any insurance policy provided by the companies (has to take individual policies if required). On site doctors are not available and in case of accidents, ambulance ferries the worker to the company hospital where a permanent worker gets treatment but a contract worker is sent to a government hospital in the nearest town for treatment. Company / contractor bears the cost only in case of grave accidents. No compensation for injury is given or expected by the workers.

Workers are given safety boots, helmet, mask, gloves, ear muffs (where required) and glasses. However these equipments are only given as a formality. Regular maintenance and replacement of equipment is not done. If a worker approaches the management for replacement, the answer given is that the equipment is not available right now and to come later. In case of working under extreme heat, no extra heat protecting equipment is provided. However for a permanent worker, a fan is provided.

Safety meetings are held as a farce and more as a formality then as a requirement. Instead in case a work needs to be done urgently, the safety department is informed not to be present on the site. No special allowance is provided for working in extreme heat, heights, dust or hazardous process. Many a time's workers are made to work even with the machine in operation risking grave injuries. Many accidents were brought to light esp. one of Mr Heeralal token number 1805238 in ACC Cement plant, Jamul who lost

one of his fingers while forced to clean the conveyor belt while the belt was in motion despite repeated requests to shut down.

In case a worker is working in a kiln or conveyor belt, there is dust all around. No dust suppression mechanism is in use and masks are not replaced regularly. We were shown masks which had been used for a very long time and smelling. We were reluctant to hold them and the workers have to put them on and work for their entire shift!. Workers don the masks and other equipment only if working in a hazard prone area. They are neither mandatory, nor does a supervisor instructs them to don safety equipments at all times. Further due to high temperatures in the region, workers do not feel comfortable wearing these equipments..

Workers are encountering health issues due to climbing stairs. One worker in ACC, Jamul complained of having to climb almost 100 ft of stairs 3-4 times a day. Because of this, back and knee problems have become a routine.

Workers also complained about increase in breathlessness, cough, acidity, soreness in eyes, general body ache, skin problems since the cement plants started operation in all villages surveyed. Many a times, after working in a dust filled area, despite wearing masks, after the work is over, the workers spit out dust. In case of Lafarge Cement plant, Arasmeta, interestingly during tea break for packaging unit workers, tea is provided inside the unit itself. So one drinks tea while working along with all the dust around. There are no facilities for washing or changing clothes inside the plant as a result, workers wear the same clothes while going home and the dust is spread all across the house as well.

No health Check-up camps (pre employment or during employment) are conducted either for contract or permanent workers. In Lafarge Arasmeta however, the practice of check-up seem to have been started for the past 2 years. The reports have not been given to the workers though.

Conditions and facilities in Company hospitals (accessible only to permanent workers) also leave a lot to desire. In ACC Jamul, only 1 doctor is present. Specialist doctors might come on different days. The hospital has facilities only for routine blood test, urine test, eyes test and general check-up. The X-Ray machine has also been recently procured. Maternity facilities are not there. Same is the case with almost all company hospitals. In case of Lafarge Plant in Arasmeta, we were told that same medicine is given for all ailments and that the hospital is only accessible after getting a slip from the administration.

Other issues

State of living is extremely poor especially for contract labourers. Compensation has not been given for land that was acquired for setting up of the plant. In case of Ultratech Cement plant, letters and representation has been made to all government agencies from labour department to collector and still compensation is pending for the past 15 years. Permanent jobs promised during acquisition have never materialized and the villagers are forced to work as contract labourers. The story is the same in villages near all cement plants.

During land acquisition, promises are made about setting up of education facilities, health facilities, income generation etc. however, schools which have been set up (if any) are catering to children of permanent employees only. Village children still need to go to far off places as either they are not allowed admission or fees is high. Same is the case with hospitals. There are only a few shops around the cement plants. Even the roads were not carpeted in the case of Lafarge Cement plant

Sonadih except the road leading to the plant main gate and roads inside the housing colony. The village roads are all 'kuchha' roads.

Difference in living conditions is visible if one goes into the housing colonies for the permanent workers near the plants. Contract laborers are not even allowed entry into these colonies.

Cooking tablets made from coal dust, rice water and mud used due to non-availibility of cooking gas

ACC Jamul Housing Colony for Permanent Workers. 'Pukka' Construction with all Amenities provided by Company

Labour Colony, Jamul. Water Pipes by Municipality pass through open sewer lines.

Houses constructed by Laborers themselves in the labour Colony deprived of basic amenities.

Acquiring of village land by some means or the other is common. In case of Ambuja Cement plant in Ravan, a temple has been built inside the housing Colony, Villagers can visit the plant only during stipulated hours after taking due permission. To reach the temple one has to travel through the entire housing colony. The temple land was earlier given to the company in lieu of other land.

Contract workers are not provided any uniforms. Interestingly we found a few contract workers in ACC Jamul wearing Company uniforms. On enquiring we were told that the uniforms have been purchased from permanent workers (permanent workers get 2 uniform sets every year. One can be sold to make extra money).

Due to loss of agricultural lands, the villagers have no other option of income generation other then work in the cement plant.

In case of Ambuja Cement, Rawan, the administration had acquired 3 times the land required for setting up of the plant to ease expansion woes later. The plant has recently expanded the capacity to more than 3 times. Village Grazing lands and ponds are acquired forcibly by one pretext or another. Villagers cannot keep animals due to lack of pastures and hence agriculture has also

suffered. The company Is also adopting a practice of mining in multiple locations just for the purpose of acquiring land now. 3 such mines are currently in operation.

Photographs from the trip

ACC Jamul Cement Plant

ACC Cement Pant – Jamul

Slag from Bhillai Steel plant lying in open, ACC-Jamul

Trucks awaiting material for transportation. Dust hangs like a haze around the plant, ACC-Jamul.

	
Ultratech, Hirmi Plant	Ultratech, Hirmi Plant
	
Dumpers bringing Limestone from Mine fro Crushing, Ultratech, Hirmi	Mining Pit, Hirmi
	
Dust during Coal Unloading, Hirmi	Trucks for transporting Fly Ash

 Dust Measruing Equipment, Ambuja, Ravan. Reports are not disclosed	 School, Ravan Village. Only for Permanent Employees
 Ambuja, Ravan Cement PLant	 Clinker awaiting Transportation. Ravan
 Plant Construction in progress on village land. Plant Boundary is visible in the background	 One of the Mining Pits, Ambuja, Ravan

	
Lafarge, Sonadih	Check-dam on Shivnath River
	
Mining Pit, Sonadih	The Promised Shopiing Paradises
	
Carpeted roads near the plant	‘Kuchha’ roads around the Villages

	
Housing Colony, Sonadih – All facilities provided to residents. Outsiders are not allowed inside and security guards man the boundary Walls.	Inside a village house, Sonadih

Fact Sheet

ACC Ltd. (Holcim), Jamul, Capacity - 1.58 Million Tons

Surrounding Villages

UltraTech Cement Ltd. (Aditya Birla Group), Hirmi, Capacity - 1.9 Million Tons

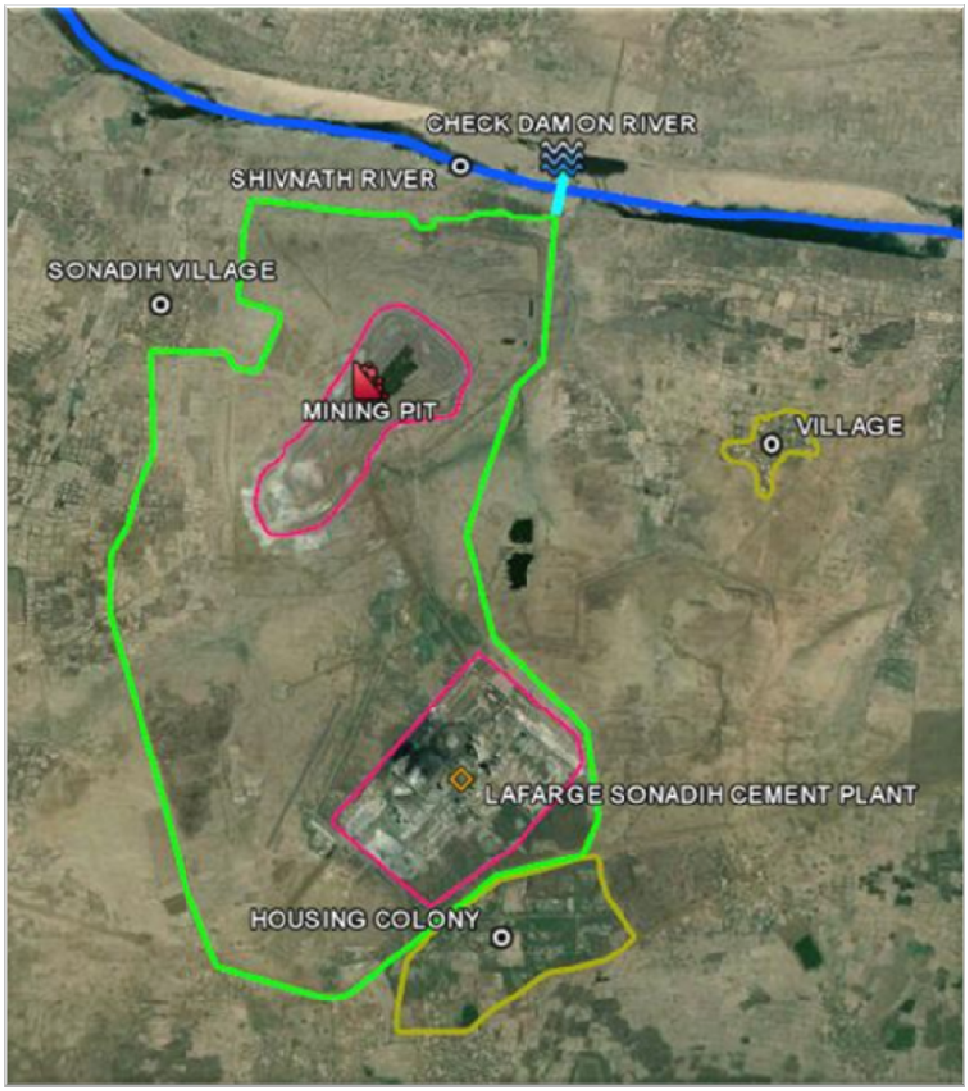
Surrounding Villages - Bhilari (5), Parswani (3), baddi (4), Saklore (1), Badgahan (4), Badhbera (3), Naya para (6), Dodha (14), Khilora (2), Hirmi (1). Mine in Parswani Village

Ambuja, Rawan (Holcim), Capacity - 3 Million Tons

Surrounding Villages

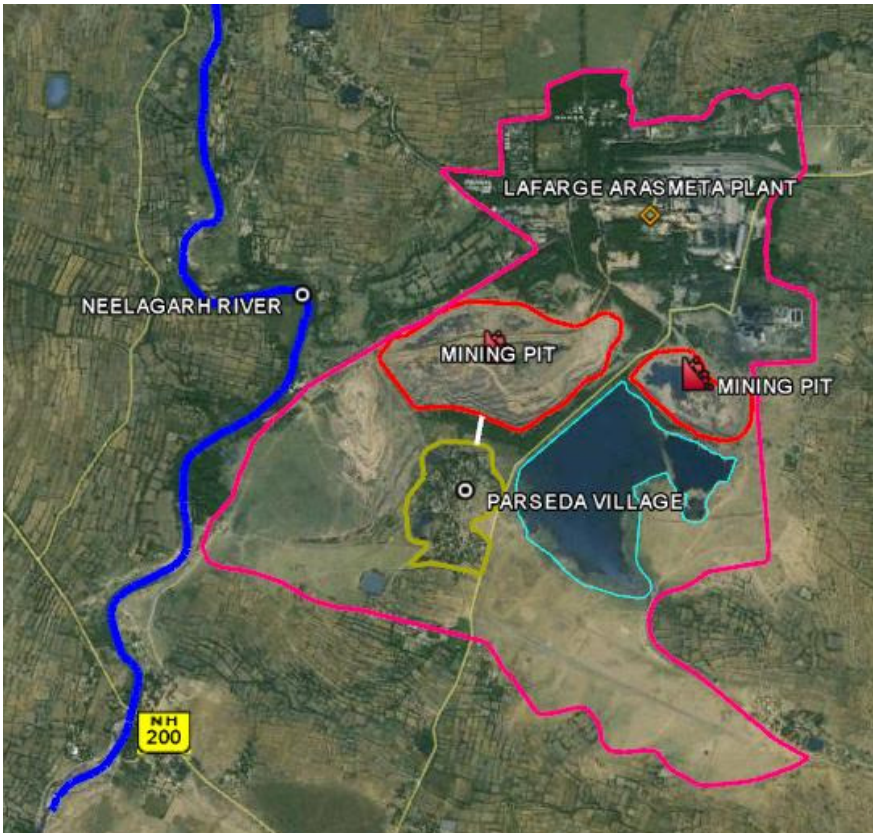
Lafarge India Pvt. Ltd., Sonadih, Capacity - 0.55 Million Tons

Surrounding Villages



Lafarge India Pvt. Ltd., Arasmeta, Capacity - 1.6 Million Tons

Surrounding Villages



Grasim Industries Ltd., Ravan, Capacity – 2.5 Million Tons

Surrounding Villages