



HIL/SAM/MOEF/S/39/2015

20.5.2015

To,  
**The Addl. Principal Chief Conservator of Forest (Central),**  
**MoEF Regional Office (Western Zone)**  
Kendriya Paryavaran Bhawan, Link Road-3, Ravisankar Nagar  
Bhopal-462016 (M P)

**Sub:-** Status of compliance of EC condition (Half yearly status of compliance report) Samri Bauxite Mine (Lease area- 2146.746 Ha.) of Hindalco Industries Limited of Chhattisgarh state from October-2014 to March-2015.

Ref No:- Environment Clearance Letter No-J-11015/353/2007-IA. II(M) dated July 27, 2007

**Dear Sir,**

We do hereby submit half yearly status of EC compliance with respect of Samri Bauxite Mine, Lease area -2146.746 Ha, of Hindalco Industries Limited, located in Balrampur- Ramanujganj district of Chhattisgarh state from October-2014 to Mar-2015.

We assure that we comply all the conditions laid down in the consent letter and also abide to follow all the Rules and Regulations.

Thanking you,

Yours' faithfully

For, Hindalco Industries Limited

  
(M. K. Nayak)

Agent of Mines

Encl:-

1. Half Yearly Status of compliance of Environment condition as annexure-I.
2. Copy of Diversion of Revenue Forest Land enclosed as annexure -II.
3. January-2015 to March-2015, Environment Status Report enclosed as annexure -III
4. Renewal copy of Consent to Operate from CECB enclosed as annexure -IV
5. Yearly Production report enclosed as annex-V.
6. Status report of mined out, reclaimed and afforested land as annexure-VI.
7. Actual expenditure incurred in environment measure from April-14 to March-15 as annex-VII.

**HINDALCO INDUSTRIES LIMITED**

Samri Mines Division, Baba Chowk  
At & Post - Kusmi, PIN : 497 224,  
Distt. - Balrampur-Ramanujganj (CG), INDIA  
Telephone + 91 7778 274326-27,  
FAX + 91 7778 274325

**REGISTERED OFFICE**

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Dr. Annie Besant Road,  
Worli, Mumbai 400 030  
Telephone +91 22 6662 6666.

**Website**

[www.hindalco.com](http://www.hindalco.com)

**E mail**

[hindalco@adityabirla.com](mailto:hindalco@adityabirla.com)

Corporate Identity No- L27020MH1958PLC011238.

18.5.2015


**Status of Compliance from October-2014 to March-2015 of Environmental  
Condition laid down by MOEF**

**Samri Bauxite Mine**

The status of compliance of the conditions (as per point no.4) with reference to, environment clearance letter no.J-11015/353/2007-IA. II(M) dated 27.07.07 of Ministry of Environment & Forests, New Delhi, to maintain production capacity of Samri Bauxite Mine is as under.

**A Specific condition:-**

- (i) The wild life management plan has been approved.- Annexure-A
- (ii) We accept the condition.
- (iii) The conservation plan for schedule I fauna have been prepared. Annexure-B
- (iv) The report has been submitted to ministry. The rehabilitation of land ousters are not involved in the project.
- (v) Top soil and solid waste is being utilized for simultaneous back filling of mined out area for reclamation purpose and practice is followed.
- (vi) OB is being stacked at earmark location and slope of dump is maintained less than 28 degree/ Overburden is concurrently reclaimed in the mined out area. All protective measure such as reclaiming walls, bunds are being taken to prevent erosion of soil.
- (vii) Garland drains have been made around the active mining pits coupled with arrester to arrest silt from soil and dumps are maintained.
- (viii) The slope of bench as per provision of approved mining scheme is being maintained.
- (ix) Wet drilling and dust extractors are being used during drilling operations.
- (x) The plantation in reclaimed area is carried out as per plan and being carried out as suggested. The density is being maintained about 2500 plant per hectare with the species like Karanj, accasia, mango, babul, Pears, Jamun, Amla & guava etc. Social forestry is also being encouraged among the local villagers.

  
**(M. K. Nayak)**  
**Agent of mines**  
**Samri mines Division**  
**Hindalco Industries Ltd**

The ground water table does not intersect our mining operation because of shallow depth of mining.

- (xi) Regular monitoring of ground water quality is being carried out. The analysis reports are being submitted to Regional Office, CECB, Ambikapur.
- (xii) If required, the permission will be taken from competent authority.
- (xiii) Regular and periodic maintenance of HEMM is being carried out for control of vehicular emission in mines area. The bauxite ore are transported in trucks with tarpaulin cover.
- (xiv) We accept the condition.

**(B) General Condition.**

- (i) No change in mining technology and scope of working will be done without approval of MOEF New Delhi.
- (ii) Calendar plan will be followed and there will not be any change in calendar plan.
- (iii) The suggestion of local forest department will be implemented for conservation of flora and fauna in and around lease hold area.
- (iv) Ambient Air quality monitoring is being carried out as per guideline and will be followed.
- (v) Data of ambient air quality (RPM, SPM, SO<sub>2</sub>, Nox) are being submitted to CECB and will be submitted as per guidelines.
- (vi) Fugitive dust emission from generating sources is being controlled. The dust extractor, wet drilling, regular water spraying with 12 KL water tanker in the mine lease hold area is being carried out regularly.
- (vii) The noise level in working area being maintained below the limit prescribed and will be maintained. The operators of HEMM are being provided earplug/muffs. The proper maintenance of HEMM is being carried out to control noise emission
- (viii) No waste water is generated from the mine however as suggested measures will be taken if required.



- (ix) All workers have provided personal protective equipment and training are also being imparted to them for safety & health in our Group vocational training centre – Samri and will be continued as per guidelines.
- (x) Periodical and Initial medical examination of all workers are being carried out as per provision of Mines Act.
- (xi) Environment cell is already in place at Samri Mines Division headed by GM (Mines) and comprises of suitable qualified persons.
- (xii) In case of final closure of mine the information will be submitted to Regional Office, Ministry of Environment & Forests, Bhopal.
- (xiii) Adequate fund provision is already earmarked for environmental protection measures and will not be diverted to other purpose. The year wise expenditure will be submitted to concern authorities as per guidelines.
- (xiv) The same information is being intimated to Regional Office, Ministry of Environment & Forests, Bhopal.
- (xv) All cooperation is being extended to regulatory authorities and will be extended as earlier.
- (xvi) Although no suggestion/representation has been received by any Panchayat/Local NGO while processing the proposal. However we have forwarded the copy of clearance letter to Panchayat in our area. The copy of same has been already submitted to your good office.
- (xvii) The copy has been displayed by CECB in Balrampur Collectorate.
- (xviii) The information regarding environment clearance has been published in two local new papers namely Hari Bhumi & Ambika Vani. The copy of same has been already submitted to your good office.

Hope the above compliance will be found in order.

**Yours truly,**

(For Hindalco Industries Limited)



**(M K Nayak)**  
**Agent of Mines.**  
Encl. As Above

**(M. K. Nayak)**  
**Agent of mines**  
**Samri mines Division**  
**Hindalco Industries Ltd**

कार्यालय प्रधान मुख्य वन संरक्षक (वन्यप्राणी प्रबंधन एवं जैव विविधता  
संरक्षण सह मुख्य वन्यप्राणी अभिरक्षक), छत्तीसगढ़

अरण्य भवन, मेडिकल कॉलेज रोड, रायपुर

ईमेल - pccfwl@sify.com

(Ph 0771-2552228, Fax 0771-2552227)

क्रमांक/व.प्रा./प्रबंध-12/13/2967

रायपुर दिनांक 07/10/2013

प्रति,

- संचालक,  
इन्वायरनमेंट क्लियरेंस सेल  
भारत सरकार, वन एवं पर्यावरण मंत्रालय,  
पर्यावरण भवन, सी.जी.ओ. काम्प्लेक्स,  
लोधी रोड, नई दिल्ली-111003

विषय :- छत्तीसगढ़ के बलरामपुर जिले (तत्कालीन सरगुजा जिला) में स्थित सामरी बॉक्साइट माईन्स, कुदाग बॉक्साइट माईन्स एवं टाटीझरिया बॉक्साइट माईन्स की क्षमता बढ़ाये हेतु इन्वायरनमेंट क्लियरेंस।

- संदर्भ:-
1. पर्यावरण व वन मंत्रालय, भारत सरकार का पत्र क्रमांक J-11015/353/2007-IA.II(M) दिनांक 27 जुलाई 2007.
  2. पर्यावरण व वन मंत्रालय, भारत सरकार का पत्र क्रमांक J-11015/<sup>354</sup>~~337~~/2007-IA.II(M) दिनांक 27 जुलाई 2007.
  3. पर्यावरण व वन मंत्रालय, भारत सरकार का पत्र क्रमांक J-11015/337/2007-IA.II(M) दिनांक 9 अगस्त 2007.

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कृपया आपके उपरोक्त संदर्भित पत्रों का अवलोकन करने का कष्ट करें। जिसके द्वारा बलरामपुर जिले (पुराने सरगुजा जिले) के सामरी बॉक्साइट खुली खदान (1 LTPA) की क्षमता बढ़ाकर (5LTPA) करने, कुदाग बॉक्साइट खदान (0.4 LTPA) की क्षमता बढ़ाकर (0.6 LTPA) करने तथा टाटीझरिया बॉक्साइट खदान (0.5 TPA) की क्षमता बढ़ाकर (4 TPA) करने के परियोजना प्रस्ताव के संबंध में वन्य प्राणी (संरक्षण) अधिनियम, 1972 के तहत अनुसूची-1 के वन्यप्राणियों हेतु "वन्य प्राणी संरक्षण व प्रबंधन योजना" तैयार की जाकर इस कार्यालय की सहमति दिये जाने का लेख किया है।

1. विषयांकित परियोजना हेतु खदान के लीज के अनुबंध दिसंबर 1996 एवं जून 1998 में हस्ताक्षरित हुये थे। सामरी क्षेत्र में भारत सरकार पर्यावरण व वन मंत्रालय के आदेश क्रमांक J-11015/353/2007-IA.II/M दिनांक 27 जुलाई, 2007 द्वारा 2146.746 हे. में, कुदाग क्षेत्र में भारत सरकार पर्यावरण व वन मंत्रालय आदेश क्रमांक J-11015/354/2007-IA.II/M दिनांक 27 जुलाई 2007 द्वारा 377.116 हे. में, तथा टाटीझरिया में भारत सरकार पर्यावरण व वन मंत्रालय के आदेश क्रमांक J-11015/337/2007-IA.II/M दिनांक 9 अगस्त 2007 द्वारा 1218.762 हे. में बॉक्साइट खनन की स्वीकृति प्राप्त कर संस्था द्वारा खनन का कार्य किया जा रहा है।



2. वर्तमान प्रस्ताव में उपरोक्त स्वीकृत खादानों की क्षमता सामग्री के लिये 1.0 LPTA से बढ़ाकर 5.0 LPTA किया जाना, कुदाग के लिये 0.4 LPTA से बढ़ाकर 0.6 LPTA किया जाना एवं टाटीझरिया के लिये 50,000 TPA से बढ़ाकर 4,00,000 TPA किया जाना प्रस्तावित है। भारत सरकार पर्यावरण व वन मंत्रालय के द्वारा उपरोक्त वृद्धि हेतु प्रथम चरण की स्वीकृति क्रमशः आदेश क्रमांक J-11015/353/2007-IA.II/M दिनांक 27 जुलाई 2007, J-11015/354/2007-IA.II/M दिनांक 27 जुलाई 2007 एवं J-11015/337/2007-IA.II/M दिनांक 9 अगस्त 2007 द्वारा कुछ शर्तों के साथ दी गई है, जिसमें एक महत्वपूर्ण शर्त यह भी उल्लेखित है कि संबंधित क्षेत्र में वन्य प्राणी (संरक्षण) अधिनियम के शेड्यूल 1 के पाये जाने वाले वन्य प्राणियों के संरक्षण हेतु प्रबंध योजना तैयार की जाकर राज्य के मुख्य वन्य जीव अभिरक्षक के अभिमत सहित प्रस्तुत किया जाये। जिसके पालन में संस्था द्वारा एक वन्य प्राणी संरक्षण योजना तैयार की गयी है।
3. खनन क्षमता बढ़ाने से संबंधित प्रस्तावित तीनों ही परियोजनाओं के एक दूसरे से 4 कि.मी. की परिधि में स्थित होने एवं सभी के बफर क्षेत्र ओवरलैपिंग होने के कारण सभी के लिये संयुक्त रूप से वन्य प्राणी संरक्षण व प्रबंधन योजना तैयार की जाकर महाप्रबंधक, (खादान), हिन्डालका इन्डस्ट्रीज के पत्र क्रमांक HIL/SAM/300/2013 दिनांक 2.03.2013 द्वारा प्रस्तुत किया गया है जिसका समग्र रूप से परीक्षण किया गया। प्रस्तावित परियोजनाओं के कोर क्षेत्र से 10 कि.मी. की परिधि में आने वाले ओवरलैपिंग बफर क्षेत्र में वन्य प्राणियों एवं उपलब्ध वनस्पतियों का सर्वे किया जाकर पाये गये स्पेसिज को परियोजना प्रस्ताव में अनेक्सर-4 के में उल्लेखित किया गया है।
4. उल्लेखित सूचि में वन्य प्राणी (संरक्षण) अधिनियम के शेड्यूल 1 के वन्य प्राणी नहीं पाये गये हैं। परंतु इस कार्यालय द्वारा वन संरक्षक (वन्य प्राणी), सरगुजा से विगत दस वर्षों में वन्य प्राणियों द्वारा की गई क्षति की जानकारी चाही गयी। वन संरक्षक ने अपने पत्र क्रमांक 749 दिनांक 24.05.2012 से यह जानकारी उपलब्ध कराया है कि उक्त क्षेत्र में हाथियों का वर्ष 2005 में दो बार, वर्ष 2006 में आठ बार, 2007 में एक बार, 2008 में दो बार, 2009 में सात बार आना जाना हुआ है। इसी प्रकार भालुओं के द्वारा वर्ष 2007-08 में आठ, वर्ष 2008-09 में पाँच, वर्ष 2009-10 में छः एवं 2010-11 में 4 जनहानि व जनघायल के प्रकरण तथा वर्ष 2007-08 तथा 2008-09 में तेंदुआ द्वारा पशु हानि के दो प्रकरण तथा लकड़बग्घे के कारण एक प्रकरण दर्ज किये गये हैं। इस प्रकार वन्य प्राणी (संरक्षण) अधिनियम के शेड्यूल 1 के उपरोक्त उल्लेखित वन्य प्राणियों के परियोजना क्षेत्र में आने जाने के प्रमाण पाये गये हैं। प्रस्तावित क्षेत्र से 6 से 7 कि.मी.की दूरी पर झारखंड राज्य में भेड़िया अभ्यारण्य भी स्थापित है। अतः संस्था द्वारा दस वर्षों के लिये वन्य प्राणी संरक्षण व प्रबंध योजना श्री पी. के. सेन पूर्व वन्य प्राणी अभिरक्षक, झारखंड से तैयार कराया जाकर प्रस्तुत किया गया है। जिसका समग्र व विस्तृत अध्ययन किया गया। प्रबंधन योजना में प्रस्तावित प्रबंधन संबंधित मुख्य गतिविधियों का विवरण निम्नानुसार है।
5. योजना में वन्य प्राणियों के लिये जलग्रहण क्षेत्र विकास, रहवास-विकास, पेयजल व्यवस्था, विभाग के क्षेत्रीय अमले के सहयोग से क्षेत्र में पेट्रोलिंग व मॉनिटरिंग, अग्नि सुरक्षा, ईको विकास की गतिविधियों, स्थानीय ग्रामीणों के लिये आजीविका सृजन, टीकाकरण, जनजागृति कार्यक्रम जैसी गतिविधियों का

समावेश करते हुये 04 वर्षों के लिये राशि रुपये 160 लाख प्रावधानित की गयी है। जिसका क्रियान्वयन वन विभाग के द्वारा किया जायेगा। प्रस्ताव में प्रावधानित बजट का विवरण निम्नानुसार है -

Sr. No.	Works to be done	Cost for Four years (Rs. In lakhs)					Remarks
		1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	Total	
1	Plantation including soil and moisture Conservation works as per norms of forest department surrounding the lease hold	5.00	5.00	5.00	5.00	20.00	
2	Silvicultural Operation on degraded forest Land and cut back in rooted waste	2.00	2.00	2.00	2.00	8.00	
3	Habitat Management Eradication of unwanted species in buffer Zone area, Fire Protection work including wages for fire watchman, Creation of Fire line etc. surrounding lease hold and in buffer area.	2.50	2.50	2.50	2.50	10.00	
4	Monitoring - One Staff of forest department to monitor movement of wild life, encroachment, illicit cutting, poaching, fire etc. including Salary of 1 staff	3.00	3.00	3.00	3.00	12.00	
5	Construction of water holes, their maintenance and patrolling (One per Annum)	10.00	10.00	10.00	10.00	40.00	
6	Eco-development activities like poultry, piggery, bee keeping etc.	5.00	5.00	5.00	5.00	20.00	
7	Vocational Training to weaker section, females, old persons and minors of the surrounding villages in three centre in the buffer Zone of the mining lease @ 50000/- per centre.	3.00	3.00	3.00	3.00	12.00	
8	Veterinary camp for immunization of Cattle with the help of block veterinary staff.	2.00	2.00	2.00	2.00	8.00	
9	Awareness Programme including Signages, distribution of Pamphlets related to wild life conservation etc.	2.50	2.50	2.50	2.50	10.00	
10	Provision for conservation of Biodiversity among flora and fauna of the area & Preparation of Biodiversity register	20.00	0.00	0.00	0.00	20.00	The amount is to be deposited in the account of Biodiversity Board as this work is to be done by Biodiversity management committees (BMC's)
<b>Total</b>		<b>55.00</b>	<b>35.00</b>	<b>35.00</b>	<b>35.00</b>	<b>160.00</b>	

- 6 वन्यप्राणी संरक्षण योजना की लागत रू. 160.00 लाख वर्तमान दरों पर है, परियोजना में देरी होने से यह लागत बढ़ेगी जिसमें प्राईस इन्डेक्स के हिसाब से वृद्धि होगी। परियोजना के क्रियान्वयन के समय जो भी लागत आयेंगी वह परियोजना प्रस्तावकों को वन विभाग में एकमुश्त जमा करानी होगी। जिससे मूल्य वृद्धि के प्रभाव को समाप्त किया जा सके। वन विभाग एकमुश्त जमा की गई राशि से वन्यप्राणी संरक्षण योजना क्रियान्वित करेगा।
- 7 अनुमोदित वन्यप्राणी संरक्षण योजना की एक प्रति संलग्न प्रेषित है। कृपया वन्यप्राणी संरक्षण योजना में प्रावधानित राशि रू. 160.00 लाख एकमुश्त जमा कराने हेतु परियोजना प्रस्तावकों को आदेशित करने का कष्ट करें।

संलग्न:-उपरोक्तानुसार।

*Ramprakash*  
(रामप्रकाश) 01/7/13

प्रधान मुख्य वन संरक्षक (वन्यप्राणी)  
छत्तीसगढ़, रायपुर

रायपुर दिनांक 07/10/2013

पृष्ठां क्रमांक/व.प्रा./प्रबंध-12/13/ 2968.

प्रतिलिपि :-

- 1. प्रमुख सचिव, छत्तीसगढ़ शासन, वन विभाग, महानदी मंत्रालय भवन, नया रायपुर की ओर मय योजना की प्रति सहित सूचनार्थ प्रेषित।
- 2. श्री एम. के. नायक, जी. एम. माइन्स हिन्डालको इन्डस्ट्रीज लिमिटेड, सामरी बॉक्सार्इट माइन्स, पोस्ट-कुसनी, जिला-सरगुजा, छत्तीसगढ़ की ओर मय योजना की प्रति सहित सूचनार्थ प्रेषित।

*Ramprakash*  
प्रधान मुख्य वन संरक्षक (वन्यप्राणी) 01/7/13  
छत्तीसगढ़, रायपुर



**ANNEXURE-6  
DETAILS OF FLORA & FAUNA**

**TABLE-1  
DETAILS OF DOMINANT PLANT SPECIES IN MINE LEASE AREA  
(CORE ZONE)**

Name of the plant Species	Local Name	Family
<i>Butea monosperma</i>	Palas	Fabaceae
<i>Acacia Arabica</i>	Babul	Mimosaceae
<i>Leucena leucophloe</i>	Sabubal	Mimosaceae
<i>Mangifera indica</i>	Aam	Anacardiaceae
<i>Citrus lemon</i>	Nimbu	Rutaceae
<i>Emblica officinalis</i>	Amla	Euphorbiaceae
<i>Ficus hispida</i>	Jungli anjir	Moraceae
<i>Spondias cythera</i>	Kathjamun	Myrtaceae
<i>Terminalia catapa</i>	Badam	Combretaceae
<i>Apluda mutica</i>	Grass	Poaceae
<i>Chloris dolichosta</i>	Grass	Poaceae
<i>Dichanthium annulatum</i>	Grass	Poaceae
<i>Inpurta cylendrica</i>	Grass	Poaceae
<i>Themeda quadrivalvis</i>	Grass	Poaceae
<i>Aristida adscensionsis</i>	Grass	Poaceae
<i>Eragrostis biferia</i>	Grass	Poaceae
<i>Eragrostis tenella</i>	Grass	Poaceae
<i>Setaria glauca</i>	Grass	Cyperaceae
<i>Thysanolaena maxima</i>	Grass	Graminae
<i>Parthenium hysterophorus</i>	Congress grass	Compositae
<i>Cassia tora</i>	-	Caesalpinaceae

**TABLE-2  
FLORA/VEGETATION IN STUDY AREA (BUFFER ZONE)**

Sr. No.	Technical Name	Family	Life Form
<b>I. Agricultural Crops</b>			
1	<i>Hordium vulgare</i>	Poaceae	Hemicryptophyte
2	<b>Sorghum vulgare</b>	Poaceae	Hemicryptophyte
3	<i>Triticum vulgare</i>	Poaceae	Hemicryptophyte
4	<i>Zea mays</i>	Poaceae	Hemicryptophyte
5	<i>Oryza sativa</i>	Poaceae	Hemicryptophyte
6	<i>Pennisetum typhoideum</i>	Poaceae	Hemicryptophyte
<b>II. Commercial Crops (including Vegetables)</b>			
7	<i>Abelmoschus indicus</i>	Malvaceae	Therophyte
8	<i>Allium cepa</i>	Liliaceae	Geophyte
9	<i>Allium sativum</i>	Liliaceae	Geophyte
10	<i>Annona squamosa</i>	Annonaceae	Phanerophyte
11	<i>Arachis hypogia</i>	Fabaceae	Geophyte
12	<i>Catharanthes pusillus</i>	Compositae	Therophyte
13	<b>Cicer arietinum</b>	Fabaceae	Hemicryptophyte
14	<i>Citrus lemon</i>	Ruataceae	Therophyte
15	<i>Colocasia esculenta</i>	Areaceae	Geophyte
16	<i>Coreandrum sativum</i>	Umbelliferae	Hemicryptophyte
17	<i>Daucus carota</i>	Umbelliferae	Geophyte
18	<i>Lycopersicum esculentus</i>	Solanaceae	Therophyte
19	<i>Mangifera indica</i>	Anacardiaceae	Phanerophyte
20	<i>Memordia charantia</i>	Cucurbitaceae	Therophyte

  
**(M. K. Nayak)**  
Agent of mines  
Samri mines Division  
Hindalco Industries Ltd



Sr. No.	Technical Name	Family	Life Form
21	<i>Pisum sativum</i>	Fabaceae	Therophyte
22	<i>Psidium guava</i>	Myrtaceae	Phanerophyte
23	<i>Solanum tuberosum</i>	Solanaceae	Geophyte
24	<i>Litchi chinensis</i>	Sapindaceae	Phanerophyte
<b>III. Plantations</b>			
25	<i>Bauhinia cormbosa</i>	Caesalpinaceae	Phanerophyte
26	<i>Acacia nilotica</i>	Mimosaceae	Phanerophyte
27	<i>Albizia lebbek</i>	Mimosaceae	Phanerophyte
28	<i>Albizia odorattissima</i>	Mimosaceae	Phanerophyte
29	<i>Albizia procera</i>	Mimosaceae	Phanerophyte
30	<i>Azadirachta indica</i>	Meliaceae	Phanerophyte
31	<i>Bauhinia variegata</i>	Caesalpinaceae	Phanerophyte
32	<i>Bauhinia purpuria</i>	Caesalpinaceae	Phanerophyte
33	<i>Bambusa arundanaceae</i>	Poaceae	Phanerophyte
34	<i>Butea monosperma</i>	Caesalpinaceae	Phanerophyte
35	<i>Butea frondosa</i>	Caesalpinaceae	Phanerophyte
36	<i>Eucalyptus sp</i>	Myrtaceae	Phanerophyte
37	<i>Delonix regia</i>	Caesalpinaceae	Phanerophyte
38	<i>Leucena leucophloe</i>	Caesalpinaceae	Phanerophyte
<b>IV. Natural Vegetation/Forest Type</b>			
39	<i>Abrus precatorius</i>	Fabaceae	Therophyte
40	<i>Abutilon indicum</i>	Malvaceae	Phanerophyte
41	<i>Acacia Arabica</i>	Mimosaceae	Phanerophyte
42	<i>Acacia auriculiformis</i>	Mimosaceae	Phanerophyte
43	<i>Acacia catechu</i>	Mimosaceae	Phanerophyte
44	<i>Acacia intinsia</i>	Mimosaceae	Phanerophyte
45	<i>Acacia fernacea</i>	Mimosaceae	Phanerophyte
46	<i>Acacia leucophloe</i>	Mimosaceae	Phanerophyte
47	<i>Acalypha lanceolata</i>	Euphorbiaceae	Therophyte
48	<i>Acanthospermum hispidum</i>	Compositae	Therophyte
49	<i>Achyranthes aspera</i>	Amaranthaceae	Therophyte
50	<i>Adathoda vasica</i>	Acanthaceae	Therophyte
51	<i>Adina cordifolia</i>	Rubiaceae	Phanerophyte
52	<i>Aegle marmelos</i>	Rutaceae	Phanerophyte
53	<i>Aerva lanata</i>	Compositae	Phanerophyte
54	<i>Ageratum conyzoides</i>	Compositae	Therophyte
55	<i>Ailanthus excelsa</i>	Simaroubaceae	Phanerophyte
56	<i>Alangium salivus</i>	Alangiceae	Phanerophyte
57	<i>Albizia odoratissima</i>	Caesalpinaceae	Phanerophyte
58	<i>Albizia procera</i>	Caesalpinaceae	Phanerophyte
59	<i>Alstonia scholaris</i>	Apocyanaceae	Phanerophyte
60	<i>Alternanthera sessilis</i>	Amaranthaceae	Therophyte
61	<i>Alysicarpus hamosus</i>	Fabaceae	Therophyte
62	<i>Anogeissus latifolia</i>	Combretaceae	Phanerophyte
63	<i>Anogeissus serica</i>	Combretaceae	Phanerophyte
64	<i>Argemone mexicana</i>	Papevaraceae	Phanerophyte
65	<i>Azadirachta indica</i>	Meliaceae	Phanerophyte
66	<i>Barleria prionoites</i>	Acanthaceae	Therophyte
67	<i>Bidens biternata</i>	Compositae	Therophyte
68	<i>Blepharis asperima</i>	Acanthaceae	Phanerophyte
69	<i>Blepharis madaraspatens</i>	Acanthaceae	Therophyte
70	<i>Blumea lacera</i>	Compositae	Therophyte
71	<i>Boerheavia chinensis</i>	Nyctaginaceae	Therophyte
72	<i>Boerheavia diffusa</i>	Nyctaginaceae	Therophyte
73	<i>Bombax ceiba</i>	Bombacaceae	Phanerophyte



Sr. No.	Technical Name	Family	Life Form
74	<i>Borreria hispida</i>	Rubiaceae	Therophyte
75	<i>Borreria stricta</i>	Rubiaceae	Therophyte
76	<i>Boswellia serrata</i>	Burseraceae	Phanerophyte
77	<i>Brassica campestris</i>	Cruciferae	Therophyte
78	<i>Bridelia retusa</i>	Euphorbiaceae	Phanerophyte
79	<i>Bridelia superba</i>	Euphorbiaceae	Phanerophyte
80	<i>Caesalpina pulcherima</i>	Caesalpinaceae	Phanerophyte
81	<i>Calotropis procera</i>	Asclpiadaceae	Phanerophyte
82	<i>Canthium diddymum</i>	Rubiaceae	Phanerophyte
83	<i>Capparis aphylla</i>	Capparidaceae	Therophyte
84	<i>Capparis deciduas</i>	Capparidaceae	Phanerophyte
85	<i>Carissa carandus</i>	Apocyanaceae	Phanerophyte
86	<i>Carissa spinarium</i>	Apocyanaceae	Phanerophyte
87	<i>Casearia graveolens</i>	Samydiaceae	Phanerophyte
88	<i>Cassia absus</i>	Caesalpinaceae	Therophyte
89	<i>Cassia absus</i>	Caesalpinaceae	Therophyte
90	<i>Cassia auriculata</i>	Caesalpinaceae	Therophyte
91	<i>Cassia occidentalis</i>	Caesalpinaceae	Therophyte
92	<i>Cassia tora</i>	Caesalpinaceae	Phanerophyte
93	<i>Cestrum diurnum</i>	Rubiaceae	Theophyte
94	<i>Cestrum noctrunum</i>	Rubiaceae	Therophyte
95	<i>Chloris varigata</i>	Poaceae	Therophyte
96	<i>Cissus quadrangularis</i>	Vitaceae	Therophyte
97	<i>Citrus limon</i>	Rutaceae	Phanerophyte
98	<i>Cleome gynandra</i>	Capparidaceae	Therophyte
99	<i>Combretum ovalifolium</i>	Rubiaceae	Phanerophyte
100	<i>Cordia myxa</i>	Rubiaceae	Phanerophyte
101	<i>Crotalaria medicagenia</i>	Fabaceae	Therophyte
102	<i>Croton bonplandinum</i>	Amaryllidaceae	Therophyte
103	<i>Cuscuta reflexa</i>	Cuscutaceae	Epiphyte
104	<i>Datura fastulosa</i>	Solanaceae	Therophyte
105	<i>Datura metal</i>	Solanaceae	Therophyte
106	<i>Desmodium triflorum</i>	Asclepiadaceae	Therophyte
107	<i>Diospyros melanoxyton</i>	Lythraceae	Phanerophyte
108	<i>Diospyros Montana</i>	Lythraceae	Phanerophyte
109	<i>Echinops echinatus</i>	Compositae	Therophyte
110	<i>Eclipta prostrate</i>	Compositae	Hemicryptophyte
111	<i>Emblica officinale</i>	Euphorbiaceae	Phanerophyte
112	<i>Emilia lajerium</i>	Compositae	Hemicryptophyte
113	<i>Erythrina indica</i>	Papillionaceae	Phanerophyte
114	<i>Euphorbia geniculata</i>	Euphorbiaceae	Therophyte
115	<i>Euphorbia hirta</i>	Euphorbiaceae	Therophyte
116	<i>Euphorbia hyperocifolia</i>	Euphorbiaceae	Therophyte
117	<i>Euphorbia neruri</i>	Euphorbiaceae	Therophyte
118	<i>Euphorbia nivula</i>	Euphorbiaceae	Therophyte
119	<i>Euphorbia piluliflora</i>	Euphorbiaceae	Hemicryptophyte
120	<i>Euphorbia tricauli</i>	Euphorbiaceae	Hemicryptophyte
121	<i>Evolvulus alsinoides</i>	Convolvulaceae	Therophyte
122	<i>Evolvulus numalaris</i>	Convolvulaceae	Therophyte
123	<i>Feronia elephantum</i>	Rutaceae	Phanerophyte
124	<i>Ficus benghalensis</i>	Moraceae	Phanerophyte
125	<i>Ficus carica</i>	Moraceae	Phanerophyte
126	<i>Ficus glomerata</i>	Moraceae	Phanerophyte
127	<i>Ficus hispida</i>	Moraceae	Phanerophyte
128	<i>Ficus racemosus</i>	Moraceae	Phanerophyte



Sr. No.	Technical Name	Family	Life Form
129	<i>Ficus religiosa</i>	Moraceae	Phanerophyte
130	<i>Ficus gibbosa</i>	Moraceae	Phanerophyte
131	<i>Gardenia latifolia</i>	Rubiaceae	Phanerophyte
132	<i>Gardenia lucida</i>	Rubiaceae	Phanerophyte
133	<i>Garuga pinnata</i>	Burseraceae	Phanerophyte
134	<i>Glossocardia boswellia</i>	Compositae	Hemicryptophyte
135	<i>Gmelina arborea</i>	Rubiaceae	Phanerophyte
136	<i>Gomphrena globosa</i>	Amaranthaceae	Therophyte
137	<i>Gossypium herbaceum</i>	Malvaceae	Therophyte
138	<i>Grewia abutifolia</i>	Tiliaceae	Phanerophyte
139	<i>Grewia salivifolia</i>	Tiliaceae	Phanerophyte
140	<i>Grewia subinaqualis</i>	Tiliaceae	Phanerophyte
141	<i>Gynandropis gynandra</i>	Capparidaceae	Hemicryptophyte
142	<i>Helictis isora</i>	Rubiaceae	Phanerophyte
143	<i>Heliotropium indicum</i>	Rubiaceae	Hemicryptophyte
144	<i>Heliotropium ovalifolium</i>	Rubiaceae	Hemicryptophyte
145	<i>Hemidesmus indicus</i>	Asclepiadaceae	Phanerophyte
146	<i>Hibiscus caesus</i>	Malvaceae	Hemicryptophyte
147	<i>Holarrhena antidycenterica</i>	Asclepiadaceae	Phanerophyte
148	<i>Holostemma annularia</i>	Asclepiadaceae	Phanerophyte
149	<i>Hygrophylla auriculata</i>	Acanthaceae	Hemicryptophyte
150	<i>Hyptis suavealens</i>	Labiatae	Therophyte
151	<i>Ichnocarpus frutens</i>	Poaceae	Hemicryptophyte
152	<i>Impatiens balasamania</i>	Balsaminaceae	Therophyte
153	<i>Indigofera hirsute</i>	Caesalpinaceae	Therophyte
154	<i>Indigofera limnacea</i>	Caesalpinaceae	Therophyte
155	<i>Indigofera tinctoria</i>	Caesalpinaceae	Therophyte
156	<i>Ipomea aquatica</i>	Convolvulaceae	Hydrophyte
157	<i>Ipomea coccinea</i>	Convolvulaceae	Therophyte
158	<i>Ipomea tuba</i>	Convolvulaceae	Hemicryptophyte
159	<i>Ixora arborea</i>	Rubiaceae	Phanerophyte
160	<i>Ixora parviflora</i>	Rubiaceae	Phanerophyte
161	<i>Ixora singapuriens</i>	Rubiaceae	Phanerophyte
162	<i>Jasminum arborens</i>	Oleaceae	Phanerophyte
163	<i>Jatropha gossypifolia</i>	Euphorbiaceae	Therophyte
164	<i>Jussiaea suffruticosa</i>	Onagraceae	Hydrophyte
165	<i>Justia diffusa</i>	Acanthaceae	Therophyte
166	<i>Justicia diffusa</i>	Acanthaceae	Therophyte
167	<i>Lactuca punctata</i>	Compositae	Therophyte
168	<i>Lannea coramandalica</i>	Anacardiaceae	Phanerophyte
169	<i>Lannea grandis</i>	Anacardiaceae	Phanerophyte
170	<i>Lannea procumbens</i>	Anacardiaceae	Therophyte
171	<i>Lantana camara</i>	Verbinaceae	Phanerophyte
172	<i>Lawsonia inermis</i>	Lythraceae	Phanerophyte
173	<i>Lepidogathis cristata</i>	Acanthaceae	Therophyte
174	<i>Leptodenia reticulata</i>	Asclepiadaceae	Phanerophyte
175	<i>Leucas aspera</i>	Labiatae	Therophyte
176	<i>Leucas longifolia</i>	Labiatae	Therophyte
177	<i>Leucas longifolia</i>	Labiatae	Therophyte
178	<i>Leucena leucophloe</i>	Caesalpinaceae	Phanerophyte
179	<i>Linderbergia indica</i>	Scrophulariaceae	Therophyte
180	<i>Lindernbergia ciliate</i>	Scrophulariaceae	Therophyte
181	<i>Lophophora tridintatus</i>	Scrophulariaceae	Geophyte
182	<i>Luffa acutangularia</i>	Cucurbitaceae	Therophyte
183	<i>Lycopersicum esculentus</i>	Solanaceae	Therophyte



Sr. No.	Technical Name	Family	Life Form
184	<i>Madhuca latifolia</i>	Sapotaceae	Phanerophyte
185	<i>Mallotus philippinus</i>	Euphorbiaceae	Phanerophyte
186	<i>Malvastrum coramandalicum</i>	Malvaceae	Therophyte
187	<i>Mangifera indica</i>	Anacardiaceae	Phanerophyte
188	<i>Marselia quadrifolia</i>	Marseliaceae	Phanerophyte
189	<i>Melia azadirachta</i>	Meliaceae	Phanerophyte
190	<i>Memordica diocea</i>	Cucurbitaceae	Therophyte
191	<i>Merremia emerginata</i>	Convolvulaceae	Therophyte
192	<i>Michaelia champaca</i>	Annonaceae	Phanerophyte
193	<i>Millingtonia hartensis</i>	Bignoniaceae	Phanerophyte
194	<i>Mimosa hamata</i>	Mimosaceae	Therophyte
195	<i>Mitragyna parviflora</i>	Rubiaceae	Phanerophyte
196	<i>Mollugo cerviana</i>	Aizoaceae	Therophyte
197	<i>Mollugo hirta</i>	Aizoaceae	Therophyte
198	<i>Moringa oleifera</i>	Moringaceae	Phanerophyte
199	<i>Morus alba</i>	Moraceae	Phanerophyte
200	<i>Mucuna prurita</i>	Papillionaceae	Hemicryptophyte
201	<i>Murraya exotica</i>	Rutaceae	Phanerophyte
202	<i>Murraya koenigii</i>	Rutaceae	Phanerophyte
203	<i>Musa paradisiaca</i>	Musaceae	Therophyte
204	<i>Nymphia sp</i>	Magnoliaceae	Hydrophyte
205	<i>Ocimum americanum</i>	Labiatae	Therophyte
206	<i>Ocimum basillum</i>	Labiatae	Therophyte
207	<i>Ocimum canum</i>	Labiatae	Therophyte
208	<i>Ocimum sanctum</i>	Labiatae	Therophyte
209	<i>Oldenlandia umbellate</i>	Convolvulaceae	Therophyte
210	<i>Oldenlandia corymbosa</i>	Rubiaceae	Therophyte
211	<i>Oogeinia oojensis</i>	Papillionaceae	Phanerophyte
212	<i>Opuntia dillinii</i>	Opuntiaceae	Therophyte
213	<i>Opuntia elator</i>	Cacataceae	Therophyteq
214	<i>Oxalis corniculata</i>	Oxalidaceae	Therophyte
215	<i>Panicum milliria</i>	Poaceae	Hemicryptophyte
216	<i>Panicum notatum</i>	Poaceae	Hemicryptophyte
217	<i>Papaver somniferum</i>	Papaveraceae	Hemicryptophyte
218	<i>Parkinsonia aculata</i>	Mimosaceae	Phanerophyte
219	<i>Parthenium hysterophorus</i>	Compositae	Therophyte
220	<i>Paspalum strobilanthus</i>	Passifloraceae	Hemicryptophyte
221	<i>Passiflora foetida</i>	Passifloraceae	Phanerophyte
222	<i>Pavonia zeylanica</i>	Malvaceae	Phanerophyte
223	<i>Peltophorum ferrusinum</i>	Caesalpinaceae	Phanerophyte
224	<i>Phoenix aculis</i>	Palmae	Phanerophyte
225	<i>Phyllanthus asperulatus</i>	Euphorbiaceae	Phanerophyte
226	<i>Phyllanthus emblica</i>	Euphorbiaceae	Phanerophyte
227	<i>Phyllanthus nirurii</i>	Euphorbiaceae	Therophyte
228	<i>Phyllanthus reticulates</i>	Euphorbiaceae	Therophyte
229	<i>Physalis minima</i>	Solanaceae	Therophyte
230	<i>Pithocolobium dulce</i>	Mimosaceae	Phanerophyte
231	<i>Polyalthia longifolia</i>	Annonaceae	Phanerophyte
232	<i>Polygala ererptera</i>	Polygalaceae	Therophyte
233	<i>Pongamia pinnata</i>	Fabaceae	Phanerophyte
234	<i>Portulaca oleracea</i>	Portulaccaceae	Therophyte
235	<i>Psidium guava</i>	Myrtaceae	Phanerophyte
236	<i>Punica granulatam</i>	Puniaceae	Therophyte
237	<i>Randia dumatorium</i>	Rubiaceae	Phanerophyte
238	<i>Rosa indica</i>	Rosaceae	Therophyte



Sr. No.	Technical Name	Family	Life Form
239	<i>Rosa machata</i>	Rosaceae	Therophyte
240	<i>Saccharum munja</i>	Poaceae	Hemicryptophyte
241	<i>Saccharum officinarum</i>	Poaceae	Therophyte
242	<i>Salmalia malabarica</i>	Salmaliaceae	Phanerophyte
243	<i>Sapindus emerginatus</i>	Sapindaceae	Phanerophyte
244	<i>Schleichera trijuga</i>	Combretaceae	Phanerophyte
245	<i>Scherebera sweitenoides</i>	Sapindaceae	Phanerophyte
246	<i>Schleichera oleosa</i>	Sapindaceae	Phanerophyte
247	<i>Sesamum indicum</i>	Pedaliaceae	Hemicryptophyte
248	<i>Shorea robusta</i>	Dipterocarpaceae	Phanerophyte
249	<i>Sida orientalis</i>	Malvaceae	Phanerophyte
250	<i>Sida vernanifolia</i>	Malvaceae	Hemicryptophyte
251	<i>Solanum nigrum</i>	Solanaceae	Therophyte
252	<i>Solanum xanthocarpum</i>	Solanaceae	Therophyte
253	<i>Sterculia villosa</i>	Tiliaceae	Therophyte
254	<i>Stereospermum chelinoides</i>	Bignoniaceae	Phanerophyte
255	<i>Sygygium cumini</i>	Myrtaceae	Phanerophyte
256	<i>Tamarindus indica</i>	Caesalpinaceae	Phanerophyte
257	<i>Tecomella undulate</i>	Bignoniaceae	Therophyte
258	<i>Tectona grandis</i>	Verbinaceae	Phanerophyte
259	<i>Tephrosia purpuria</i>	Fabaceae	Therophyte
260	<i>Terminalia bellarica</i>	Combretaceae	Phanerophyte
261	<i>Terminalia chebula</i>	Combretaceae	Phanerophyte
262	<i>Terminalia tomentosa</i>	Combretaceae	Phanerophyte
263	<i>Tinospora cordifolia</i>	Rhamnaceae	Therophyte
264	<i>Tragus biflorus</i>	Poaceae	Hemicryptophyte
265	<i>Tribulus terrestris</i>	Zygophyllaceae	Therophyte
266	<i>Tridax procumbens</i>	Compositae	Therophyte
267	<i>Triumferta pilosa</i>	Tiliaceae	
268	<i>Vernonia cinera</i>	Compositae	Therophyte
269	<i>Vicoa indica</i>	Compositae	Phanerophyte
270	<i>Vitex Negundo</i>	Verbinaceae	Phanerophyte
271	<i>Vitex negungo</i>	Verbinaceae	Therophyte
272	<i>Vitis vermifera</i>	Vitaceae	Therophyte
273	<i>Vivevera zizanoides</i>	Poaceae	Therophyte
274	<i>Wrightia tomentosa</i>	Apocyanaceae	Phanerophyte
275	<i>Xanthium strumariumk</i>	Compositae	Therophyte
276	<i>Yucca gloriosa</i>	Agavaceae	Therophyte
277	<i>Zizyphus jujube</i>	Rhamnaceae	Phanerophyte
278	<i>Zizyphus mauritiana</i>	Rhamanaceae	Phanerophyte
<b>V. Grasslands</b>			
279	<i>Apluda mutica</i>	Poaceae	Hemicryptophyte
280	<i>Chloris dolichosta</i>	Poaceae	Hemicryptophyte
281	<i>Cyanodactylon sp</i>	Poaceae	Geophyte
282	<i>Dichanthium annulatum</i>	Poaceae	Hemicryptophyte
283	<i>Inpurta cylendrica</i>	Poaceae	Hemicryptophyte
284	<i>Sachharum spontanseum</i>	Poaceae	Hemicryptophyte
285	<i>Themeda quadrivalvis</i>	Poaceae	Hemicryptophyte
286	<i>Aristida adscensionsis</i>	Poaceae	Hemicryptophyte
287	<i>Cenchrus ciliaris</i>	Poaceae	Therophyte
288	<i>Cenchrus setifgera</i>	Poaceae	Therophyte
289	<i>Cymbopogon jwarancusa</i>	Cyperaceae	Hemicryptophyte
290	<i>Cyperus aristatus</i>	Cyperaceae	Therophyte
291	<i>Cyperus triceps</i>	Cyperaceae	Therophyte
292	<i>Dactylectinium annualatum</i>	Poaceae	Therophyte



Sr. No.	Technical Name	Family	Life Form
293	<i>Digetaria bicornis</i>	Poaceae	Hemicryptophyte
294	<i>Digetaria Segetaria</i>	Poaceae	Hemicryptophyte
295	<i>Eragrostis biferia</i>	Poaceae	Therophyte
296	<i>Eragrostis tenella</i>	Poaceae	Therophyte
297	<i>Ischaemum rugosum</i>	Poaceae	Hemicryptophyte
298	<i>Setaria glauca</i>	Cyperaceae	Hemicryptophyte
299	<i>Eulaliopsis binata</i>	Graminae	Hemicryptophyte
300	<i>Thysanolaena maxima</i>	Graminae	Hemicryptophyte
	<b>Endangered plants</b>	<b>No endangered plant species observed during study period and also from records of Botanical Survey of India (Red data of Books of Indian Plants)</b>	

**TABLE-3**  
**FAUNA AND THEIR CONSERVATION STATUS IN MINE LEASE AREA (CORE ZONE)**

Technical Name	English Name/ Local Name	Wild Life Protection Act (1972)
<b>Aves</b>		
<i>Phalacrocorax niger</i>	Little cormorant	Sch-IV
<i>Nycticorax nycticorax</i>	Night heron	Sch-IV
<i>Ardeola grayii grayii</i>	Paddy bird	Sch-IV
<i>Bubulcus ibis coromandus</i>	Cattle egret	Sch-IV
<i>Eudynamys scolopacea</i>	Indian koel	Sch-IV
<i>Meops philippinus philippinus</i>	Bluetailed bee-eater	Sch-IV
<i>Dinopium benghalense tehminae</i>	Malabar golden backed Woodpecker	Sch-IV
<i>Acridotheres tristis tristis</i>	Common myna	Sch-IV
<i>Nectarinia minima</i>	Small sunbird	Sch-IV
<i>Passer domesticus indicus</i>	Indian house sparrow	Sch-IV
<b>Butterflies</b>		
<i>Hypolimnas bolina Lin.</i>	Great eggfly	-
<i>Euploea core Cramer</i>	Common crow	-
<i>Neptis hylas Moore</i>	Common sailor	-
<i>Eurema hecabe Lin.</i>	Common grass yellow	-
<i>Parantica aplea Stoll.</i>	Glassy tiger	-
<b>Mammals</b>		
<i>Funambulus palmarum</i>	Squirrel	Sch-IV
<i>Sus sucrofa</i>	Wild pig	Sch-III
<i>Herpestes edwardii</i>	Common mongoose	Sch-IV
<i>Vulpus benghalensis</i>	Wild fox	Sch-II
<i>Hystrix indica</i>	Porcupine	Sch-IV

**TABLE-4**  
**FAUNA AND THEIR CONSERVATION STATUS IN STUDY AREA**  
**(BUFFER ZONE)**

Technical Name	English Name/ Local Name	Wild Life Protection Act (1972)
<b>Aves</b>		
<i>Phalacrocorax niger</i>	Little cormorant	Sch-IV
<i>Ardea purpurea manilensis</i>	Eastern purple heron	Sch-IV
<i>Nycticorax nycticorax</i>	Night heron	Sch-IV
<i>Ardeola grayii grayii</i>	Paddy bird	Sch-IV
<i>Dupetor flavicollis</i>	Black bittern	Sch-IV
<i>Ardea alba modesta</i>	Large egret	Sch-IV
<i>Bubulcus ibis coromandus</i>	Cattle egret	Sch-IV
<i>Milvus migrans govinda</i>	Common pariah kite	Sch-IV
<i>Haliastur indus indus</i>	Brahminy kite	Sch-IV
<i>Vanellus indicus indicus</i>	Redwattled lapwing	Sch-IV
<i>Tringa hypoleucos</i>	Common sandpiper	Sch-IV
<i>Gelochelidon nilotica nilotica</i>	Gullbilled tern	Sch-IV
<i>Eudynamys scolopacea</i>	Indian koel	Sch-IV
<i>Halcyon smyrnensis fusca</i>	Indian white breasted Kingfisher	Sch-IV
<i>Meops philippinus philippinus</i>	Bluetailed bee-eater	Sch-IV
<i>Coracias benghalensis indica</i>	Southern Indian Roller	Sch-IV
<i>Dinopium benghalense</i> <i>tehminae</i>	Malabar golden backed Woodpecker	Sch-IV
<i>Acridotheres tristis tristis</i>	Common myna	Sch-IV
<i>Corvus splendens protegatus</i>	Ceylon house crow	Sch-IV
<i>Nectarinia minima</i>	Small sunbird	Sch-IV
<i>Nectarenia. zeylonica sola</i>	Indian purple rumped sunbird	Sch-IV
<i>Arachnothera longirostris</i> <i>longirostris</i>	Little spinder hunter	Sch-IV
<i>Passer domesticus indicus</i>	Indian house sparrow	Sch-IV
<i>Copsychus saularis ceyonensis</i>	Southern magpie-robin	Sch-IV
<i>Orthotomus sutorius</i>	Tailor bird guzurata	Sch-IV
<b>Amphibians</b>		
<i>Rana tigrana</i>	Common frog	Sch-IV
<i>Buto melanosticus</i>	Toad	Sch-IV
<b>Reptiles</b>		
<i>Calotes versicolor</i>	Lizard	Sch-IV
<i>Calotes versicolor</i>	Common garden lizard	Sch-IV
<i>Chamaleon zeylanicus</i>	Indian chamaeleon	Part-II of Sch-II
<i>Lycodon spp</i>	Wolf snake	Sch-IV
<i>Boiga spp</i>	Cat snake	Sch-IV
<i>Bangarus spp</i>	Krait	Sch-II
<i>Naja naja</i>	Indian cobra	Sch-IV
<i>Vipera spp</i>	Russels viper	Sch-IV
<i>Phyton sp</i>	Python sp	Part-II of Sch-I
<b>Butterflies</b>		
<i>Pachliopta hector Lin</i>	Crimson rose	Sch-IV
<i>Papilio demoleus Lin</i>	Lime butterfly	Sch-IV
<i>Graphium agamemnon Lin</i>	Tailed jay	Sch-IV
<i>Junoria almana Lin</i>	Peacock pansy	Sch-IV
<i>Hypolimnas bolina Lin</i>	Great eggfly	Sch-IV
<i>Eurema hecabe Lin</i>	Common grass yellow	Sch-IV



Technical Name	English Name/ Local Name	Wild Life Protection Act (1972)
<i>Catopsilia sp</i>	Emigrant	Sch-IV
<b>Mammals</b>		
<i>Rattus sp.</i>	Rat	Sch-IV
<i>Lepus nigricollis</i>	Hare	Sch-IV
<i>Canis auries</i>	Jackal	Sch-III
<i>Presbytis entellus</i>	Langur	Sch-II
<i>Presbytis phayrei</i>	Monkey	Part-I of Sch-I
<i>Funambulus spp</i>	Squirrel	Sch-IV
<i>Funambulus palmarum</i>	Squirrel	Sch-IV
<i>Sus sucrofa</i>	Wild pig	Sch-III
<i>Rattus norvegicus</i>	Field mouse	Sch-V
<i>Rattus rattus</i>	House rat	Sch-V
<i>Rhinolopus spp</i>	Bat	Sch-V
<i>Hipposiderus spp</i>	Bat	Sch-V
<i>Herpestes edwardii</i>	Common mongoose	Part-II of Sch-II
<i>Bandicota indica</i>	Bandicoot	Sch-V
<i>Bandicota bengalensis</i>	Bandicoot	Sch-V
<i>Vulpus benghalensis</i>	Wild fox	Part-II of Sch-II
<i>Panthera pardus</i>	Leopard	Part-I of Sch-I
<i>Melsurus ursinus</i>	Bear	Sch-III
<i>Hystrix indica</i>	Porcupine	Sch-IV
<i>Axis axis</i>	Spotted deer	Sch-III
<i>Canis slupaspallipes</i>	Indian wolf	Part-I of Sch-I

  
 (M. K. Nayak)  
 Agent of mines  
 Samri mines Division  
 Hindalco Industries Ltd



Hindalco Industries Ltd.  
Mines Division, Samripat

## Year wise /Lease wise Details of Afforestation

Year	Kudag Bauxite Mines		Samri Bauxite Mines		Tatijharia Bauxite Mines		Total	
	No. of Sapling	Area in hect.	No. of Sapling	Area in hect.	No. of Sapling	Area in hect.	No. of Sapling	Area in hect.
1998-99	900	0.1	0	0	0	0	900	0.1
1999-00	7000	2.58	0	0	0	0	7000	2.58
2000-01	7500	3.21	0	0	0	0	7500	3.21
2001-02	10000	5.01	0	0	0	0	10000	5.01
2002-03	4000	1.56	3800	2.44	0	0	7800	4
2003-04	4200	2.57	5500	2.81	0	0	9700	5.38
2004-05	6750	2.9	8222	2.8	2000	1	16972	6.7
2005-06	800	0.5	11100	3.8	8700	3.4	20600	7.7
2006-07	4940	2	16510	6.884	8190	3.3	29640	12.184
2007-08	2950	1.3	18880	7.75	6390	2.5	28220	11.55
2008-09	32200	12.72	5000	2.47	3000	1.5	40200	16.69
2009-10	15700	6.20	15100	6.00	7850	3.20	38650	15.40
2010-11	1500	0.60	18325	7.20	8750	3.40	28575	11.20
2011-12	3015	1.20	11575	4.60	3370	1.36	17960	7.16
2012-13	1200	0.50	12400	5.00	4600	1.90	18200	7.40
2013-14	950	0.40	8700	3.50	4875	2.00	14525	5.90
2014-15	6675	2.23	12850	5.15	7750	3.10	26175	10.48
<b>Total</b>	<b>109100</b>	<b>45.58</b>	<b>147962</b>	<b>60.404</b>	<b>65475</b>	<b>26.66</b>	<b>322617</b>	<b>132.644</b>

  
(M. K. Nayak)  
Agent of mines  
Samri mines Division  
Hindalco Industries Ltd

तार  
Telegram: PARYAVARAN,  
NEW DELHI

दूरभाष :  
Telephone :  
टेलिक्स (द्विभाषीय) :  
Telex : (bi-lingual) : W-66185  
FAX : 4360678

भारत सरकार  
पर्यावरण एवं वन मंत्रालय  
GOVERNMENT OF INDIA  
MINISTRY OF ENVIRONMENT & FORESTS  
पर्यावरण भवन, सी० जी० रो० कॉम्प्लेक्स  
PARYAVARAN BHAWAN, C/O. COMPLEX  
लोदी रोड, नई दिल्ली - 110003  
LODHI ROAD, NEW DELHI - 110003  
Dated: 12<sup>th</sup> March, 1996.

SAMRI

No. 8-22/95-FC

To

The Secretary (Forests)  
Government of Madhya Pradesh  
Bhopal.

*SJG*  
Suraj Gupta

Sub: Diversion of 798.827 ha. of revenue forest land in favour of M/s HINDALCO Industries Ltd. for Bauxite mining in District Sarguja.

Sir,

I am directed to refer to your letter no.F.5/18/95/10/3 dated 9.3.95 on the above mentioned subject seeking prior approval of the Central Government in accordance with Section-2 of the Forest (Conservation) Act, 1980, and to say that the proposal has been examined by the Advisory Committee constituted by the Central Government under Section-3 of the aforesaid Act.

2. After careful consideration of the proposal of the State Government and on the basis of the recommendation of the above mentioned Advisory Committee, the Central Government hereby conveys its approval under Section-2 of the Forest (Conservation) Act, 1980 for diversion of 798.827 ha. of revenue forest land in favour of M/s HINDALCO Industries Ltd. for Bauxite mining in District Sarguja subject to the following conditions:

- 1) Legal status of forest land shall remain unchanged.
- ii) Compensatory afforestation shall be carried out over double the degraded forest land at the project cost.



III) Reclamation of the mining area will be done in consultation with the State Forest Deptt. at the project cost as per plan prepared in this regard.

IV) Demarcation of the mining area will be done on the ground at the project cost.

V) Forest land will not be used for construction of buildings etc. and any purpose other than those mentioned in the proposal.

VI) Lease period shall remain coterminus with lease under MMRD Act subject to maximum of 20 years.

VII) Free fuelwood will be provided to the labourers and staff working at the project site at the project cost.

VIII) Any other condition the State Govt. may impose.

IX) This clearance is subject to the environmental clearance of the project under the Environment Protection Act.

Yours faithfully,

( R.K. CHAUDHRY )

Asstt. Inspector General of Forests.

Copy to:

1. The Principal Chief Conservator of Forests  
Government of Madhya Pradesh, Bhopal.

2. Nodal Officer, Office of the Principal Chief Conservator  
of Forests, Govt. of Madhya Pradesh, Bhopal.

The CCF (Central), Regional Office, Bhopal.

4. RO(HQ), New Delhi.

5. Guard file.

( R.K. CHAUDHRY )  
AIGF.

APPROVED



**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**  
Commercial Complex, Chhattisgarh Housing Board Colony,  
Kabir Nagar, Raipur (C.G.) 492 099

No. 6426 TS/CECB/2015Raipur, dated: 3/1 /2015

To,

M/s Hindalco Industries Limited,  
 Samri Bauxite Mine,  
 Village-Samri, Gopatu & Dumerkholi,  
 Tehsil-Samri,  
District- Surguja (C.G.)

Recd  
  
 15.1.15

Sub: Renewal of consent of the Board for Bauxite Ore Mine under section 21 of the Air (Prevention and Control of Pollution) Act, 1981.

- Ref: 1. Consent of the Board for Bauxite Ore Mine issued under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 vide letter no. 6878/TS/CECB/2007 Raipur, dated: 24/12/2007.
2. Last renewal of the Board for Bauxite Ore Mine issued under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 vide letter no. 5643/TS/CECB/2014 Raipur, dated: 05/03/2014.
3. Your letter no. HIL/SAM/CECB/422/2014/05, dated: 23/07/2014 and subsequent correspondence ending letter dated: 23/09/2014.

--: 00 :--

With reference to your above application consent is hereby renewed for a period of two years i.e. from 01/12/2014 to 30/11/2016, subject to the fulfillment of the terms and conditions incorporated in the consent letter No. 6878/TS/CECB/2007 Raipur, dated: 24/12/2007, subsequent renewals of consent issued by the Board and additional conditions mentioned below.

This renewal of consent is valid for production capacity of:-

Name	Production Capacity
Mining of bauxite ore	5.0 Lakhs Tonne per Annum [Five Lakhs Tonne per Annum]

**Additional Conditions**

1. Industry shall operate and maintain the air pollution control system effectively and regularly. Effective steps shall be taken to control fugitive dust emission. Fixed type automatic water sprinkling system shall be installed at haul road / other roads, ore stock yard etc. Dust suppression system (water sprinkling arrangement) shall be made more effective to ensure ambient air quality within prescribed limit. Industry shall maintain the ambient air quality within prescribed limit in and around the mine area all the time. Chhattisgarh Environment Conservation Board may further stipulate stringent particulate matter emission limit depending upon environmental conditions.



2. Regular monitoring for the measurement of air pollutants level in ambient shall be carried out. Industry shall submit ambient air quality monitoring reports to the Board regularly every month.
3. Industry shall ensure safe and scientific arrangement for disposal of all solid wastes.
4. All internal roads shall be maintained properly. Dust muck and sludge generated due to transportation on the roads shall be cleaned and disposed off properly. Industry shall improve housekeeping within mine lease area. Industry shall ensure the transportation of ore in duly covered vehicles.
5. Industry shall use fly ash brick, fly ash blocks or fly ash based products in their construction/repairing activities.
6. Wide green belt of broad leaf local species shall be developed along the mine lease area. As far as possible maximum area of open spaces shall be utilized for plantation purposes. Extensive tree plantation shall be carried out in this year including plantation in over burden area.
7. Industry shall submit Environment Statement to this Board as per provision of Environment (Protection) amendment Rule, 1993 for the previous year ending 31<sup>st</sup> March on or before 30<sup>th</sup> September every year.

Please acknowledge the receipt of this letter.


For & on behalf of  
Chhattisgarh Environment Conservation Board Raipur (C.G.)

  
**Member Secretary**  
Chhattisgarh Environment Conservation Board  
Raipur (C.G.)

Endt. No.                    /TS/CECB/2015  
Copy to: -

Raipur, dated: \_\_\_ / \_\_\_ /2015

Regional Officer, Regional Office, Chhattisgarh Environment Conservation Board, Ambikapur (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.)



**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**  
Commercial Complex, Chhattisgarh Housing Board Colony,  
Kabir Nagar, Raipur (C.G.) 492 099

No. 642A/ITS/CECB/2015

Raipur, dated: 31/1 /2015

To,

M/s Hindalco Industries Limited,  
 Samri Bauxite Mine,  
 Village-Samri, Gopatu & Dumerkholi,  
 Tehsil-Samri,  
District- Surguja (C.G.)

*Recd.*  
  
 15.1.15.

Sub: Renewal of consent of the Board under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974.

- Ref: 1. Consent of the Board issued under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 vide letter no. 6876/TS/CECB/2007. Raipur, dated: 24/12/2007.
2. Last renewal of the Board issued under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 vide letter no. 5641/TS/CECB/2014 Raipur, dated: 05/03/2014.
3. Your letter no. HIL/SAM/CECB/422/2014/05, dated: 23/07/2014 and subsequent correspondence ending letter dated: 23/09/2014.

--: 00 :--

With reference to your above application consent is hereby renewed for a period of two years i.e. from 01/12/2014 to 30/11/2016, subject to the fulfillment of the terms and conditions incorporated in the schedule of the consent letter no. 6876/TS/CECB/2007 Raipur, dated: 24/12/2007, subsequent renewals of consent issued by the Board and additional conditions mentioned below.

This renewal of consent is valid for production capacity of: -

Name	Production Capacity
Mining of bauxite ore	5.0 Lakhs Tonne per Annum [Five Lakhs Tonne per Annum]

**Additional Conditions**

1. Industry shall operate and maintain the effluent treatment system effectively and regularly. Industry shall ensure treated effluent quality within the standards prescribed by Board published in Gazette Notification dated: 25/03/1988. Treated effluent shall be used for dust suppression, domestic use, irrigation, other useful purposes etc. Industry shall not discharge any treated / untreated effluent in to the river or any surface water bodies. No effluent shall be discharged outside of the mine premises in any circumstances; hence zero discharge condition shall be maintained all the time; failing which, this renewal of consent may be cancelled.



2. Industry shall ensure safe and scientific arrangement for disposal of all solid wastes.
3. All internal roads shall be maintained properly. Dust muck and sludge generated due to transportation on the roads shall be cleaned and disposed off properly. Industry shall improve housekeeping within mine lease area. Industry shall ensure the transportation of ore in duly covered vehicles.
4. Industry shall use fly ash brick, fly ash blocks or fly ash based products in their construction/repairing activities.
5. Industry shall adopt rainwater-harvesting technique in the project area and residential area (if any) for recharge of ground water.
6. Garland drains with appropriate check dams shall be provided all along the raw ore storage areas, over burden storage area etc. to avoid any possibility of erosion during rain.
7. Industry shall submit monitoring report of effluent regularly.
8. Wide green belt of broad leaf local species shall be developed along the mine lease area. As far as possible maximum area of open spaces shall be utilized for plantation purposes. Extensive tree plantation shall be carried out in this year including plantation in over burden area.
9. Industry shall submit Environment Statement to this Board as per provision of Environment (Protection) amendment Rule, 1993 for the previous year ending 31<sup>st</sup> March on or before 30<sup>th</sup> September every year.

Please acknowledge the receipt of this letter.

For & on behalf of  
Chhattisgarh Environment Conservation Board Raipur (C.G.)

  
**Member Secretary**

Chhattisgarh Environment Conservation Board  
Raipur (C.G.)

Endt. No.  
Copy to: -

/TS/CECB/2015

Raipur, dated: \_\_\_ / \_\_\_ /2015

- 1- Regional Officer, Regional Office, Chhattisgarh Environment Conservation Board, Ambikapur (C.G.). Please ensure compliance and report, if any condition/conditions are violated by the industry.
- 2- Cess Section, Chhattisgarh Environment Conservation Board, Raipur (C.G.)

  
**Member Secretary**

Chhattisgarh Environment Conservation Board  
Raipur (C.G.)

Hindalco Industries Ltd.  
Mines Division, Samri

Lease wise Production 2014-15

Lease	Production (M.T.)
Samri	268921.000
Kudag	46228.000
Tatijharia	190057.000
<b>Total</b>	<b>505206.000</b>

  
(M. K. Nayak)  
Agent of mines  
Samri mines Division  
Hindalco Industries Ltd



Hindalco Industries Ltd.  
Mines Division, Samri

Lease wise Details 2014-15

Lease	Mined out Area (Hect.)	Reclaimed Area (Hect.)	Plantation Area (Hect.)	No. of Sapling
Samri	8.139	5.113	5.15	12850
Kudag	1.502	5.423	2.23	5575
Tatijharia	4.677	5.937	3.10	7750
<b>Total</b>	<b>14.318</b>	<b>16.473</b>	<b>10.48</b>	<b>26175</b>

  
(M. K. Nayak)  
Agent of mines  
Samri mines Division  
Hindalco Industries Ltd

Actual Expenditure incurred in Environment Management Plan:-

Composite cost during the F.Y. 2014-15 for protection of environment & pollution control by Samri Mines division, it includes Samri, Tatijharia & Kudag Bauxite Mine of Hindalco Industries Ltd. of Chhattisgarh state.

SI No-	Environment Protection Measures	Actual Cost (Lacs) (F.Y. 2014-15)
1	Pollution Control	2.60
2	Environment Monitoring	2.65
3	Green Belt	10.775
4	Reclamation/Rehabilitation of mined out area	--
5.	Wild Life Management Plan. (Amount Submitted to Forest Office)	160.00
5	This is part cost of construction of village road within all three leases as mentioned above ,	1400.00
6	Total	1576.025

- Environment monitoring jobs has been out sourced to Annacon Lab, recognized by MoEF (GOI) & NABL etc.
- One centralized nursery has been established at Samri mines among three leases viz, Samri, Tatijharia & Kudag.
- Reclamation and rehabilitation is part of mining operation. Mined out area concurently backfilled by using mines rejects, laterite, morrum and followed top of surface by top soil. As per type of the land we decide for cultivation or planting species. Cost of reclamation /rehabilitation is the part of mining operation.

  
**(M. K. Nayak)**  
 Agent of mines  
 Samri mines Division  
 Hindalco Industries Ltd