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# CLOSING THE ENFORCEMENT GAP: GROUNDTRUTHING OF ENVIRONMENTAL VIOLATIONS IN BODAI-DALDALI CHHATTISGARH

Dara

Bodai Daldali Mine

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February 2019

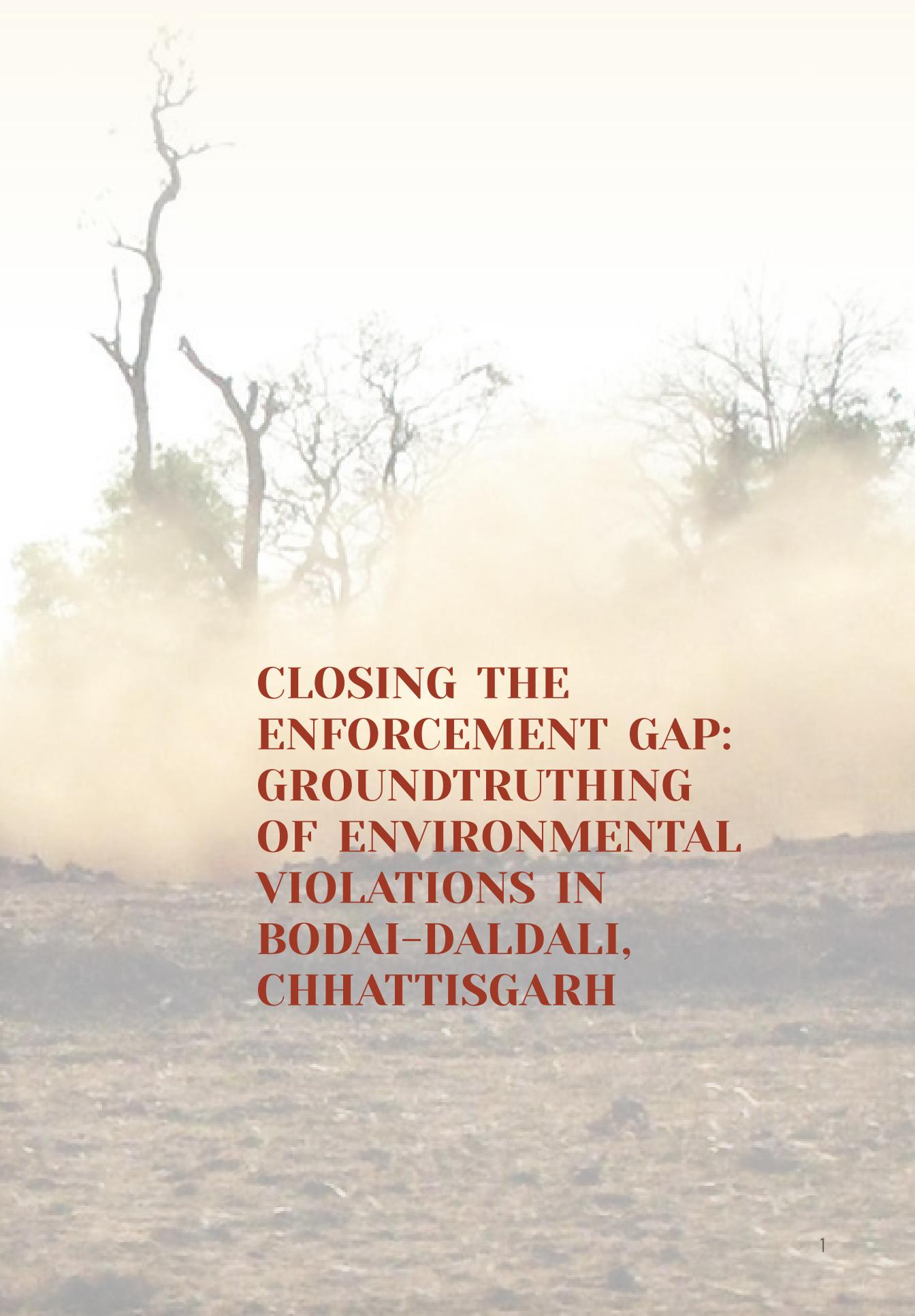
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Cover Photo: Google Maps showing land use change from 2001 and 2018 in Bodai-Daldali

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BODAI-DALDALI,  
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## EXECUTIVE SUMMARY

Bharat Aluminium Company Limited (BALCO), which is a Public Sector Undertaking, received an environmental clearance in 2003 for bauxite mining in the Kabirdham district of Chhattisgarh. Since the mine became operational in 2003, there have been studies and media reports which have highlighted instances of non-compliance of environmental safeguards. There have also been complaints by affected villagers about impacts from mining and other ancillary operations. In this context, Janabhivayakti, along with Centre for Policy Research-Namati Environmental Justice Program and Oxfam India, initiated a groundtruthing process in 2018 to understand the impacts of this project on the people, which are linked to the non-compliance of Environmental Laws. Vanvasi Kisan Mazdoor Vikas Samiti from Bodai-Daldali also collaborated in identifying the impacts and outreach amongst the affected people. For this purpose, the permissions given to the project under the Environment Impact Assessment Notification 2006, Air (Prevention and Control of Pollution) 1981 and Water (Prevention and Control of Pollution) 1974 were obtained from the Ministry of Environment, Forests and Climate Change's website ([parivesh.nic.in](http://parivesh.nic.in)) and by filing of Right to Information applications by the research team.

Following this, a groundtruthing exercise was conducted, whereby the facts stated in the official documents were compared to the impacts being reported by the affected villagers and the civil society organisation working in the area. Based on this discussion, the following issues were decided to be taken up by the research group to study through the groundtruthing methodology.

- Dust Pollution as a result of transportation, blasting and drilling
- Mined out pits in which backfilling has not been done, which runs the risk of children and cattle falling in
- Reported health risks and threats to the life of labourers
- Incomplete rehabilitation and resettlement process
- Fall in the groundwater level in the area

As required in the groundtruthing methodology, these reported impacts were then linked to the safeguards and mitigation measures required to be followed by the project proponent. Where there were instances of non-compliance, evidence was collected to verify the same. Efforts were made to maximise the participation of people affected by the mining operations in the area. However, some of these processes were hindered due to inaccessibility and political instability in the region. The non-compliance of environmental safeguards was further corroborated with government reports and studies conducted by other organisations. It was found

that dust is generated due to uncovered trucks plying on poorly maintained roads, mining activities such as drilling and blasting, and despite that, the air quality monitoring was not being carried out by the project proponent. There was also no record of reclamation or evidence of plantation. The people still living within the mine lease area suggested that the R&R is yet to be completed. Alongside the environmental violations, the mine operated beyond its permitted capacity in the years 2006-07 and 2007-08. Recently, in 2017 after the MoEFCC allowed projects to get post-facto environmental clearances, this project has applied for such an approval, and the appraisal for a modernisation proposal is under way in the MoEFCC.

# 1

## A BRIEF BACKGROUND OF THE REGION, THE PROJECT AND THE ISSUES

### A. About the project

The first Environmental Clearance (EC) granted to the Bodai-Daldali bauxite mine in 2003 was for a capacity of 0.30 Million Tonnes Per Annum (MTPA) for bauxite mining. In 2006, a proposal was put forth by BALCO to increase the production capacity to 1.25 MTPA. While examining the proposal, the Expert Appraisal Committee (EAC) had observed that the project had not been complying with several conditions specified in its EC from 2003. In October 2007, the Expert Appraisal Committee (EAC) on Mining Projects categorically rejected the proposal for expansion.<sup>1</sup> The poor performance of BALCO in conserving the rich biodiversity of the area, and in the rehabilitation of the affected and to be affected population

prompted the EAC to come to the conclusion that the proposal was being put forth with a purely commercial interest in mind and that the acceptance of such a proposal would lead to unavoidable human suffering.<sup>2</sup> The irregularities expanded to the actual ore extraction as well. In the Financial Years (FY) of 2006-2007 and 2007-2008, BALCO exceeded the production capacity specified in the EC and subsequently a court case was also filed against it in the Chief Judicial Magistrate's Court in the district of Kabirdham.<sup>3</sup>

Thereafter, in November 2008 BALCO introduced two new elements to persuade the EAC to grant them approval. Neither of them was related to environment or social aspects of the project. The first was the growing competitiveness of the global market and the second was the importance of the mine being approved in national interest.<sup>4</sup>

Although the non-grant of expansion would lead to a marginal reduction of BALCO's profits, the same was even then justified as "important for national interest". Several deliberations followed and the once rejected proposal was finally accepted by the EAC and the EC

#### About the Project Proponent:

One of India's first Public Sector Undertakings, Bharat Aluminium Company Limited (BALCO), was set up in 1965. In 2001, 51% of its shares were disinvested in favour of the London-based Sterlite Industries Limited (Vedanta). Since then, it has been extracting bauxite from India's mineral reserves, and thereafter producing aluminium in its smelter plants. Currently, BALCO produces around 5.70 lakh tonnes per annum. In the mineral rich state of Chhattisgarh, BALCO has two operational mines. One is located in Mainpat in the Sarguja district and the other in Bodai-Daldali in the Kawardha district.

<sup>1</sup>14th Meeting Minutes of the EAC (Mining) held on 11.10.2007 (Available at: <http://environmentclearance.nic.in/Report/minutesarchive.aspx>) (Last Accessed on: 07.02.2019)

<sup>2</sup>*ibid.*

<sup>3</sup>Case no 1759/2009 in the Chief Judicial Magistrate's Court, Kabirdham (Further details regarding the case could not be gathered)

<sup>4</sup>27th Meeting Minutes of the EAC for Mining Projects held on 4.11.2008 and 5.11.2008 (Available at: <http://environmentclearance.nic.in/Report/minutesarchive.aspx>) (Last Accessed on: 07.02.2019)

### **The EAC refuses to grant an EC for expansion to BALCO in October 2007**

*“The proposed mining activities are solely in the commercial interest of Balco and, therefore, there is no justification, either public or private, to inflict untold and totally avoidable sufferings on the people living there for generations. It is also abundantly clear that the company will not be handicapped, in any way, if the proposed mining activities are not allowed as the company can very well meet its alumina requirement through import which, in any case, it has been doing.*

*Thus refusal of environmental clearance for the project will not adversely impact the interest of the company while non refusal shall entail untold human sufferings which are totally avoidable.”*

for capacity enhancement was accorded.<sup>5</sup> The EC was, however, granted with a specific condition pertaining to the R&R, which had to be completed by early 2010. Despite that, several families continue to reside within the mining lease area, and they claim that they have been promised by the State Government that their land will be returned to them once the mining is complete.

### **The EAC is asked to reconsider the grant of EC for the expansion in November 2008**

*“There has been no change in the circumstances warranting a different view now except that M/s BALCO has introduced two elements, namely, dynamics of competitive global market and national interest.”*

*“M/s BALCO has invoked “national interest” as a justification to shift more than 200 families. The fact is that a purely commercial interest is being projected as national interest. The CEO of the company informed that net profit per tonne of aluminium metal is around Rs.15,000/-. If the proposed mine is not allowed the above profit may be marginally reduced.”*

## **B. About the laws**

Three laws have been used in this groundtruthing:

- i. **The Environmental Impact Assessment (EIA) Notification, 2006:** The EIA Notification, 2006 imposes certain restrictions on new projects and the expansion or modernisation of existing projects. This is done by granting an EC after assessing the potential environmental impacts of the project.

The ECs for large projects such as mines above 50 hectares or Thermal Power Plants above 500 MW are granted by the MoEFCC (Category A) and for the smaller projects it is the State Level Environmental Impact Assessment Authority that grants an EC (Category B). The Bodai-Daldali Bauxite mine is a Category A Project.

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<sup>5</sup> 7th Meeting Minutes of the EAC 2 (Mining) held on 25.03.2010 and 26.03.2010 (Available at: <http://environmentclearance.nic.in/viewminutes.aspx?date1=03/25/2010&code=MIN1>) (Last Accessed on: 07.02.2019).

There are 4 stages in the appraisal process:

- Screening: This is not applicable to Category A projects, and at this stage it is determined whether or not the project is required to prepare an EIA report for appraisal.
- Scoping: At this stage a comprehensive Terms of Reference (ToR) based on various environmental parameters is prepared and provided to the project proponent to prepare a draft EIA report.
- Public Consultation: This process is to seek the response of people likely to get affected by the project and concerned citizens. The affected people can voice their concerns with respect to the EIA and give their views on whether or not they want the project to come up. It has two parts: a public hearing and provision of submitting comments in writing.
- Appraisal: The draft EIA has to be revised on the basis of the points raised during the public hearing, written submissions and the final EIA report has to be handed to the EAC for appraisal. The EAC will then determine whether the project will be granted an EC.

The EC for a mining project is granted for a maximum period of 30 years. Once it is granted, the project proponent will have to submit six-monthly compliance reports specifying the status of compliance.

- ii. **The Air (Prevention and Control of Pollution) Act, 1981 (Air Act) and the Water (Prevention and Control of Pollution) Act, 1974 (Water Act):** Both these laws deal with the implementation of pollution control norms with respect to air and water respectively. Under both the Acts, any project that discharges or is likely to discharge pollutants in the air or water has to take two Consents from the State Pollution Control Board. One is the Consent to Establish (CTE) and the other is the Consent to Operate (CTO). The CTOs have their validity stipulated in them and have to be renewed from time to time. They also lay down certain conditions to ensure that pollution is controlled.

The table below lists the various environmental and pollution-related permissions received by the Bodai-Daldali Bauxite mine:

Environment and Pollution Related Permissions	Under which law
EC dated 04.12.2003 (No. J-11015/2/2000-IA.II(M))	EIA Notification, 2006
EC dated 09.04.2010 (F.No.J-11015/37/2010- IA. II (M))	EIA Notification, 2006
CTO dated 29.10.2010 (No. 3809/TS/CECB/2010)	The Air Act, 1981
CTO dated 29.10.2010 (No. 3799/TS/CECB/2010)	The Water Act, 1974
Renewed CTO dated 16.04.2018 (No. 672/TS/CECB/2010)	The Water Act, 1974

## C. About the region

Perched on the Mukam-Mundadar plateau in the Maikal Range, in the Kabirdham district of Chhattisgarh, the Bodai-Daldali mine of BALCO covers 626.17 hectares. Located at 940 metres above sea level, a narrow winding road leads up to the mine. There are two main rivers, the Hapan and Katai river, to which the drainage of the area is attributed. Sal, Saja, Mahua, Haldu, Kalki, Tinsa are some of the local varieties of trees which are available.<sup>6</sup>

Mundadar, Keshmarda, Rabda and Semsatta are the villages that fall within the mining lease area. As per the 2011 census, there are 1124 people living in 143 households in the 4 villages mentioned above. Of the 1124 people, 944 of them are from the Baiga tribe, who have been classified as Particularly Vulnerable even among the Scheduled Tribes.<sup>7</sup> The Particularly Vulnerable Tribal Groups are characterised as those STs whose population is very small and stagnating, who live in remote and isolated areas and also have a low level of literacy and are economically backward.<sup>8</sup>

## D. About the Issues

Living within the mine lease premises is full of difficulties. The mining operations take place very close to the settlements and the use of explosives for blasting, drills for excavation and huge trucks transporting bauxite without any covering lead to excessive dust in the area. Groundwater is also susceptible to fall in areas where bauxite is mined since the geology of the area is such that it is not very water retentive. The villagers have spoken about the water level falling since several of their traditional sources of water are slowly drying up.

This report attempts to link some of the impacts, which the people are facing as result of mining operations in Bodai-Daldali, to some of the conditions specified in permissions that have been granted to this project. A process of groundtruthing was undertaken for this whereby facts stated in official documents were verified with on-ground realities.

## E. About the Organisations

**Janabhivayakti** is a registered NGO working on social and environment justice issues in Chhattisgarh. It is also part of the Chhattisgarh Bachao Andolan (CBA), a network of social movements and people's organisations in the state.

**Vanvasi Kisan Mazdoor Vikas Samiti (Bodai-Daldali)** comprises of people from the local communities affected by mining. As the name reflects, it is an association of tribal and non- tribal farmers and labourers. They have fought battles to try and get employment in

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<sup>6</sup> [http://censusindia.gov.in/2011census/dchb/DCHB\\_A/22/2208\\_PART\\_A\\_DCHB\\_KABEERDHAM.pdf](http://censusindia.gov.in/2011census/dchb/DCHB_A/22/2208_PART_A_DCHB_KABEERDHAM.pdf) District Census Handbook for Kabirdham, Chhattisgarh (Series 23-Part XII A) Census of India, 2011 (Available at: [http://censusindia.gov.in/2011census/dchb/DCHB\\_A/22/2208\\_PART\\_A\\_DCHB\\_KABEERDHAM.pdf](http://censusindia.gov.in/2011census/dchb/DCHB_A/22/2208_PART_A_DCHB_KABEERDHAM.pdf)) (Last Accessed on: 07.02.2019)

<sup>7</sup> State wise list of PVTGs compiled by the Ministry of Tribal Affairs (Available at: <https://tribal.nic.in/DivisionsFiles/SwLPVTGs.pdf>) (Last Accessed on: 07.02.2019)

<sup>10</sup> Report of the High Level Committee on Socio- Economic, Health and Educational Status of Tribal Communities of India, May 2014 (Available at: <http://www.indiaenvironmentportal.org.in/files/file/Tribal%20Committee%20Report,%20May-June%202014.pdf>) (Last Accessed on: 07.02.2019)

the mines and are still working on getting their land restored and returned to them once mining is completed. They were instrumental in identifying the impacts being faced as a result of mining operations.

**Oxfam India** a fully independent Indian organisation, is a member of an international confederation of 20 organisations. The Oxfams are right based Organisations, which fight poverty and injustice by linking grass root interventions to local, national and global policy developments.

**The Centre for Policy Research-Namati Environmental Justice Program** is a collaborative project that works with a network of grassroots legal professionals who research on questions regarding environmental law implementation and citizens' empowerment by participating in the process of resolving environmental non-compliance and related impacts that affect communities. Through this process, the Program builds an epistemic community geared towards finding solutions to environmental challenges.

# 2 METHODOLOGY

## A. Discussions on social justice issues in the state

An initial discussion was organised by the partners of this study to understand the range of forest, environment and social justice issues in Chhattisgarh. During this discussion, an overview of laws was also presented. These are laws which can be used to monitor and regulate the environmental impacts resulting from developmental activities, including mining. The focus of this meeting was also to identify a potential area where a groundtruthing exercise could be carried out. For this, details of this methodology, its advantages and challenges were all discussed amongst the participants.

## B. Scoping visit

A scoping visit was conducted by Janabhivakti and CPR along with the Vanvasi Kisan Mazdoor Vikas Samiti to get an understanding of the issues in the area. All the members of the Samiti are from the villages within the mine lease area, and a majority of them work as labourers in the mine. During the visit, some members from the Samiti explained the kind of impacts they were facing on account of the mining operations, and it was decided that a follow-up visit would be made once more information had been gathered, and the collected information would be examined along with some members from the Samiti.

## C. Collection of Information

The information related to the project was obtained from records that were available on the websites of the MoEFCC ([parivesh.nic.in](http://parivesh.nic.in)), and by filing Right to Information (RTI) applications. Only the Environmental Clearance issued in 2010 was available in the public domain; all the other clearances given to the project were obtained through filing RTIs. The initial research methodology included the leadership of the community representatives in filing RTI applications and collecting on-ground evidence. However, due to local accessibility and mobility constraints, these were pursued by Janabhivakti in partnership with the Vanvasi Kisan Mazdoor Vikas Samiti.

Apart from this, reports prepared by both Governmental and Non-Governmental Organisations (NGOs), along with newspaper articles have also been referred to while putting this report together. A detailed reference is included as part of this groundtruthing report.

## D. Challenges to groundtruthing

When the groundtruthing process was started, it was envisaged that it would be led by representatives of the affected communities residing around the mine.<sup>9</sup> However, because

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<sup>9</sup>More on such groundtruthing processes can be accessed at:<http://www.cprindia.org/research/reports/closing-enforcement-gap-groundtruthing-environmental-violations-sarguja>&<http://www.cprindia.org/research/reports/closing-enforcement-gap-groundtruthing-environmental-violations-sundargarh-odisha>

of the accessibility and mobility constraints in the region, it became difficult to visit the affected region and carry out follow-up discussions. Furthermore, training with regard to evidence collection and mapping of issues could not be pursued as envisaged in the research methodology. This impacted the process of gathering photographic evidence for which the partnership of the affected communities would have been critical.

Therefore, this groundtruthing has been done based on problem identification by the affected people in the months of June and August 2018, followed by evidence collection through secondary sources, including government documents, research reports and satellite imagery. This process presents an important learning that groundtruthing exercises can be constrained if accessibility of the affected area is restricted.

## **E. Follow-up**

After information had been collected, a small meeting was held with the local communities in the Anganwadi centre in Bodai, wherein the contents of the environment clearance (EC) and consent to operate (CTO) were discussed. The impacts discussed in the scoping visit were linked to some of the conditions in the above two documents. Thereafter, the communication to finalise the groundtruthing research has been through telephonic conversations.

# 3

## THE PROCESS OF GROUNDTRUTHING

### A. Initiation of the Groundtruthing Process

The process of groundtruthing was initiated as collaboration between the Centre for Policy Research-Namati Environmental Justice Program, Janabhiviyakti and Oxfam India. In order to identify where to carry out the groundtruthing, a meeting was held in June 2018 in which all Oxfam's partner organisations from the state of Chhattisgarh were present. During the meeting, various issues that the partners were facing with respect to the work they were carrying out in their respective regions were discussed. Through these discussions, several pertinent issues related to displacement of people from Protected Areas in Chhattisgarh, inaccessibility of common forest land on account of it being demarcated as land for Compensatory Afforestation and mining related impacts in the Bodai-Daldali bauxite mine came up, and it was collectively decided that the groundtruthing exercise would be carried out in the Bodai-Daldali bauxite mine.

Thereafter, members from the Vanvasi Kisan Mazdoor Vikas Samiti were met with on 11.06.2018. The meeting was held to try and better understand the impacts that the locals were facing as a result of mining operations. A follow-up meeting was conducted on 24.08.2018 in the Anganwadi Centre in Bodai, wherein, the concept of groundtruthing was shared with the community and a small training on the relevant environmental laws was held. Further visits were not possible on account of the difficulty to access the location.



Meeting with the villagers in the Anganwadi Centre in Bodai. Photo Credit: Debayan Gupta

## B. Identification of Impacts

During the second visit to the mine, a meeting that was conducted saw participation of 22 people. A conversation with them revealed that they were facing the following problems as a result of mining operations:

1. The resettlement procedure carried out by the company had been so poor that many had chosen to remain within the mining lease area and not shift out.
2. The reclamation of land after the mining had not been carried out properly since the top soil was missing. Resultantly, the land could not be used for any other purposes and there were also several open mined out pits into which children and cattle could fall.
3. Dust pollution resulting from three components of mining, namely, blasting, drilling and transportation.
4. Groundwater has been used by the villagers in the form of a traditional source known as *jhirias*. Their claim was that on account of the blasting activities and the resultant vibrations, the water level in the *jhirias* was going down. This could perhaps be attributed to the fact that in areas where bauxite is found, the soil has a low water holding capacity.<sup>10</sup> As a result, special care has to be taken to ensure that the groundwater level does not fall. Since some of the *jhirias* have dried up, villagers have to travel for several kilometres to collect water for their daily use.
5. The mine is still operated using manual labour, mostly from the surrounding villages. The workers are facing the imminent threat of occupational hazards.

## C. Prioritisation of Issues

On account of the difficulties that arose while putting together the groundtruthing report, the prioritisation of issues beyond the first meeting could not be done with the communities involved. Instead, the prioritisation was done by the research team on the basis of availability of data and the possibility of gathering on-ground evidence. As a result, the issue related to R&R could not be verified on the ground although there existed secondary data that indicated the non-completion and improper execution of the R&R process. The claim with respect to the fall in the groundwater level could also not be corroborated with on-ground evidence, but there are conditions in the EC that require regular monitoring of groundwater as well as measures for augmentation of groundwater resources. The issues related to dust pollution, land reclamation and the working conditions of the labourers were therefore prioritised over the other two.

The findings presented in the next section are divided into two sub-sections. The first where the non-compliance has been verified with on-ground evidence and the second where such ground level evidence collection was constrained.

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<sup>10</sup>Lad RJ SJ. Impact of Bauxite Mining on Soil: A case study of Bauxite Mines at Udgiri, Dist- Kolhapur, Maharashtra State, India. Internal Research Journal of Environmental Sciences, Vol. 4(2), 77-83, February (2015) (Available at: <http://www.isca.in/IJENS/Archive/v4/i2/15.ISCA-IRJEvS-2014-275.pdf>) (Last Accessed on: 07.02.2019)

## 1. Reported Impacts and Evidence of Violations

### A. Dust Pollution due to transportation, drilling and blasting

*Violation of specific condition 5.A. (xi), (xvii), (xviii), (xix) general condition number 5.B. (iii) of the EC dated 09.04.2010, terms and condition number 4, 6, 7 and 8 of the CTO and 5,9 and 10 of the renewed CTO.*

Dust pollution was an important concern that was raised during the village level meeting. It was identified that the drilling and blasting process for the extraction of the ore and the transportation of the ore was all resulting in a lot of dust being generated in the area. Some major issues were:

- Blasting is carried out in the mining pits that are located very close to the habitations. People have stated that small boulders often fly out and land either near or on houses. This is in addition to the dust that is generated as a result of the blasts that take place.
- Drilling results in a spiral of dust being generated and since there is no mitigation measure in place, the dust enters the homes and a red layer is seen in several places as a result of the dust.
- The road used to transport the ore within the mining lease premise is not black topped and hence susceptible to large amounts of dust getting deposited. As vehicles move along this road, clouds of red dust can be seen.
- The 42 km long road from Bodla to Daldali serves the dual purpose of transporting minerals and is also used by people to reach the nearby towns. With open trucks transporting tons of bauxite on the very same road, the road has been riddled with potholes. It was stated by the people that during the summer and winter months a layer of red dust covers the roads where the trucks ply, the monsoon sees the dust mix with the water and fill up the potholes with mud. Resultantly, local transportation through the road becomes quite difficult.

As per the conditions given in the EC, the company is supposed to conduct regular monitoring of the air quality levels. However, evidence from investigations done by the Comptroller and Auditor General (CAG) and the Regional Office (RO) of the MoEFCC show that regular assessment of AAQ was not being done. The CAG had done a joint inspection of the Daldali Bauxite mine with officials from BALCO in May 2016. The inspection had observed that there was no assessment being done of the ambient air quality in the mine.<sup>11</sup> The same was also noted by a site inspection carried out by the Regional Office of the MoEFCC at

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<sup>11</sup>Page 65-67, Chapter II of Audit Report on Public Sector Undertakings for the year ended 31.03.2016 for the State of Chhattisgarh (Available at: [https://cag.gov.in/sites/default/files/audit\\_report\\_files/chapter\\_2\\_financial\\_report\\_1\\_chhattisgarh\\_2017.pdf](https://cag.gov.in/sites/default/files/audit_report_files/chapter_2_financial_report_1_chhattisgarh_2017.pdf)) (Last Accessed on: 07.02.2019)



Uncovered trucks carrying bauxite leading to dust generation in 2007. Photo Credit: Patrik Oskarsson

Nagpur in January 2017, wherein it was observed that the AAQ was not being regularly updated, the data on it was from May 2016, and there were no display boards on the site.<sup>12</sup>

Conditions in the CTO mandate the company to cover vehicles while transporting. However, we obtained photographic evidence showing uncovered trucks plying along the Bodla-Daldali road. Additionally, the monitoring report of the MoEFCC Regional Office, prepared on the basis of the site visit in January 2017, had observed that uncovered trucks were being used to transport the ore.<sup>13</sup>



Close up photo of dust being generated as a result of transportation in 2007. Photo credit: Patrik Oskarsson

<sup>12</sup>F. No: 3-3/2004-ENV, Regional Office (Western Central Zone), MoEFCC, Nagpur dated 20.03.2017

<sup>13</sup>F. No: 3-3/2004-ENV, Regional Office (Western Central Zone), MoEFCC, Nagpur dated 20.03.2017

These are all the violations of the following conditions specified in the EC and the CTO:

Details of Conditions Violated		Supporting Evidence
Specific condition 5.A. (xvii) of EC dated 09.04.2010	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral within the mine lease. The mineral transportation within the mine lease shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.	F. No: 3-3/2004-ENV, Regional Office (Western Central Zone), MoEFCC, Nagpur dated 20.03.2017. Audit report by the CAG based on site inspection carried out by the CAG and company officials in May 2016. Photographs collected by other researchers in April 2007.
Specific condition 5.A. (xxv) of EC dated 09.04.2010	Data on ambient air quality (PM10, SO2, NOx) shall be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board/Central Pollution Control Board once in six months. The critical parameters such as PM10, SO2, NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, pH) and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the company in public domain. The circular no. J-20012/1/2006-IA. II (M) dated 2.5.2009 issued by the Ministry of Environment and Forests, which is available on the website of the Ministry <a href="http://www.envfor.nic.in">www.envfor.nic.in</a> shall also be referred in this regard for its compliance.	F. No: 3-3/2004-ENV, Regional Office (Western Central Zone), MoEFCC, Nagpur dated 20.03.2017. Audit report by the CAG based on site inspection carried out by the CAG and company officials in May 2016.

## B. Backfilling of the mined out pits and subsequent reclamation of land

*Violation of Specific Condition 5A (ii) of the EC dated 09.04.2010, Specific Conditions 5A (vii) and (viii) of the EC dated 2003, terms and condition no 16 and 21 of the CTO and terms and condition no 11 of the renewed CTO.*

Prabhu, a resident from Mundadar, which is one of the four core villages, wants back the piece of land that he lost as a result of the operation of the mine. According to him, the members from the Vanvasi Kisan Mazdoor Vikas Samiti have discussed with the state authorities that all land that has been mined out should be reclaimed and given back to the land owners. There exists nothing on official records however as to how or in what condition the land will be returned. Linked to this, the following problems were discussed during the meeting that took place in August 2018:

- The void pits are not backfilled properly and it is unsafe for both children and cattle who live near around the mining pits, and are susceptible to fall in.
- Although in some of the mined out pits the overburden had been used to fill up the pits, the land has not been levelled and the top soil has not been used to cover the soil to prepare the land for plantation/agriculture.

The six-monthly compliance report dated 23.11.2018, for the months April 2018-September 2018 specifies that the overburden soil is being concurrently backfilled, but photographs, Google Earth images collected by the research team in 2018 of the mine lease area show barren lands with upper laterite, no top soil and no plantation. The images also show the abandoned void pits and some backfilled pits with no top soil reclamation. However, this has not been noted in any official documents, which is perhaps why the problem continues to persist.

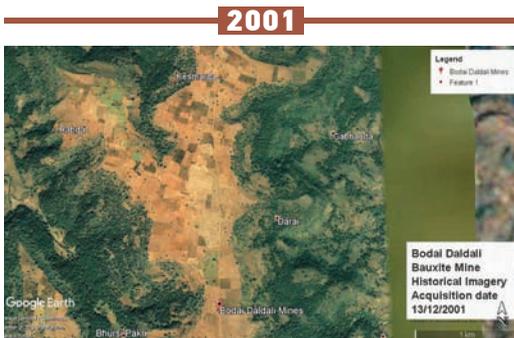


Open mined out pits which have not been backfilled. Photo credit: Patrik Oskarsson

Not only has the project proponent not taken any steps in furtherance of reclaiming the land, the conditions stipulated in the EC dated 04.12.2003 require that it undertake extensive afforestation. A collective reading of specific conditions (vii) and (viii) reveals that the entire mine lease area is required to be afforested. During an inspection of the mine carried out in May 2016 by the Comptroller and Auditor General (CAG), it was observed that the approved mining plan required for the voids of the mined out pits to first be levelled with overburden soil and thereafter plantation was required to be carried out at the rate of 1000 trees per hectare.<sup>14</sup> Plantations are not visible in the Google Earth images that have been collected by the research team, and the land use change in Bodai-Daldali from 2001-2018 can be found in Annexure I of the report.

**Extracts from Pages 65-67, Chapter II of Audit Report on Public Sector Undertakings or the year ended 31.03.2016 for the state of Chhattisgarh:**

“As per the approved mining plan, after levelling of the mined out land with overburden soil and waste material, plantation was to be carried out at the rate of 1000 trees per hectare. However, during joint inspection it was observed that no plantation was done in the mined out area though plantation of 1000 trees per hectare was required to be carried out.”



<sup>14</sup>Page 65-67, Chapter II of Audit Report on Public Sector Undertakings or the year ended 31.03.2016 for the State of Chhattisgarh (Available at: [https://cag.gov.in/sites/default/files/audit\\_report\\_files/chapter\\_2\\_financial\\_report\\_1\\_chhattisgarh\\_2017.pdf](https://cag.gov.in/sites/default/files/audit_report_files/chapter_2_financial_report_1_chhattisgarh_2017.pdf)) (Last Accessed on: 07.02.2019)

These are the violations of the following conditions specified in the EC and the CTO:

Details of Conditions Violated		Supporting Evidence
Specific Condition 2.A. (vii) of EC dated 04.12.2003	The reclamation programme for the 223.925 ha of mined out area should be implemented until the end of the life of the mine. Land reclamation and backfilling should be concurrently done from the third year of operations Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the MoEF on a regular basis.	Google Earth Images showing land use change from 2001 to 2018. Photographs from 2007 showing open mined out pits. Audit report by the CAG based on site inspection carried out by the CAG and company officials in May 2016.
Specific Condition 2.A. (viii) of EC dated 04.12.2003	The entire mined out area shall be afforested. Plantation should also be raised along the roads, dumpsites, etc. This includes a 10 m wide green belt around the ML area and active mine area by planting native plant species in consultation with local Divisional Forest Officer (DFO)/ Agricultural Department. At least 2000 plant species/ha should be planted.	
CTO Terms and Condition no 16	Reclamation programmes for the mined out area shall be implemented until the end of the life of mine. Land reclamation and backfilling shall be concurrently done. Plantation of native and fruit bearing plants and tree species shall be taken up for soil stabilization and for reclamation of the mined out area. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Industry shall carry out reclamation of activities in such a manner that the land use shall be maintained in the original state. The top soil shall temporarily be stored at earmarked sites only and it shall not be kept unutilized for long. The mining activity for expanded capacity shall be carried out in such a way that prime land area may not get degraded. The topsoil shall be used for land reclamation and plantation. All the slopes of external dumps of overburden, topsoil, etc. shall be maintained at a maximum of 28 degrees.	
CTO Terms and Condition no 21	The extensive tree plantation shall be done in and around the mine lease area. The entire mined out area shall be afforested. Plantation shall also be raised along the roads, dumpsites, etc. Plant species shall be selected by consultation with local DFO/Agricultural Department. Plantation shall also be taken up for soil stabilization along the slope of the dumps. Herbs and shrubs shall also form a part of afforestation program besides tree plantation. Details of year-wise afforestation programme including rehabilitation of mined out area shall be submitted to the CECB. Industry shall obtain prior permission from competent authority to cut down trees as per requirement.	
Renewed CTO Terms and Condition no 11	Wide green belt of broad leaf local species shall be developed along the plant premises. As far as possible maximum area of open spaces shall be utilized for plantation purposes.	

### C. Health hazards and threat to life of labourers working in the mine

*Violation of specific condition number (xxii) and general condition number (vii) of Environmental Clearance and terms and condition number 20 of Consent to Operate.*

The mining operations have affected the livelihood of the villagers.<sup>15</sup> In order to secure alternate means of the same, the villagers, both tribal and non-tribal were engaged as labour in the mining operations. It was discussed during the second meeting in August 2018 that those who were working in the mine be provided with few safety gears such as helmets, gloves and shoes. However, there was very little awareness amongst the labourers regarding what was to be done with the protective gear. Thus, they did not know what to do with the earplugs or the helmets and were unaware of their importance. Consequently, none of the gear was being used.



Baiga labourers using their bare hands to crush and load the ore.

Photo credit: Screenshot from Video prepared by Mines and Communities

It was reported that workers use their bare hands to first hammer the ore into small parts and then load the mineral on to the trucks. They did not have any shoes on. Despite them not using even the most basic safety gears, they were allowed to work without any protective measures. This had also been documented in a video put together by Mines and Communities in 2016 in which the actual working conditions in the mine were juxtaposed to a video prepared by BALCO which showcased the state of the labourers working in the mine.<sup>16</sup> The actual story is what has been recorded by Mines and Communities since even in July 2018, the conditions in which the labourers were engaged in mining were far from satisfactory.

<sup>15</sup>Page 47 of The Annual Report of the Council on Ethics for The Government Pension Fund, 2007 (Available at: <https://nettsteder.regjeringen.no/etikkradet3/files/2017/02/Annual-Report-2007-1.pdf>) (Last Accessed on: 07.02.2019)

<sup>16</sup>Mines and Communities, "India's tribal slaves to stone", April 2016 (Available at: <http://www.minesandcommunities.org/article.php?a=13331>) (Last Accessed on: 07.02.2019)



A Baiga lady loading the ore on trucks without any protective gears.  
Photo credit: Screenshot from video by Mines and Communities.

With respect to providing earplugs for those who are engaged in blasting and drilling activities, in 2016, during the inspection by CAG and the Company Officials, it was observed by the audit team that no earplugs had been provided to the workers. Further, in the monitoring report of the RO of the MoEFCC dated 20.3.2017, it was observed that no data pertaining to the details of protective respiratory devices made available to the workers had been provided to the RO.<sup>17</sup> Similarly, no details were made available about the particle analysis of the dust generated and the personnel exposure monitoring of the workers to better understand and be able to prevent impacts on the health of workers.<sup>18</sup>

**Extract from “India’s tribal slaves to stone” published by Mines and Communities on 23.04.2016**

*“The labourers are collectively paid around 1,700 rupees (just under £18 at today's exchange rate) to dig and load ten tonnes of ore. They are not entitled to pensions or any other social benefits, nor do they have access to skilled emergency treatment in the event of a serious accident. There is no adequately staffed first aid post, while the Baiga must attend to the “needs of nature” in just a few flimsy latrines, or on open ground.”*

<sup>17</sup>F. No: 3-3/2004-ENV, Regional Office (Western Central Zone), MoEFCC, Nagpur dated 20.03.2017

<sup>18</sup>F. No: 3-3/2004-ENV, Regional Office (Western Central Zone), MoEFCC, Nagpur dated 20.03.2017



A picture from 2007 showing the same working conditions as in 2016. Photo Credit: Patrik Oskarsson.

This lack of attention to safety aspects by the workers strongly suggests that there is little effort to ensure training and information-sharing related to the health and safety issues. This points to violation of the conditions given below that are directly linked to worker safety measures.

Details of Conditions Violated		Supporting Evidence
Specific Condition 5.A. (xxii) of EC dated 09.04.2010	Particle analysis of the dust shall be carried and measures shall be undertaken to prevent impacts on the health of the workers. Personnel exposure monitoring for dust shall be carried out for the workers.	F. No: 3-3/2004-ENV, Regional Office (Western Central Zone), MoEFCC, Nagpur dated 20.03.2017.
General Condition 5.B. (vii) of EC dated 09.04.2010	Personnel working in dusty areas shall be provided with protective respiratory devices and they shall also be imparted adequate training and information on safety and health aspects.	Audit report by the CAG based on site inspection carried out by the CAG and company officials in May 2016. Video by Mines and Communities in April 2016
CTO Terms and Condition no 20	Workers engaged in blasting and drilling operations, operations of HEMM, etc. shall be provided with earplugs/muffs.	

## 2. Information gathered on the other issues

### A. Incomplete and improper resettlement and rehabilitation

*Violation of Specific Condition (i) of the EC dated 09.04.2010.*

The point of contention which almost restricted BALCO's expansion from 0.30 MTPA to 1.25 MTPA was the rehabilitation and resettlement of the families who were living within the mining lease area. Thereafter, the expansion was allowed with assurance by BALCO to ensure that the remaining families would be paid compensation and thereafter resettled. This is even linked to Specific Condition (i) of the EC granted on 09.04.2010, which clearly states:

*"The Company shall pay compensation for acquisition of private land and rehabilitation of displaced families at rates not less than those prescribed in the applicable Central Government/State Government norms. The Resettlement of all the affected families should be completed as per their commitment, i.e. early 2010."*

The 2011 census of Kabirdham district identifies 143 families still living in the villages of Mundadar, Keshmarda, Rabda and Semsatta.<sup>19</sup> Although the exact number of people living within the mining lease area is not known, many have chosen to remain since the process of rehabilitation and resettlement and the compensation offered has been quite below what they expected to receive.

For the ones who have been paid compensation for their lands, it has been done at a paltry rate of Rs. 1 lakh per acre and 405 square meters for building a house for those with land titles and a token Rs. 4,000 for those without land titles.<sup>20</sup> Some even reportedly got cheated of the compensation due to them by various middlemen.<sup>21</sup> Additionally, the families who have been resettled to different villages are also facing several difficulties. In Bokhrabara, for example, where some villagers have been resettled, they have not been provided ration cards in that particular area.<sup>22</sup> The ration cards still valid are those for their old villages necessitating travel for over 35 kilometres in order to collect ration.

One of reasons for the categorical rejection of a proposal for expansion in 2007 was the fact that the EAC opined that BALCO on account of being a private company should have followed a comprehensive and well designed relief and rehabilitation policy tailor-made for the affected people and the local needs.<sup>23</sup>

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<sup>19</sup>[http://censusindia.gov.in/2011census/dchb/2208\\_PART\\_B\\_DCHB\\_KABEERDHAM.pdf](http://censusindia.gov.in/2011census/dchb/2208_PART_B_DCHB_KABEERDHAM.pdf)

<sup>20</sup>Bera, S, "Baigas in Exile", Down to Earth (June 2015) (Available at: <https://www.downtoearth.org.in/coverage/mining/baigas-in-exile-38674>) (Last Accessed on: 07.02.2019)

<sup>21</sup>*Ibid.*

<sup>22</sup>Misra, S, "Tall Claim Short Supply", Down to Earth (July 2015) (Available at: <https://www.downtoearth.org.in/news/tall-claim-short-supply-4557>) (Last Accessed on: 07.02.2019)

<sup>23</sup>14th Meeting Minutes of the EAC (Mining) held on 11.10.2007 (Available at: <http://environmentclearance.nic.in/Report/minutesarchive.aspx>) (Last Accessed on: 07.02.2019)

### **Extracts from Page 47 of the Annual Report - Council on Ethics for Government Pension Fund-Global 2007:**

Concerning the mining operation, the company has been accused of having forcefully evicted tribal people without sufficient compensation to provide for their subsistence. In 2005 the villagers of Baigha tribe were driven out of their homes without due legal process and relocated to an existing community on the plains. The Baigha families were given housing built by BALCO, but had to leave farmland, crops and livestock behind. Apparently, they had to survive on half the land they once possessed.

It has been reported that twenty families were forced to move from Bodai-Daldali between April and July 2005. Chhattisgarh's Chief Minister, Raman Singh, has in this respect stated that the families' living conditions are unacceptable and that mining operations have completely devastated their homes and livelihood. He has also said that the families should be given "early and proper rehabilitation" and "sufficient and safe agricultural and housing land to compensate."

After a visit to Bodai-Daldali in March 2006, the Indian filmmaker Vinod Raja confirmed that another 30 families had suffered the same fate and were living under similar difficult conditions. These families were forced to leave the areas that originally belonged to them once the mining operations encroached on their farmland and village.

The process of R&R for the Daldali bauxite mine even led to Vedanta/BALCO being excluded from the Norwegian Government Pension Fund Global, after an initial report in 2007<sup>24</sup> and a follow-up report in 2016<sup>25</sup> by their Council on Ethics concluded that the companies were responsible for large scale violations of environmental norms and human rights. One of the issues discussed with respect to the Daldali bauxite mine specifically, was the fact that the R&R had not been done in a proper manner as was projected by Vedanta/BALCO in their reports. The report also pointed out that having a five-fold expansion of the mining operations without conducting a public hearing was in violation of the Baiga's rights to give an informed consent to the project.

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<sup>24</sup>14th Meeting Minutes of the EAC (Mining) held on 11.10.2007 (Available at: <http://environmentclearance.nic.in/Report/minutesarchive.aspx>) (Last Accessed on: 07.02.2019)

<sup>25</sup>Mines and Communities, "What Norway's Ethics Council told Vedanta" (March 2017) (Available at: <http://www.minesand-communities.org/article.php?a=13602>) (Last Accessed on: 07.02.2019)

The MoEFCC in March 2017 passed a notification that allowed projects which have violated the conditions of the Environmental Impact Assessment Notification of 2006 to apply for a post-facto environmental clearance.<sup>26</sup> Among many others, the Bodai-Daldali bauxite mine also applied for a clearance using this notification. The application lists out the violation as having exceeded the production capacity beyond the limit specified in the EC and will eventually find its way to the EAC. The proposal is to modernise the mining operating by introducing a three-shift operation with mechanised crushing and screening to replace the existing single shift operation with manual sizing and sorting. Had the clearance procedure laid down in the EIA Notification been followed, such a modernisation would have required to go through all the stages of screening, scoping, public consultation and appraisal.

Going the route of the post-facto application has allowed BALCO to bypass the aforementioned process. In light of the already poor environmental compliance record of the mine, the modernisation may severely impact the environment and the people living within the mine lease area. Additionally, many will lose their jobs. It is not yet known whether the modernisation proposal will be cleared by the EAC, but a careful and detailed appraisal will be required.

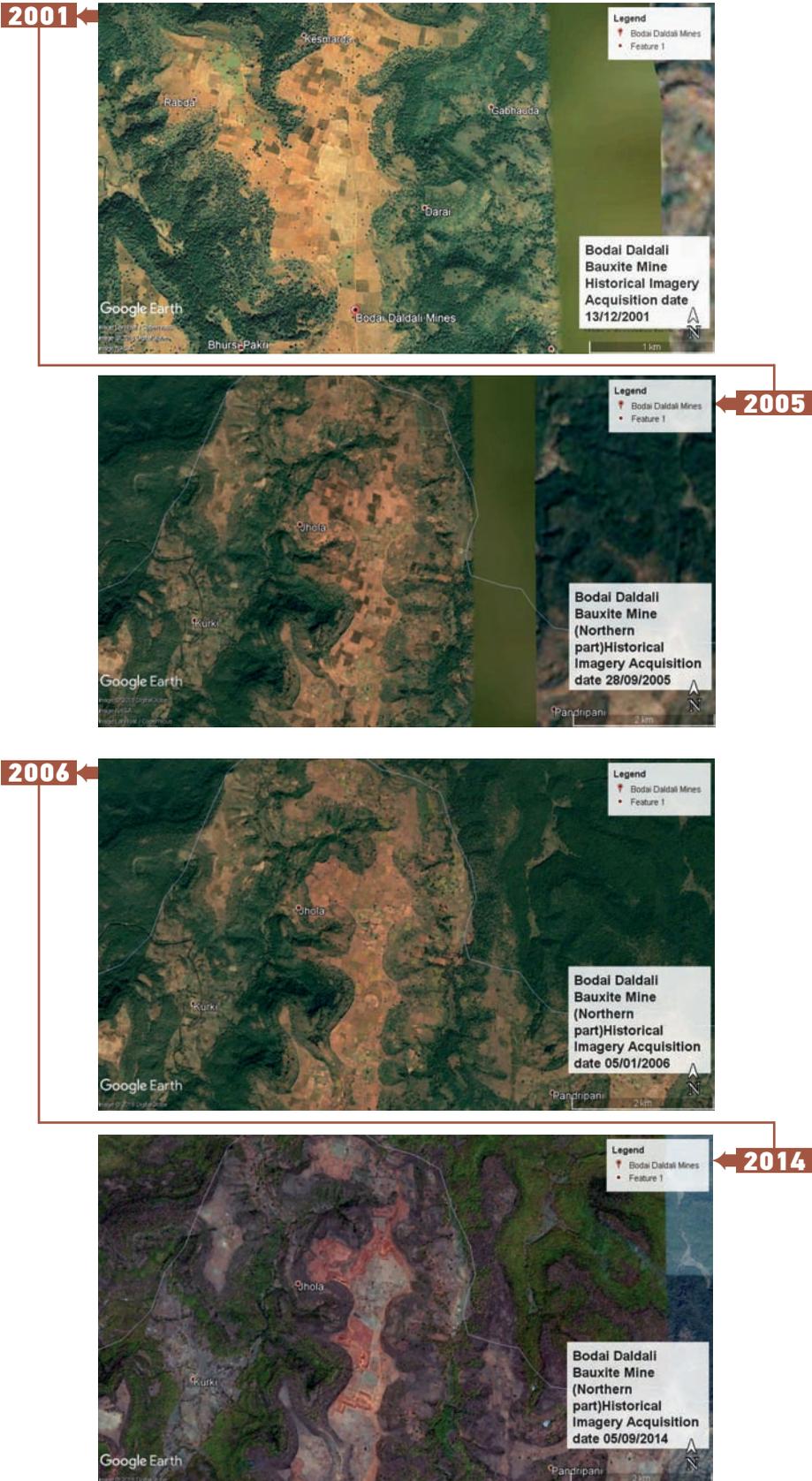
Going forward, the EAC should look into the following points of non-compliance before allowing the modernisation proposal to go through:

- Impacts of dust pollution due to transportation of uncovered trucks, blasting and drilling.
- Poor status of land reclamation and afforestation of reclaimed land.
- Blatant disregard to the health and safety of the workers engaged in mining operations.
- Incomplete and inadequate process of Rehabilitation and Resettlement.

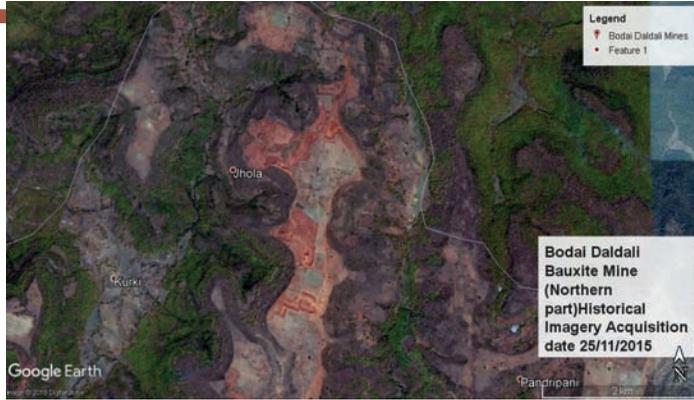
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<sup>26</sup>Dinesh, K and Kohli, K, "From Prior to Post: Legalising Environmental Violations" (2017) (Available at: <http://www.cprindia.org/research/papers/prior-post-legalising-environmental-violations>) (Last Accessed on: 07.02.2019)

# ANNEXURE 1 A: GOOGLE EARTH IMAGES MAPPING THE LAND USE CHANGE IN BODAI-DALDALI FROM 2001 TO 2018



2015



2016



2017



2018



# ANNEXURE 1 B: GOOGLE EARTH IMAGES MAPPING THE LAND USE CHANGE IN BODAI-DALDALI FROM 2001 TO 2018

**2001**



**2006**



**2014**



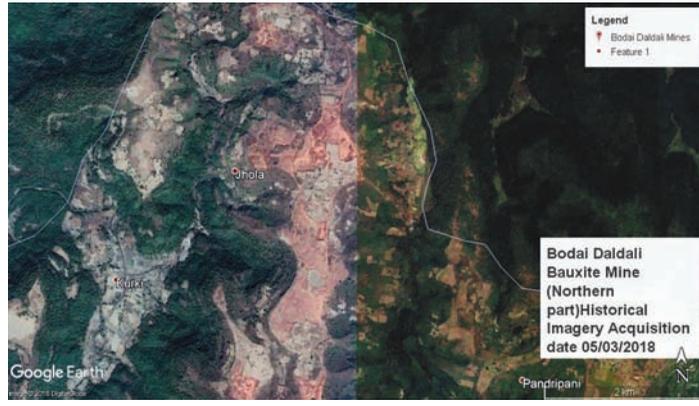
**2015**



2017



2018



## ANNEXURE 2: ENVIRONMENTAL CLEARANCE DATED 4.12.2003

No.J-11015/2/2000-IA.II(M)  
Government of India  
Ministry of Environment & Forests

Paryavaran Bhawan,  
CGO Complex, Lodi Road,  
New Delhi-110003.

Dated: 4<sup>th</sup> December 2003

To  
Shri Sandeep Gokhale,  
Director-Business Development,  
Bharat Aluminium Company Limited,  
65, Jolly Maker Chambers II,  
205, Nariman Point,  
MUMBAI- 400021.

**Sub: Opencast Bauxite Mine Project (0.3 MTPA) of M/s BALCO at village Mundadadar, Rabda, Samsatta, Kesmarda, in Bodla Tehsil, District Kawardha, Chhattisgarh- Environmental Clearance - reg.**

Si.,

This has reference to Secretary, Mines Department, Government of Madhya Pradesh's letter No. 11-26/2000/12/2 dated 09.02.2000 and your letters dated 18.02.2000, 31.03.2000, 28.03.2000, 08.05.2000, 24.07.2000, 29.09.2000, 29.09.2000, 06.02.2001, 12.03.2001, 19.04.2001, 15.05.2001, 18.06.2001, 25.05.2001, 15.05.2001, 19.05.2001, 12.06.2001, 18.06.2001, 23.08.2001, 25.06.2001, 23.08.2001, 19.09.2001, 29.09.2001, 15.10.2001, 05.12.2001, 19.12.2001, 07.12.2001, 16.01.2002, 26.02.2002, 27.02.2002, 03.05.2002, 12.06.2002, 17.06.2002, 25.07.2002, 27.09.2002, 04.03.2003, 10.07.2003, and 04.11.2003 in regard to the subject mentioned above. The Ministry of Environment and Forests has examined your application. It has been noted that the total lease area is 592.551 ha of which 303.925 ha is agricultural land, 15.277 ha is wasteland, 256.184 ha is grazing land, 7.051 ha settlement and 10.114 ha is for roads. No forestland land is involved. There is no ecologically sensitive area such as National Park, Sanctuary or Tiger Reserve existing within 10 km from project area. But the forest vegetation around the site has a corridor value; every care also needs to be taken to ensure that the proposed mining activity should in no way disturb the ecological integrity of the area. The project involves displacement of population consisting of 1302 persons from 194 households (309 families) located in five villages in the core zone. The targeted production of bauxite will be 0.3 million tonnes per annum (MTPA). No mineral beneficiation is involved. Mining will be confined to an area of 223.925 ha only. Mining will be by opencast semi-mechanised method and involves drilling and blasting in the initial stages only. Total water requirement is about 300 m<sup>3</sup>/d, which will be drawn from the Katai river. An estimated 18.152 million tonnes of waste will be generated over the life of mine, which shall be used for backfilling. Approval from IBM has been obtained on 02.06.1995. NOC has been obtained from the Madhya Pradesh State Pollution Control Board on 14.12.1999. Public Hearing was held on 15.11.1999. Capital cost of the project is Rs. 3500 lakhs.

opencast bauxite mine project of M/s BALCO of production capacity of 0.3 MTPA and involving lease area of 592.551 ha under the Environmental Impact Assessment Notification, 1994 as amended on 04.05.1994 and 10.04.1997 subject to strict compliance of the following specific and general terms and conditions:

**A. Specific Conditions**

- (i) A Consent to Operate shall be obtained from the State Pollution Control Board before commencing operations.
- (ii) No expansion of the mine should be undertaken beyond the rated capacity.
- (iii) Top soil should be stacked properly with adequate measures at earmarked sites. It should be used for reclamation and rehabilitation of the mined out areas.
- (iv) OB and other wastes should be stacked at earmarked sites only and should not be kept active for long periods of time.
- (v) Working of the mine should be confined to a depth of 10 m only below ground level.
- (vi) Check dams and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil and mineral dumps. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted and maintained.

Garland drain of appropriate size should be constructed prior to excavation operations to collect surface run-offs from the mining area, topsoil dumps, waste dumps, etc. Garland drain (size, gradient & length) and sump capacity should be designed keeping 50 % safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material.

Plantation should be taken up for soil stabilization along the slopes of the dump. Sedimentation pits should be constructed at the corners of the garland drains. The surface run-off should be desilted through a series of check dams and drains before final disposal.
- (vii) The reclamation programme for the 223.925 ha of mined out area should be implemented until the end of the life of mine. Land reclamation and backfilling should be concurrently done from the third year of operations. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests on yearly basis.
- (viii) The entire mined out area shall be afforested. Plantation should also be raised along the roads, dump sites, etc. This includes a 10m wide green belt all around the ML area and active mine area by planting native plant species in consultation with local DFO/ Agriculture Department. At least 2000 plant species/ha should be planted.
- (ix) Drills should be wet operated with dust extractors. Controlled blasting should be practised only during 1.00 to 2.00 PM in the initial phase of mining only. The

mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented. Blasting operations would be discontinued after the introduction of Ripper Dozer Technology after trials.

- x) While the mining operation is on, regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers at suitable locations at the proponent's cost in and around project area in consultation with Regional Director, CGWB, Central Region, Bhopal. Regular monitoring of surface and ground water quality should be carried out by establishing a network of stations at suitable locations in project area. The frequency of monitoring should be four times a year - pre-monsoon (April/May), monsoon (August), post-monsoon (November), and winter (January) seasons. Data generated from groundwater regime monitoring will be submitted to CGWB, Regional Office on an annual basis.
- xi) Mining activity and transportation of minerals shall be restricted to daytime only between 8.00 AM to 4.00 PM during winter and between 8. AM and 5.00 PM during the rest of the year. Speed of the trucks shall be kept below 30 km/h and regulated by the Forest Department with manned barriers apart from providing speed breakers on the 42 km stretch of road linking the site with NH-12A. At least two check posts should be provided by the State Forest Department to regulate the traffic movement on either side of the mine site, near road junction and the cost shall be borne by the project proponent.  
The minerals shall be transported in 40 Trucks (30 tonnage capacity) complying with EURO-II emission norms. Vehicular pollution shall be kept in check through proper maintenance of vehicles and compliance of vehicular emission standards.
- xii) No township/village should be fostered in the vicinity of the proposed mine site to avoid disturbances/biotic pressures to nearby forest. The project proponents should provide necessary arrangements for fuel and drinking water to the labourers deployed in mining, so that the surrounding forests are not disturbed.
- xii) Land oustees shall be compensated as per State Government norms and the R&R Plan prepared shall be implemented within the specified time-schedule. Specific funds shall be earmarked for socio-economic measures and community development schemes for the displaced people and the details shall be submitted to the Ministry within 3 months of issuance of this letter.
- xiii) A minimum of four patrolling camps shall be created by the State Forest Department below the plateau at sensitive points the costs for which shall be borne by the company. These camps shall be provided with wireless facility apart from two watchmen on daily wages in each camp for assisting the forest staff in checking/preventing poaching and other forest related offences during the mining period.
- xiv) Digital processing of the entire lease area using remote sensing techniques should be done regularly once in 3 years for monitoring land use pattern and report submitted to MOEF and its Regional Office at Bhopal.

- (xv) A detailed mine decommissioning plan should be submitted to MOEF five years in advance of approval.

**B. General Conditions**

- (i) No change in technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- (ii) No change in the calendar plan including excavation, quantum of bauxite, waste/OB dumps should be made.
- (iii) Ambient air quality monitoring stations should be established in the core zone as well as buffer zone for SPM, RPM, NO<sub>x</sub> and SO<sub>2</sub>. Location and number of the ambient air quality stations should be decided based on meteorological data, topographical features and environmentally and ecologically sensitive targets and the frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.
- (iv) Data on air quality should be regularly submitted to the Ministry including its Regional Office at Bhopal and the State Pollution Control Board/Central Pollution Control Board once in six months.
- (v) Adequate measures for control of fugitive emissions should be undertaken such as water spraying arrangements on haul roads, loading and unloading points, and transportation of minerals, etc. Fugitive dust emissions from all sources should be regularly monitored and data recorded properly.
- (vi) Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM, etc., should be provided with ear plugs/muffs.
- (vii) Industrial waste water (workshop and wastewater from the mine) and surface run-off should be properly collected, analysed and treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May 1993 and 31<sup>st</sup> December 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of effluents from the Workshop. Treated wastewaters should be recycled for mine operations.
- (viii) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.  
Occupational health surveillance programme of the workers should be undertaken periodically and corrective measures taken, if required.
- (ix) The data on environmental quality should be collected and analysed either through an in-house environmental laboratory established with adequate number and type of pollution monitoring and analysis equipment or got analysed through an approved laboratory under

the Environment (Protection) Rules, 1986 in consultation with the State Pollution Control Board.

- (x) A separate environmental management cell with suitable qualified personnel should be set up under the control of a senior executive who will report directly to the head of the organisation.
- (xi) The funds earmarked for environmental protection measures should be kept in separate account and not diverted for any other purpose. Year-wise expenditure should be reported to the Ministry of Environment & Forests.
- (xii) The project authorities should inform to the Regional Office located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (xiii) The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated environmental conditions. The project authorities should extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.
- (xiv) A copy of the clearance letter should be marked to concerned Panchayat/local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.
- (xv) The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the collector's/Tehsildar's Office for 30 days.
- (xvi) The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within 7 days of issuance of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at web site of the Ministry of Environment and forests at <http://envfor.nic.in>.

3. The Ministry or any other competent authority may stipulate any further additional condition for environmental protection.

4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance.

## ANNEXURE 3: ENVIRONMENTAL CLEARANCE DATED 09.04.2010

F.No.J-11015/37/2010- IA. II (M)  
Government of India  
Ministry of Environment & Forests

Tel no. 24363973  
E mail: [plahujarai@yahoo.com](mailto:plahujarai@yahoo.com)  
Paryavaran Bhavan, C.G.O. Complex,  
Lodi Road, New Delhi-110003  
Dated April 9, 2010

To

M/s Bharat Aluminum Company Limited  
Aluminum Sadan, Core – 6  
Scope Office Complex, 7 Lodi Road  
New Delhi-110 003

**Sub: Bodai Daldali Bauxite Mines of M/s Bharat Aluminium Company Limited located at Villages Mundadadar, Keshmarda, Rabda & Semsata, Post Daldali, Tehsil Bodla, District Kawardha, Chhattisgarh. (Enhancement of Production capacity of bauxite from 0.3 MTPA to 1.25 MTPA) Reg. Environmental Clearance**

Sir,

The undersigned is directed to refer to your communication no. BALCO/Delhi/BD/2009 dated 10.-02.2010 along with application in the form of form-1 and pre-feasibility report and subsequent communication dated 12.03.2010 along with EIA report seeking environmental clearance under the provisions of EIA Notification, 2006.

2. The Ministry of Environment and Forests has examined your application. It has been noted that the proposal is for expansion of existing Bodai-Daldali Bauxite mine from 0.3 MTPA to 1.25 MTPA in Kawardha District, Chhattisgarh. Environmental clearance for 0.3 MTPA capacity was accorded on 4.12.2003. The mine lease area is 626.117 ha. No forest land is involved. Out of 626.117 ha of mine lease area, at present, 6.0 ha is for top soil dump, 2.0 ha for water reservoir, 14 ha for road, 4.0 ha for built-up area, 37 ha for afforestation, 25 ha of backfilled area and 538 ha of undisturbed area. The area after mine closure under water reservoir will be 20 ha, 18 ha for road, 4.0 ha of built-up area, 335 ha under afforestation, 20 ha of water recharge area, 229 ha of undisturbed area. No ecologically sensitive area such as a National Park/wildlife sanctuary, wildlife corridors, tiger/elephant reserve and biosphere reserve is located within 15 km radius of the mining lease. Total mineable reserves are 5.72 MT. The mine is operating since 2004 at a capacity of 0.3 MTPA. The balance mineable reserve is 4.16 MT. Life of mine is 5 years. The proposed expansion to 1.25 MTPA will cater to the need of aluminum plant at Korba. Topography of the area is hilly. No perennial water course is present in the ML area. Mining will be carried out by opencast semi-mechanized method involving drilling and blasting. Working of the mine will be confined to a depth of 10 m bgl. Water table in the lease area is 20m to 25m bgl. Working will not intersect the ground water table. Water requirement will be 354m<sup>3</sup>/day and will be sourced from River Katai. About 14.63 Million Tonnes of over burden will be generated which will be

completely backfilled in the mined out area. Public hearing was held on 28.8.2006. IBM has approved the modified mining scheme on 25.03.2009. Cost of the project is Rs. 38.00 Crores.

3. It is also noted that the project involves resettlement of 261 families located in five Villages in the core zone. Land acquisition and compensation process through State Government has been completed. Land for resettlement sites purchased in line with project affected families' preference. About 182 project affected families have been resettled at six villages. The balance families are in process of shifting and will be resettled by May, 2010.

4. The proposal has been considered by the Expert Appraisal Committee-2 (Mining) in its meetings held during 25<sup>th</sup> – 26<sup>th</sup> March, 2010. The Committee recommended the proposal for environmental clearance. Public hearing of the project has been exempted as per Para 7 (ii) of EIA Notification, 2006.

5. Based on the information submitted by the project proponent, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification, dated 14<sup>th</sup> September 2006 subject to the compliance of the following Specific and General Conditions:

**A. Specific Conditions:**

- i. The Company shall pay compensation for acquisition of private land and rehabilitation of displaced families at rates not less than those prescribed in the applicable Central Government/State Government norms. The Resettlement of all the affected families should be completed as per their commitment, i.e. early 2010.
- ii. The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.
- iii. The Company shall collect baseline data through field survey of the existing prevalent occupational diseases in the locality and facilities shall be provided for preventive and curative measures for the same.
- iv. Need based assessment for the nearby villages shall be conducted to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs.

- v. The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.
- vi. The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations. Adequate measures shall be taken while diverting first order streams, if any, emanating from the mine lease, during the course of mining operation.
- vii. The project proponent shall take adequate environmental safeguard measures for control of rolling down of silt and sediments and protection of the catchment area of katai River during the course of mining operation.
- viii. Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and temporary OB dumps to prevent run off of water and flow of sediments directly into the Katai River and other water bodies. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted, particularly after the monsoon, and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, topsoil dump, temporary over burden dumps and mineral dumps to prevent run off of water and flow of sediments directly into the Katai River and other water bodies and sump capacity shall be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.
- ix. Dimension of the retaining wall at the toe of temporary OB dump(s) and the over burden benches within the mine to check run-off and siltation shall be based on the rainfall data.
- x. The void left unfilled shall be converted into the water body. The higher benches of the excavated void/mine pit shall be terraced and plantation done to stabilize the slopes. The slopes of higher benches shall be made gentler for easy accessibility by the local people to use the water body. Peripheral fencing shall be carried out all along the excavated area.

- xi. Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as around crushing and screening plant, loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- xii. The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- xiii. Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers in and around the project area during the beneficiation process. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office at Bhopal, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.
- xiv. Appropriate mitigative measures shall be taken to prevent pollution of the Katai River in consultation with the State Pollution Control Board.
- xv. The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water, if any) required for the project.
- xvi. Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.
- xvii. Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral within the mine lease. The mineral transportation within the mine lease shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
- xviii. Drills shall either be operated with dust extractors or equipped with water injection system.

- xix. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
- xx. Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.
- xxi. Occupational Health Cell shall be created at the company under the charge of an officer of adequate seniority who is a qualified person in occupational health.
- xxii. Particle analysis of the dust shall be carried and measures shall be undertaken to prevent impacts on the health of the workers. Personnel exposure monitoring for dust shall be carried out for the workers.
- xxiii. Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.
- xxiv. The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora and fauna spotted in the study area.
- xxv. Data on ambient air quality (PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>) shall be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months. The critical parameters such as PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, pH) and total Suspended solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the company in public domain. The circular no.J-20012/1/2006-IA.II (M) dated 2.5.2009 issued by the Ministry of Environment and Forests, which is available on the website of the Ministry [www.envfor.nic.in](http://www.envfor.nic.in) shall also be referred in this regard for its compliance.
- xxvi. Green belt development shall be done and selection of plant species shall be as per CPCB guidelines. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the Ministry within six months.

- xxvii. A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.
- xxviii. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

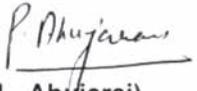
**B. General conditions:**

- i. No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forests.
- ii. No change in the calendar plan including excavation, quantum of mineral and waste shall be made.
- iii. Fugitive dust emissions from all the sources shall be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points shall be provided and properly maintained.
- iv. Ambient air quality-monitoring stations shall be established in the core zone as well as in the buffer zone for PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.
- v. Measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. shall be provided with ear plugs / muffs.
- vi. Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May, 1993 and 31<sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.
- vii. Personnel working in dusty areas shall be provided with protective respiratory devices and they shall also be imparted adequate training and information on safety and health aspects.
- viii. Provision shall be made for the housing the labourers within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

- ix. A separate Environmental Management Cell with suitable qualified personnel shall be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
- x. The project authorities shall inform to the Regional Office of the Ministry located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- xi. The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year wise expenditure shall be reported to the Ministry and its Regional Office located at Bhopal.
- xii. The Regional Office of the Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities shall extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
- xiii. The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhopal, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests, Bhopal.
- xiv. The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality, / office of Municipal Corporation/Gram Panchayat concerned and on the company's web site within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>.
- xv. A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal. The clearance letter shall also be put on the website of the company.
- xvi. State Pollution Control Board shall display a copy of the clearance letter at the Regional office, District Industries Centre and Collector's office / Tehsildar's Office for 30 days.

- xvii. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated shall be submitted to the State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and shall also be put on the website of the company along with the status of compliance of environmental clearance conditions. The same shall also be sent to the Regional Office of Ministry by e-mail.
6. The Ministry of Environment and Forests reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry. MOEF may impose additional environmental conditions or modify the existing ones, if necessary.
7. In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.
8. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
9. Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Authority Act, 1997.
10. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

Yours faithfully,

  
(Dr. P.L. Ahujarai)  
Director

## ANNEXURE 4: CONSENT TO OPERATE ISSUED UNDER THE AIR ACT



El: - 46 /Durg/10  
Date: - 29/9/2010

**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**  
**1-Tilak Nagar, Shiv Mandir Chowk, Main Road,**  
**Awanti Vihar, Raipur (C.G.) 492 006**

No. 3801 /TS/CECB/2010

Raipur, dated: 29/9/2010

To,

M/s Bharat Aluminum Company Limited,  
(Kesmarda, Rabda, Semsata, Mundadadar Bauxite Ore Mine)  
Village- Kesmarda, Rabda, Semsata, Mundadadar,  
Tehsil – Bodla,  
District -Kabirdham (C.G.)

Sub: - Grant of consent under section 21 of the Air (Prevention and Control of Pollution) Act, 1981.

- Ref: - 1 No Objection Certificate for obtaining Environmental Clearance from Government of India for expansion in existing Kesmarda, Rabda, Semsata, Mundadadar bauxite ore mine from 3.0 lakh tonnes per Year to 12.5 lakh tonnes per year issued vide letter no. 6554/TS/Chhattisgarh Environment Conservation Board/2006 Raipur dated 28.12.2006.
2. Environmental Clearance issued by Ministry of Environment and Forests, Government of India vide letter no. J-11015/37/2010-IA.II (M), dated 09/04/2010.
  3. Permission to Establish issued by, Chhattisgarh Environment Conservation Board, Raipur, vide Letter No. 1897/TS/CECB/2010 Raipur, dated: 29/06/2010 for expansion of existing Bauxite Mine – 03 Lakh Tonnes per Year to 12.5 Lakh Tonnes Per Year.
  4. Your application no. BALCO/ENV/10/A-04(D)228, Dated: 10/07/2010.

--: 00 :--

With reference to your above application, consent is hereby granted for a period of one year from the first day of the month of commissioning of the mining activities with expanded capacity subject to the fulfillment of the following terms and conditions: -

This consent is valid for following products & production capacity: -

Name of Product	Production Capacity
Bauxite	12.5 Lakh Tonnes Per Year (Twelve Point Five Lakh Tonnes per Year)

- Note :-** 1. This consent is granted without prejudice to the court case, if any pending in the Court of Law and in no way to be taken as a measure of proof that industry has not violated any related pollution laws at any time in the past. Hence whatsoever may be decision of Hon'ble Court, shall be binding on the industry and this Board.
2. This production capacity is inclusive of existing bauxite mining of capacity 3.0 Lakhs Tonnes/Year for which consent under section 21 of the Air (Prevention and Control of Pollution) Act 1981 and has been granted by Chhattisgarh Environment Conservation Board, Raipur vide letter dated 05/05/2004. The consent granted under section 21 of the Air (Prevention and Control of Pollution) Act 1981 for existing bauxite mining of capacity 3.0 Lakhs Tonnes/Year shall be treated as cancelled with effect from the first day of the month of commissioning of the mining activities with expanded capacity.

**Terms & Conditions: -**

1. Industry shall adhere to the stipulations incorporated in the environmental clearance issued by the Ministry of Environment and Forests, Government of India vide letter no. J-11015/37/2010-IA.II (M), dated 09/04/2010.
2. As per approval accorded by Ministry of Environment and Forests, Government of India, total mine lease area shall not exceed 592.551 hectares at Village - Kesmarda, Rabda, Semsata, Mundadadar, Tehsil - Bodla, District - Kawardha for bauxite mining after expansion.
3. Industry shall submit the mining plan approved by Nagpur Regional Office, Indian Bureau of Mines, Ministry of Mines, Government of India for enhancement in the mining of bauxite ore from 3.0 lakh tonnes per year to 12.5 lakh tonnes per year within one month.
4. Industry shall install adequate and effective air pollution control equipments at all point sources of dust emission due to expansion of mining activities, so as to achieve limit of particulate matter 50 Mg/Nm<sup>3</sup> (Fifty Milligram/Normal Cubic Meter) (if any). Industry shall provide adequate and effective air pollution control arrangements to control the fugitive emission during material handling, drilling & blasting operations, loading/un-loading of bauxite over burden etc. and other mining activities. Industry shall not install material handling plant, re-sizing plant, screening plant, crushing plant and ore washing plant etc. for expanded capacity. The height of stack if any shall not be less than 30 meters.
5. Industry shall install separate electric metering arrangement with time totalizer for the running of pollution control devices (if any). This arrangement shall be made in such a fashion that any non-functioning of pollution control device(s) shall immediately stop the production and shall remain tripped till the pollution control device/devices are made

functional again/rectified to achieve the desired efficiency. The record of electricity and chemical consumption for running the pollution control equipments shall be submitted to Board regularly. A separate log -book shall be maintained for this purpose.

- i. Regular Water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of  $PM_{10}$  &  $PM_{2.5}$  such as around loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads.
- f. Drills shall either be operated with dust extractors or equipped with water injection system.
- h. Mineral, over burden, reject etc. handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points shall also have efficient dust control arrangements. These should be properly maintained and operated. Fugitive dust emissions from all sources shall be regularly monitored and data recorded properly.
- l. The ambient air quality within the mining lease area shall be kept less than the standards prescribed by Board published in Gazette Notification dated 25/03/88.
0. Industry shall ensure the ground level concentration of pollutants within standard prescribed for residential, rural etc. areas in the nearby residential/rural etc. areas due to commissioning of the mining activity with expanded capacity. Minimum four number of ambient air quality monitoring stations shall be established in the impact zone, core zone, buffer zone, peak particle velocity at 300 m distance or within the nearest habitation whichever is closer for  $PM_{10}$  and  $PM_{2.5}$ ,  $NO_x$ , CO and  $SO_2$ . Location shall be decided based on meteorological data, topographical features and environmentally and ecologically sensitive targets and the frequency of monitoring shall be undertaken in consultation with the Chhattisgarh Environment Conservation Board.
1. Industry shall submit stack (if any) and ambient air quality monitoring reports to the Board regularly every month. Industry shall setup laboratory facility for collection and analysis of environmental samples under the supervision of competent technical personnel.
2. Vehicular emissions shall be kept under and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mining within the mine lease. The mineral, over burden, reject etc. transportation within the mine lease shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
3. Industry shall install separate electric metering arrangement with time totalizer for the running of pollution control devices (if any). This arrangement shall be made in such a fashion that any non-functioning of pollution control device(s) shall immediately stop the production and shall remain tripped till the pollution control device/devices are made

- functional again/rectified to achieve the desired efficiency. The record of electricity and chemical consumption for running the pollution control equipments shall be submitted to Board regularly. A separate log -book shall be maintained for this purpose.
4. Industry shall adopt good house keeping practices. All the internal roads shall be made pucca.
  5. The solid wastes generated during mining operations shall be disposed off by proper, safe and scientific methods for reclamation and rehabilitation of the mined out areas to avoid any possible pollution/nuisance. Topsoil shall be stacked properly with adequate measures at earmarked sites. It shall be used for reclamation and rehabilitation of the mined out areas. Over burden and other wastes shall be stacked at earmarked sites only and shall not be kept active for long periods of time. Inactive overburden dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface runoff. No over burden or loose sediments shall be kept in working benches particularly during monsoon months. Working of the mine shall be confined to a depth of maximum 10 to 12 meters below present surface level. Dimension of the retaining wall at the toe of temporary OB dump(s) and the over burden benches within the mine to check run-off and siltation shall be based on the rainfall data.
  6. Reclamation programmes for the mined out area shall be implemented until the end of the life of mine. Land reclamation and backfilling shall be concurrently done. Plantation of native and fruit bearing plants and tree species shall be taken up for soil stabilization and for reclamation of the mined out area. Monitoring and management of rehabilitated areas shall continue until the vegetative becomes self-sustaining. Industry shall carry out reclamation activities of mined out area in such a fashion that after reclamation the land use shall be maintained to original state. The top soil shall temporarily be stored at earmarked site(s) only and it shall not be kept unutilized for long. The mining activity for expanded capacity shall be carried out in such a way so that prime land area may not get degraded. The topsoil shall be used for land reclamation and plantation. All the slope of external dumps of over burden, topsoil etc. shall be maintained at a maximum of 28 degree.
  17. Industry shall take effective steps to check the soil erosion from topsoil dump/over burden dump/waste material dump etc. Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and temporary OB dumps to prevent run off of water and flow of sediments directly into the Katai River and other water bodies. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly de-silted and maintained. The drains shall be regularly desalted, particularly after the monsoon, and maintained properly.
  18. Industry shall use fly ash bricks, fly ash blocks or fly ash based products for their construction/repairing activities. As far as possible industry

shall also utilize fly ash for filling low lying within premises and mined out areas.

3. Industry shall ensure to protect open cast mine area with proper fencing to prevent unauthorized entry.
4. Industry shall take due precaution and appropriate measures to arrest and minimize vibration and noise effects during mining and allied activities after expansion activities. The noise level within the mine lease area shall be maintained less than 75 dB(A) during the day time and 70 dB(A) during the night time. Adequate measures shall be taken for control of noise levels below 85 dB(A) in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM etc. shall be provided with ear plugs/muffs.
1. The extensive tree plantation shall be done in and around mine lease area. The entire mined out area shall be afforested. Plantation shall also be raised along the roads, dumpsites etc. Plant species shall be selected by consultation with local DFO/Agriculture Department. Plantation shall also be taken up for soil stabilization along the slopes of the dumps. Herbs and Shrubs shall also form a part afforestation programme besides tree plantation. Details year wise afforestation programme including rehabilitation of mined out area shall be submitted to the Chhattisgarh Environment Conservation Board. Industry shall obtain prior permission from competent authority to cut down trees as per requirement.
2. Regular monitoring of subsidence movement on the surface over working area and impact on water bodies/vegetation/structures/surrounding shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.
- 23 Adequate measure for safety shall be provided for storage, handling and use of explosives during the project period for expanded activities.
- 24 Industry shall submit Environment Statement to this Board as per provision of Environment (Protection) amendment Rule, 1993 for the previous year ending 31st March on or before 30th September every year.
- 25 Industry shall establish an environmental management cell to carryout function relating to environmental management under the supervision of senior executive who will directly report to the head of organization.
- 26 Necessary funds shall be provided for implementation of the above conditions for environmental safeguards. The funds earmarked for environmental protection measures shall be kept in separate account and not diverted for any other purpose.
- 2 Industry shall provide separate fund for eco-development/community development in and around the project area as per direction of Central

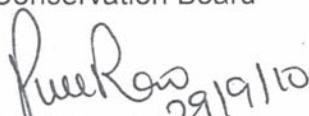
Government/Central Pollution Control Board/State Government /Chhattisgarh Environment Conservation Board.

28. Industry shall obtain statutory clearances/licenses from concerned Central/State Government Departments, Boards, Bodies and Corporations etc. for expansion in mining. Industry shall follow direction issued by Central/State Government, Central Pollution Control Board/Chhattisgarh Environment Conservation Board from time to time regarding control of water & air pollution and for environmental conservation.
29. The issuance of 'Consent to Operate' does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State or local laws or regulations.
30. Any change in production capacity, process, project profile etc. shall be intimated to the Board and prior permission of the Board shall be obtained for the same.
31. Board may amend/cancel any of the conditions stringent the effluent/emission limit and add new conditions as and when deemed necessary in the interest of environmental protection, change in the project profile or non-satisfactory implementation of the stipulated conditions etc.

This consent is valid for the stated period and has to be renewed every year. Application with annual license fee in this regard shall reach the office 4 months before the expiry of this consent.

Please acknowledge the receipt of this letter.

For & on behalf of  
Chhattisgarh Environment Conservation Board

  
Member Secretary

Chhattisgarh Environment Conservation Board

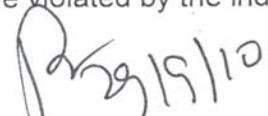
~ Raipur (C.G.)

Raipur, dated: 29/9/2010

It. No. 3802/TS/CECB/2010

Copy to: -

Regional Officer, Regional Office, Chhattisgarh Environment Conservation Board, Bhilai-Durg (C.G.). Please ensure compliance and report, if any condition/conditions are violated by the industry.

  
Member Secretary

Chhattisgarh Environment Conservation Board

~ Raipur (C.G.)

## ANNEXURE 5: SITE INSPECTION REPORT FOR BODAI-DALDALI DATED 20TH MARCH 2017



भारत सरकार  
GOVERNMENT OF INDIA  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय  
MINISTRY OF ENVIRONMENT, FORESTS  
& CLIMATE CHANGE

Regional Office (WCZ)  
Ground Floor, East Wing  
New Secretariat Building  
Civil Lines, Nagpur - 440001  
[apccfcentral-ngp-mef@gov.in](mailto:apccfcentral-ngp-mef@gov.in)

F. No: 3-3/2004-ENV

Dated: March 20<sup>th</sup>, 2017

To

The Scientist 'E'  
IA Division (Coal Mining),  
Ministry of Environment, Forest & Climate Change  
Vayu Wing, 3rd Floor, Indira Paryavaran Bhawan,  
Aliganj, Jorbagh Road,  
New Delhi-110003

(Kind Attention: Shri S. K. Srivastava)

**Sub: A report on the status of compliance of conditions stipulated in the environment clearance dated 9.04.2010 accorded by the MoEF&CC, New Delhi in respect of Bodai Daldali Bauxite Mines of M/S BALCO in Kawardha District in the State of Chhattisgarh – regarding.**

**Ref: Project Proponent's letter no. BALCO.ENVT/A-04©/423 dated 26.11.2016.**

Sir,

I am directed to refer to the above subject and letter under reference above wherein the Project Proponent has requested the Regional Office to conduct a site visit to monitor the status of compliance of conditions stipulated in the environment clearance dated 9.04.2010. In this connection, it is to inform that a visit for the monitoring of compliance of conditions stipulated in the environment clearance dated 9.04.2010 has been conducted by the Scientist-'C' of the Regional Office, on 18.01.2017. Major findings during the monitoring are given as under:

### **Specific conditions complied with partially by the PP**

- i. Condition no. (vii) & (viii) Management of soil conservation measures was observed to be poor and needs to be strengthened. Garland drains needs to be maintained and de-silted as the same was not observed to be conspicuously visible.
- ii. Condition no. (xvii) - It was observed that transportation of ore with covered truck is not followed as uncovered trucks transporting the mineral were observed during the inspection.
- iii. Condition no. (xx) - The PP has constructed a STP for the colony. No ETP Plant has been constructed by PP. The PP has informed that they do not own a garage in the lease premises and all vehicles for the transportation of ore have been engaged on hired basis. The condition may accordingly be reviewed by the MoEF&CC, New Delhi.
- iv. Condition no. (xxv)- Web link of the PP's company i.e. <http://balcoindia.com/sustainability/pdf/MainpatMines.pdf> at as accessed on 24.02.2017 at 1836 Hrs revealed that regular updating of the data on the website of the company is not being done by the PP. The AAQ reports uploaded on the website pertains to the May 2016. No display board was observed on the project site.

- v. Condition no. (xxvii)- The PP has mentioned that they are making study for using the low grade bauxite, which is available in good quantity in their mine, thus mine life will be extended and accordingly final mine closure plan will be submitted two year before to closure of mines.

**General conditions complied with partially by the PP**

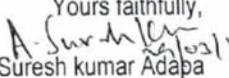
- i. Condition no. (ii)- The PP has effected slight changes in the mine closure plan in view of the fact that during December 2012 to July 2013 Alumina Refinery of PP was under temporary suspension.
- ii. Condition no. (vii) - Detail of protective respiratory devices provided by the PP has not been available to the Regional Office.
- iii. Condition no. (xiii) - Web link of the PP's company i.e. <http://balcoindia.com/sustainability/pdf/MainpatMines.pdf> at as accessed on 24.02.2017 at 1836 Hrs revealed that six monthly compliance reports are not being uploaded on the website of the PP.

**Specific conditions not complied with by the PP**

- i. Condition no. (x), (xii) and (xvi), (xix) - No water body created from the void left after the mining, in observed in the lease. However, it is also observed that PP has constructed a water reservoir to store water which was observed to be without water. It is also observed that mining lease of the PP is situated on elevated plateau where mining operations are confined up a depth of 8 meters from the earth surface. After mining, the natural original topography is restored by reclamation i.e. no void for water storage is kept in the lease area. Aforementioned facts, coupled with scanty rainfall and pervious soil texture (with almost nil water retention capacity), the water collected during rainfall infiltrate soon. The PP has also stated that water in the reservoir created lasts only during raining season. The condition may accordingly be reviewed by the MoEF&CC, New Delhi.
- ii. Condition no. (xxii)- No detail pertaining to the analysis was made available by the PP.

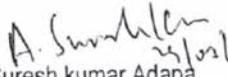
This issues with the approval of the Addl. PCCF (Central), Regional Office (West Central Zone MoEF&CC, Nagpur).

**Encl: as above**

Yours faithfully,  
  
Suresh kumar Adapa  
Scientist-"D"

**Copy to:**

1. Director RO HQ, Ministry of Environment, Forest & Climate Change, Government of India, 1st Floor Agni Wing, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi- 110 003.
2. Member Secretary, State Level Environment Impact Assessment Authority & Secretary, Housing and Environment Department, Government of Chhattisgarh, Mantralay Mahanadi Bhavan, New Raipur, Chhattisgarh
3. Director (Monitoring Cell), Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Aliganj, Jorbagh Road, New Delhi-110003
4. Head –HSE, Bharat Aluminium Co Ltd, Balco Nagar, Korba, Chhattisgarh – 495684
5. Guard File.

  
Suresh kumar Adapa  
Scientist-"D"





### **About Janabhivyakti**

Janabhivyakti is a registered NGO working on social and environment justice issues in Chhattisgarh. It is also part of the Chhattisgarh Bachao Andolan (CBA), a network of social movements and people's organisations in the state.

### **About Centre for Policy Research (CPR)**

The Centre for Policy Research (CPR) has been one of India's leading public policy think tanks since 1973. The Centre is a nonprofit, independent institution dedicated to conducting research that contributes to a more robust public discourse about the structures and processes that shape life in India.

[www.cprindia.org](http://www.cprindia.org)

### **About Oxfam India**

Oxfam India, a fully independent Indian organisation, is a member of an international confederation of 20 organisations. The Oxfams are right based Organisations, which fight poverty and injustice by linking grass root interventions to local, national and global policy developments.

[www.oxfamindia.org](http://www.oxfamindia.org)

## **CLOSING THE ENFORCEMENT GAP: GROUNDTRUTHING OF ENVIRONMENTAL VIOLATIONS IN BODAI-DALDALI, CHHATTISGARH**

Closing the Enforcement Gap: Groundtruthing of Environmental Violations in Bodai-Daldali, Chhattisgarh, highlights a groundtruthing exercise in relation to the operations carried out in BALCO's Bodai-Daldali Bauxite mine in Kabirdham, Chhattisgarh. Through the process of groundtruthing, discussions about the impacts faced by the people living around the project area were carried out and the conditions which have been placed on the project under the environmental regulatory framework was studied. Issues were identified based on impacts arising out of non-compliance, but on ground evidence could not be collected due to accessibility constraints to the area. The document thus draws on secondary sources in order to explain the several issues of non-compliance with regard to the project.

Although this groundtruthing study could not be community-led, more on community-led groundtruthing studies are as follows:

Closing the Enforcement Gap: Findings of a Community-led Groundtruthing of Environmental Violations in Mundra, Kutch

Closing the Enforcement Gap: Findings of a Community-Led Groundtruthing study of Environmental Violations in Sundergarh, Odisha

Closing the Enforcement Gap: Findings of a Community-Led Groundtruthing study of Environmental Violations in Mormugao, Goa

Closing the Enforcement Gap: Findings of a Community-led Groundtruthing of Environmental Violations in Sarguja, Chhattisgarh.

Around the Landfill Sites: A Groundtruthing of Solid Waste Management Law Across Landfill Sites in Coastal Areas of Uttara Kannada District, Karnataka