

भारत सरकार  
पर्यावरण एवं वन मंत्रालय  
GOVERNMENT OF INDIA  
MINISTRY OF ENVIRONMENT & FORESTS

BY SPEED POST

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File No- J-11011/400/2006-IA II (I)

Date: 6<sup>th</sup> February 2008

To,

**M/s Hindalco Industries Limited**  
Hirakud Complex  
Hirakud  
Sambalpur - 768 016  
Orissa

**Subject: Expansion of Smelter Plant from 100,000 TPA to 360000 TPA and Captive Power Plant from 267.5 MW to 967.5 MW at Hirakud, Sambalpur, Orissa by M/s Hindalco Industries Limited- for Environmental Clearance regarding.**

Sir,

Kindly refer to your letter no. HKD/MOEF/EC/02/2007 dated 25<sup>th</sup> July 2007 seeking environment clearance for the above mentioned project.

2. The Ministry of Environment and Forests has examined the proposal. It is noted that the proposal is for expansion smelting capacity of Aluminum metal from the existing 1,00,000 MTA (including 35, 000 TPA capacity under trial) to 3,60,000 TPA and Captive Power Plant capacity from 267.5 MW (including 100 MW under trial) to 967.5 MW at the Smelter Plant at Hirakud, Sambalpur, Orissa. The project cost is Rs. 5195 Crores, out of which Rs.369 Crores has been earmarked for pollution control measures. This expansion will be undertaken in two phases. In Phase I, 46,000 MTA capacity will be added and in Phase II, the addition shall be of 2,14,000 MTA. Presently, HIL has 468 pots of Soderberge Technology and 164 of Pre-baked Anode Technology (632 pots of 1,00,000 MTA). During Phase-I, the capacity shall be increased to 1,46,000 MTA by changing all (468) Soderberg pots to Pre-Baked ones. Additional 14 pots will be shifted from Belgaum unit and shall also be converted into Pre Baked. This will result in total of 646 Pots of Pre-baked technology having a capacity of 1,46,000 MTA. During Phase II, 232 new Pre baked pots, with 2,14,000 TPA capacity will be added. The unit has Captive Power Plant of 267.5 MW. 100 MW will be added in Phase-I and 600 MW in Phase-II, thereby making the final capacity as 967.5 MW. The power plant will be based on CFBC/PFC Boiler. Coal for CPP shall be procured from coal fields 20 km away and transported in covered Volvo trucks which will be later shifted to railway. Most of the other materials will be also be transported by railways.

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जहाँ है हरियाली।  
वहाँ है खुशहाली।।

पर्यावरण भवन, सी.जी.ओ. कॉम्प्लेक्स, लोदी रोड, नई दिल्ली - 110 003  
PARYAVARAN BHAWAN, C.G.O. COMPLEX, LODHI ROAD, NEW DELHI - 110 003

3. The Phase-I units will be accommodated within the existing 163.95 ha of land. For Phase-II units, additional 91 ha of land will be acquired. No R&R is involved in the project and no forest land is involved in the project. The site is about 8.5 km away from Sambalpur town. Hirakud reservoir on Mahanadi river is located 1.2 km away from the plant. Small size reserve forests (Laxmi dungri, Ram dungri and Jamraha) are located within 10 km radius of the plant. No ecologically sensitive zone exists within 10 km periphery of the project. The proposed Sambalpur Elephant Reserve falls outside 10 km radius of the plant site and the site does not fall in the elephant movement corridor.

4. The raw water requirement shall increase from 31,955 to 1,01,555 KLD, thereby increase for the expansion project will be 69,600 KLD which will be sourced from the Hirakud reservoir. 14,250 KLD of wastewater will be generated from the expansion project. Wastewater generation shall increase from 8278 KLD to 22,528 KLD thereby increase in waste water generation for the expansion project will be 14, 250 KLD. This will be treated in Rotating Biological Contactor and reused with in the plant. Cooling water blowdown from the power plant will be treated to meet the discharge standards and discharged into Kharjhor nalla. 7650 TPA of solid waste generated from smelter will be disposed off as per CPCB guidelines, in secured landfill site inside the premises. 2.55 million TPA of coal ash generated from power plant will be disposed as dry ash mounds. Coal ash disposal as backfill material in abandoned coal mines has been explored.

5. The project is listed at 3 (a) in the Schedule of EIA Notification, 2006 and is under category 'A'. The project is also covered under Para 2 (ii) of the Notification, 2006. The Additional TORs for final EIA/EMP Report were communicated vide even numbered letter of this Ministry dated 15<sup>th</sup> February, 2007. Public Hearing for the project was held on 25.06.2007.

6. Based on the information submitted by you, the Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 14<sup>th</sup> September 2006 subject to the following conditions-

**A. SPECIFIC CONDITIONS:**

- i. As stated in the Public Hearing, the new expansion site shall be on the opposite side of the village.
- ii. The expansion shall be based only on Pre-baked Anode Technology and all Soderberge Technology based pots shall be converted to Pre-baked Anode Technology, as per the schedule submitted to the Ministry. The Captive Power Plant shall be based on CFBC/PFC Boiler.

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- iii. The gaseous emissions ( $\text{SO}_2$ ,  $\text{NO}_x$ , CO, HC and Fluoride) and Particulate matter along with RSPM levels from various process units shall conform to the standards prescribed by the concerned authorities from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time the emission level shall go beyond the prescribed standards. On-line Continuous monitoring system for particulate emissions,  $\text{SO}_2$  and  $\text{NO}_x$  shall be provided and shall make necessary arrangements for submission of On-line real time emission data to CPCB website. Interlocking facility shall be provided between pollution control equipment and the process operation so that in the event of the pollution control equipment not working, the respective unit (s) is shut down automatically. In the event of failure of any pollution control system adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency. Low  $\text{NO}_x$  burners shall be installed to control the  $\text{NO}_x$  emissions.
- iv. Only 10 new stacks shall be installed for the expansion project- 4 in smelter plant, 4 in anode plant and 2 in casting unit. The scrubbed alumina from Alumina based dry scrubbing system shall be reused in process. Minimum stack height shall be 50 m. The minimum height of other stacks of anode plant and casting plant shall be 35 m, which shall be based on Sulphur content of fuel. 3 new stacks in power plant shall be provided with ESP.
- v. Total Fluoride emissions and pitch fumes from smelter and anode-baking unit shall be controlled using Alumina based dry scrubbing system to limit Fluorides emissions within 0.8kg/ton Aluminum produced and SPM within 50 mg/ $\text{Nm}^3$ . SPM emissions from Captive Power Plant shall be less than 100 mg/ $\text{nm}^3$ . Forage Fluoride levels of less than 80 PPM for one month, less than 60 PPM for two months and less than 40 PPM for 12 months shall be complied with. Further the Pot emissions through fume treatment plant shall not exceed 0.30 Kg/Ton of Aluminium produced.
- vi. Regular monitoring of Fluoride contents in ambient air, Forage Fluoride and in ground water shall be carried out and data shall be submitted to the State Pollution Control Board.
- vii. Raw material shall be stored in covered yards. Water sprinkling arrangement shall be made in the raw material stock yard to control fugitive emissions. Coal and other raw material shall be transported in covered trucks, containers etc., which shall later be shifted to covered rail wagons.

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- viii. In plant control measures for checking fugitive emissions from all the vulnerable sources like spillage/raw materials/coal handlings etc. shall be provided. Further, specific measures like provision of dust extraction and suppression system consisting of water sprinkling, suction hoods, fans, cyclones, bag filters, ventury scrubber etc. shall be installed at material transfer points and other enclosed raw material handling areas. Centralized de-dusting system i.e. collection of fugitive emissions through suction hood shall be provided and subsequent treatment through bag filter or any other device and finally emitted through a stack of appropriately designed height, as prescribed above.
- ix. Fugitive Fluoride emissions from the pot room shall not exceed 4.0 Kg/Tom of Aluminium produced. Fugitive emissions, especially in the work zone area, products and raw materials storage area etc. shall be regularly monitored and records be maintained. The emissions shall conform to the limits imposed by the State Pollution Control Boards/Central Pollution Control Board.
- x. Windbreakers shall be installed to restrict fugitive dust.
- xi. The water requirement for the expansion project shall not exceed 69,600 KLD and shall be sourced from the Hirakud reservoir.
- xii. Waste water generation shall not exceed 14,250 KLD for the expansion project. Wastewater generated from smelter shall be treated in Rotating Biological Contactor and shall be reused in the plant. Cooling water blowdown from the power plant shall be treated up to discharge standards and discharged into Kharjhor nalla.
- xiii. 7650 TPA of solid waste generated, mainly the spent pot lining from smelter shall be disposed off in a secured landfill site inside the premises. The SLF shall be as per CPCB guidelines. 2.55 million TPA of coal ash generated from power plant shall be disposed as dry ash mounds. However , it shall be ultimately disposed off as backfill material in abandoned coal mines or shall be utilized as per the Fly Ash Notification S.O.763 (E) dated 14.9.1999 of this Ministry. The proposed Amendment / revision to this Notification shall be applicable for compliance from the Project Authority.
- xiv. Minimum Cycle of Concentration (COC) for the CPP shall be 5.0.
- xv. Minimum of 33% of total land area shall be developed as green belt with local species in consultation and as per the CPCB's guidelines.
- xvi. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium Sector shall be strictly implemented.

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- xvii. The project authorities shall earmark Rs.369 Crores to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.

**B. GENERAL CONDITIONS :**

- (i) The project authorities shall strictly adhere to the stipulations made by the State Pollution Control Board.
- (ii) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- (iii) Regular monitoring of ambient air for SPM, RSPM, SO<sub>2</sub>, NO<sub>x</sub>, CO, HC and Fluoride shall be carried out as per CPCB guidelines. The locations of ambient air quality monitoring stations shall be reviewed in consultation with the State Pollution Control Board (SPCB) and additional stations shall be installed, if required, in the downwind direction as well as where maximum ground level concentrations are anticipated.
- (iv) Data on ambient air quality, fugitive emissions and stack emissions should be regularly submitted to the concerned Regional Office of this Ministry and SPCB/CPCB every six months and posted on the Website of the Project Authority.
- (v) Industrial waste water shall be properly collected 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.
- (vi) The project authorities shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000 and Hazardous Waste (Management and Handling) Rules, 1989, as amended from time to time. Authorization from the SPCB shall be obtained for collection, treatment, storage, and disposal of hazardous wastes. All Transportation of Hazardous Chemicals shall be as per the MVA, 1989.

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- (vii) The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- (viii) Occupational health surveillance of the workers shall be carried out on a regular basis and records shall be maintained as per the Factories Act.
- (ix) Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis.
- (x) Usage of PPEs by all employees/ workers shall be ensured.
- (xi) The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.
- (xii) The project proponent shall also comply with all the environmental protection measures and safeguards proposed in the EIA/EMP report. All the recommendations made in respect of environmental management and risk mitigation measures relating to the project shall be implemented.
- (xiii) The company will undertake all relevant measures, as indicated during the Public Hearing for improving the Socio-economic conditions of the surrounding area. CSR activities will be undertaken by involving local villages and administration.
- (xiv) The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment. The eco-development plan should be submitted to the SPCB within three months of receipt of this letter for approval.
- (xv) A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
- (xvi) The implementation of the project vis-à-vis environmental action plans shall be monitored by the concerned Regional Office of the Ministry/SPCB / CPCB. A six monthly compliance status report shall be submitted to monitoring agencies and shall be posted on the Website of the Company.

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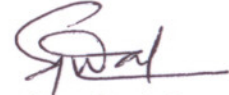


- (xvii) The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.
- (xviii) The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.

7. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

8. The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.

9. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management and Handling) Rules, 2003 and the Public Liability Insurance Act, 1991 along with their amendments and rules.



(Sanchita Jindal)  
Additional Director

**Copy to:**

1. The Principal Secretary, Environment & Forests Department, Orissa Secretariat, Bhubaneswar- 751 001, Orissa.
2. Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office (EZ), A/3, Chandra Shekharpur, Bhubaneswar - 751 023, Orissa.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Orissa Pollution Control Board, Parivesh Bhawan, A/118, Neelkanthannagar, Unit-8, Bhubaneswar- 751 012, Orissa.

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5. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
6. Guard File
7. Monitoring File
8. Record File.

**(Sanchita Jindal)**  
Additional Director