C.P.U. No. 938

FIFTH REPORT

COMMITTEE ON PUBLIC UNDERTAKINGS

(2009-2010)

(FIFTEENTH LOK SABHA)

NATIONAL ALUMINUM COMPANY LIMITED

MINISTRY OF MINES



Presented to Lok Sabha on 21.04.2010

Laid in Rajya Sabha on 21.04.2010

LOK SABHA SECRETARIAT NEW DELHI

21 April, 2010 / Chaitra 1931(S)

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Minutes of the sittings of the Committee

<u>COMPOSITION OF THE</u> COMMITTEE ON PUBLIC UNDERTAKINGS (2009 - 2010)

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SHRI V. Kishore Chandra S. Deo - Chairman

SI. No. MEMBERS, LOK SABHA

- 2. Shri K.C. Singh 'Baba'
- 3. Shri Ramesh Bais
- 4. Shri Hemanand Biswal
- 5. Shri Anant Kumar Hegde
- 6. Shri Sukhdev Singh Libra
- 7. Dr. Charan Das Mahant
- 8. Shri Baijayant Panda
- 9. Shri L. Rajagopal
- 10. Shri Nama Nageswara Rao
- 11. Chaudhary Lal Singh
- 12. Shri Ganesh Singh
- 13. Shri N. Dharam Singh
- 14. Shri Rajiv Ranjan Singh alias Lalan Singh
- 15. Shri Bhisma Shankar alias Kushal Tiwari

MEMBERS, RAJYA SABHA

- 16. Shri Birendra Prasad Baishya
- 17. Shri Bharatkumar Raut
- 18. Ms. Mabel Rebello
- 19. Dr. T. Subbarami Reddy
- 20. Shri Vijay Kumar Rupani
- 21. Shri Tapan Kumar Sen
- 22. Shri Amar Singh

Secretariat

- 1 Shri J.P. Sharma Joint Secretary
- 2 Shri Ravindra Garimella Additional Director
- 3 Shri Paolienlal Haokip Under Secretary

INTRODUCTION

I, the Chairman, Committee on Public Undertakings (2009-10) having been authorized by the Committee to submit the Report on their behalf, present this Fifth Report on the National Aluminum Company Limited (NALCO).

2. The Committee took oral evidence of the representatives of NALCO on 10th September, 2009 and further, took oral evidence of the representatives of Ministry of Mines on 12th February, 2010.

3. The Committee considered and adopted this Report at their sitting held on 9th March, 2010.

4. The Committee wish to express their thanks to the representatives of the National Aluminum Company Limited and Ministry of Mines for placing before them the desired material and information in connection with the examination of the subject. The Committee would also like to place on record their appreciation for the invaluable assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

5. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in **bold letters** in **Part-B** of the Report.

New Delhi: 9th March, 2010 18 Phalguna, 1931 (Saka) SHRI V. KISHORE CHANDRA S. DEO Chairman, Committee on Public Undertakings

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(v)

Part A

Chapter-1

Background, Organization and Objectives of the Company

1.1 Background

1.1.1 Incorporated in 1981 as a public sector enterprise under the ministry of Mines, Government of India, National Aluminium Company Limited (NALCO) had been the leading producer of Alumina and Aluminium metal in the country till about a decade ago. It is today one of Asia's largest integrated alumina-aluminium complex, comprising bauxite mining, alumina refining, aluminium smelting and casting, power generation, rail and port facilities.

1.1.2 The Government of India has accorded the status of a Navratna CPSU to the company in April 2008 and has granted it enhanced autonomy in recognition of its performance and to facilitate its further growth.

1.1.3 While the company has been showing growing profits and continues to play a prominent role in the growth of the Aluminium industry and contribute towards self-sufficiency in the metal in India, the liberalization of the economy in 1992 and the emergent market began to throw new challenges before the company. In the new competitive market scenario, it is no longer growth and profit alone by which performance became measured, but by the rate of growth and rate of increase on profits that began to form the parameters of performance measurements.

1.1.4 The Company's continued trends of profit and expansion of capacities notwithstanding, its performance under these emergent parameters as compared to the private competitor's performance began to show elements for some concern. The Committee, noting that CPSUs can no longer afford the complacence of the pre-liberalized era and with the objective to ensure their continued competitiveness under the changed market realities brought about by liberalization, privatization and Globalization, have decided to examine the National Aluminium Company Limited as part of its larger efforts to ensure functional accountability of the executive to the Legislature.

1.1.5 In the course of the examination of the company, the committee dealt with numerous aspects of the organization and its functioning. However, this report will feature those aspects of the company in which the committee felt, there are areas of concern and challenges remain to be overcome by the company to enhance its competitiveness not only domestically but also globally.

1.2 Organization

1.2.1 The organizational set up of the company and the composition of the Board of Directors as furnished by the company is given below:-

REGISTERED OFFICE &	Located at BHUBANESWAR.				
CORPORATE OFFICE :					
PRODUCTION UNITS	MINES: On Panchpatmali Hills in the Koraput District of Orissa, a fully mechanised opencast mines of 48 lakh TPY capacity is under operation, serving feed stock to Alumina Refinery located in the foot hills. The capacity is being expanded to 63 lakh TPY				
	picturesque valley of Damanjodi. The unit based on Bayer's process with atmospheric digestion is being expanded to 21 lakh tpy.				
	SMELTER: 3.45 lakh tpy aluminium smelter located at Angul district of Orissa is based on energy efficient, state-of-the-art French technology. The capacity is being expanded to 4.6 lakh.				
	RPU: Capacity of 50,000MT of Rolled flat product, located in Angul district.				
	POWER PLANT : Close to the Aluminium Smelter, a captive power plant of 960 MW (8x120 MW) capacity has been established to feed power to the Smelter. The capacity is being expanded to 1200 MW (10x120MW). Its Coal fired thermal power plant with captive rail system for transportation of coal from Mahanadi Coal Fields.				
REGIONAL OFFICES	 Northern Regional Office, New Delhi Eastern Regional Office, Kolkata Southern Regional Office, Chennai Western Regional Office, Mumbai. 				
BRANCH OFFICE	Bangalore				
PORT FACITILITIES	On the inner harbour of Visakhapatnam Port in the Bay of Bengal, NALCO has a mechanised storage and ship handling facilities for export of Alumina and import of Caustic Soda.				

STOCK YARDS	Jaipur, Rajasthan
	Baddi, Himachal Pradesh
	Faridabad, Haryana
	Silvasa, U. T. of Dadra Nagar Haveli
	Bhiwandi, Maharashtra
	Kolkota, West Bengal
	Bangalore, Karnataka
	Vizag, Andhra Pradesh

Board of Directors

1.2.2 Presently the Board of Directors of the Company comprises of 16 directors viz., 6 executive directors, 2 non-executive Government nominee directors and 8 independent directors. In terms of Clause 49 of the Listing Agreement, where Chairman of the Board is an executive director, at least half of the Board should comprise of independent directors. The Company fulfills this criterion of Clause-49 of the Listing Agreement.

A. WHOLE TIME DIRECTORS:

SI.	Name & Designation	Date of	Profile
No.		Appointment	
1.	Shri C. R. Pradhan,	03.08.2009 *	B.E (Electrical). Varied experience in
	Chairman-cum-Managing		technical fields in senior positions of
	Director		NALCO and other different Companies.
2.	Shri K. K. Mallick,	28.01.2005	B.E (Mechanical). Varied experience in
	Director (Commercial)		Planning and Procurement
			Departments/ Marketing Management in
			senior positions of NALCO.
3.	Shri B.L. Bagra,	26.02.2007	M.Com & F.C.A. Varied experience in
	Director (Finance)		Financial Management in different
			Companies.
4.	Shri Joy Varghese,	01.10.2007	M.S.W. & M.B.A. Wide ranging
	Director (Pers. & Admn.)		experience in Human Resources
			Management.
5.	Shri A. K. Sharma, Director	01.05.2009	B.E (Mechanical). Varied experience in
	(Production)		technical fields in senior positions of
			NALCO and other different Companies.
6.	Shri P. K. Padhi,	03.09.2009	M. Tech. (IE & OR). Varied experience
	Director (P&T)		in senior positions of NALCO in the field
			of Industrial Engineering, Marketing and
			Materials Management.

* Shri C.R. Pradhan was appointed as Director (P&T) with effect from 21.12.2004. He was holding additional charge of the post of Chairman-cum-Managing Director from 01.02.2005 to 02.08.2009. He was also holding additional charge of the post of Director (P&T) from 03.08.2009 to 02.09.2009.

SI.	Name & Designation	Date of	Profile
No.		Appointment	
1.	Shri S. Vijay Kumar	23.01.2008	IAS Officer with varied experience in
			Administration. Presently he is
			Additional Secretary in Ministry of
			Mines, Government of India.
2.	Shri V. K. Thakral	18.11.2004	IAS Officer with varied experience.
			Currently holding position of Joint
			Secretary in the Ministry of Mines,
			Government of India.

B (I) PART TIME OFFICIAL DIRECTORS (NON-INDEPENDENT)

(II) PART TIME NON OFFICIAL DIRECTORS (INDEPENDENT)

SI.	Name & Designation	Date of	Profile
No.		Appointment	
1.	Shri S.S. Sohoni	27.09.2007	Retd. IAS Officer (Former Secretary to
			the President of India).
2.	Dr. A. Sahay	27.09.2007	M.Sc (Mech.) & Ph.D. Presently
			Professor in Strategic Management,
			MDI, Gurgaon
3.	Shri K.S. Raju	27.09.2007	M.A. (Applied Geology). Retd.
			Controller General, Indian Bureau of
			Mines (IBM). Vast experience in the
			field of mining, mineral beneficiation
			and mineral testing.
4.	Shri S. B. Mishra	24.04.2008	Retd. IAS Officer (Former Chief
			Secretary, Govt. of Orissa). Having
			varied experience in Administration.
5.	Shri N. R. Mohanty	24.04.2008	A mechanical engineer, hard core
			technologist, known for leadership
			quality and man-management. Former
			Chairman, Hindustan Aeronautics
			Limited (HAL). Recipient of
			Padmashri Award' for his outstanding
		04.04.0000	contribution in the field of Aviation.
6.	Dr. Jyoti Mukhopadhyay	24.04.2008	Master of Engineering (Physical
			Metallurgy), Ph.D. Presently Director,
			JNARDDC, Nagpur.

7.	Shri R. K. Sharma	24.04.2008	M.A. (Economics) from Delhi
			University. Presently Secretary
			General of Federation of Indian
			Mineral Industries (FIMI). Expertise in
			Mining Industry and associated in
			framing Mineral Policies.
8.	Maj.Gen.(Retd.) Samay	24.04.2008	Retired Major General from Army.
	Ram, UYSM,AVSM,VSM		Distinguished service in Army.
			Recipient of many gallantry awards.
			Varied experience in Human
			Resource Management and Logistics
			Management.

- (a) & (b) The position of Director (P&T) was vacant between 03.08.2009 to 02.09.2009 only. Shri P. K. Padhi has joined as Director (P&T) with effect from 03.09.2009.
- (c) The vacancy of the post of Director (P&T) from 03.08.2009 to 02.09.2009 has not caused any adverse impact on the performance of the Company since Shri C. R. Pradhan, Chairman-cum-Managing Director was holding additional charge of the post of Director (P&T) during that period.

1.2.3 It may be noted that the CMD and the Director marketing have retired during the course of the examination by the Committee and Shri A.K. Srivastava has taken charge as the new CMD of NALCO since 01/10/2009 and Shri Ansuman Das has assumed the post of Director (Commercial) following the retirement of Shri K.K. Mallick.

1.2.4 During evidence of the representatives of Ministry of Mines, the Chairman, COPU stated that NALCO did not have a permanent Chairman and Managing Director for a very long time. To this, the Secretary, Ministry of Mines replied:-

"....as of now, we have a full-time Chairman and the Managing Director.Unfortunately, this was a problem. While the process of appointment was taken up, this has become a problem in almost all the appointments at the top level now. There are complaints which are received suddenly and then vigilance inquires are started and the process gets vitiated. This has happened in this case also and until the vigilance inquiries are satisfactorily sat aside, we are not able to proceed, especially with internal candidates' cases. That was particularly the reason why in the case of NALCO, the process took a long time.

Sir, you have raised the question about the ACC having taken a decision to appoint two people from the same panel. It was partly to overcome the piquant situation which arose from a man who had held the charge of the CMD for over four years and was about to retire. Saying that he was not eligible to be the CMD would be inappropriate because he had already been CMD for four years. So, it was necessary to allow him to retire as CMD. Since there were only two or three months left, going through the whole process again of starting the hunt for a new CMD would have again gone through the process of maybe another six months at least as a minimum, the ACC in its wisdom decided that the second person on the panel would immediately take over so that the process does not get delayed. This process was challenged in the court, in the Central Administrative Tribunal. The Tribunal has finally upheld the ACC decision. So, as of now, the matter rests and we have a full-time Chairman and the Managing Director. However, the concern of the august Committee is taken note of."

1.3 Objectives

1.3.1 The main objectives of the Company as furnished before the Committee are as follows:-

- i) To carry on in India and elsewhere trades or business of metallurgists and miners including beneficiation of minerals, mineral, concentration, smelting, refining and the extraction, manufacture and fabrication, purchase and sale of and generally dealing in all metals and their products and alloys and in particular to manufacture and/or produce and/or otherwise engage generally in the manufacture or production of/or dealing in alumina, aluminium products and by-products and the sale, dealing or other disposition of alumina, aluminium and aluminium products and by-products.
- ii) To mine, quarry, beneficiate, dress, smelt, refine, manufacture, process, fabricate, purchase or otherwise acquire, sell or otherwise dispose of or deal in bauxite and other aluminium bearing ores, alumina, aluminium, aluminium alloys and compounds, aluminium goods, wares and products of all kinds, chemicals, chemical compounds and metals, minerals or other materials of every kind needed for or resulting from the mining, production or processing of bauxite or other aluminium bearing ores, alumina, aluminium and aluminium products or every kind.

In addition to the above, the other related objectives of the company are as under:

- To maximize capacity utilization.
- To optimize operational efficiency and productivity.
- To maintain highest international standards of excellence in product quality, cost efficiency and customer service.
- To provide a steady growth in business by technology upgradation, expansion and diversification.
- To have global presence and earn foreign exchange.
- To maintain leadership in domestic market.
- To maintain highest standard of customer service both in domestic market as well as in overseas market.
- To instill financial discipline at all levels for achieving cost and budgetary controls, optimize utilization of working capital and effective cash flow management.
- To maximize return on investment.
- To develop a strong R&D base and increase business development activities.

- To promote a result oriented organizational ethos and work culture that empowers employees and helps realization of individual and organizational goals.
- To maximize internal customer satisfaction.
- To foster high standards of health, safety and environment friendly products.
- To participate in peripheral development of the area.

1.3.2 Asked about the endeavors of the company to formulate and recommend to the Central Government a national policy for the development of aluminium and related input industries, the company in reply submitted:-

"A DRAFT ALUMINIUM MISSION PLAN DOCUMENT (2009-2020) is being prepared by ALUMINIUM ASSOCIATION OF INDIA (AAI), of which NALCO is a member, in consultation with its members. In the present form, the above draft aluminium mission plan consists of Aluminium: The metal of future, Global and Indian Aluminium Industry, India: High Consumption growth, Strategic importance of Aluminium Industry to India, major challenges & recommended interventions by the Government of India.

As a member we have also given our views to the Association and other primary and secondary producers have also given their views. The views and suggestions of different members are being incorporated into the above draft mission plan document and the same is expected to be ready shortly."

1.3.3 The Ministry of Mines in their reply on the issue of having a National Aluminium Policy in place stated:-

"Although the Ministry of Mines has not developed/laid down any structured policy for Aluminium Industry, however, it has from time to time taken steps to remove hindrances/bottlenecks which are faced by the aluminium industry in general. Ministry of Mines is basically concerned with primary aluminium industry, while the secondary/downstream aluminium industry comes under the purview of Department of Industrial Policy & Promotion.

Ministry of Mines has now taken an initiative to have an institutional mechanism which will serve as think tank and workout policies in different non-ferrous metals including aluminium. For attaining this objective, a Centre for Techno-Economic Mineral Policy Options (C-TEMPO) is being setup comprising representatives of all major sectoral stakeholders to evolve policy options. It will address the technology and management gaps for the non-ferrous and ferrous minerals, undertake international research and suggest policy level intervention to guide and stimulate the growth of mineral sector including aluminium. It is hoped that this will adequately address the issue of policy."

1.3.4 Asked to furnish details regarding training institutions of NALCO, type of training provided in the training institutes and total number of trainees who were imparted training during each of the last three years, which also forms part of its broad objectives, the company in their reply stated as below:-

"Nalco has been giving importance to impart training to the mining engineers. The training institute at Mines & Refinery (M&R) Complex, Damanjodi is playing a pivotal role in fulfilling the training needs (Functional, Statutory & Developmental) of these Engineers."

1.3.5 The information on training availed by the Mining Engineers for the year 2006-07, 2007-08 & 2008-09, furnished by them can be seen at **Annexure-1**.

Chapter-2 Activities and Performance

2.1 Activities of the Company

2.1.1 The main activities of the company as submitted by them to the Committee are reproduced below:-

"Present activities of the Company include:-

BAUXITE MINES

NALCO's 48, 00,000 tpa bauxite mining, on Panchpatmali hills of Koraput district in Orissa, is among the most sophisticated and eco-friendly mining operations to be found worldwide. Highly mechanized, this opencast mining features geostatistics application and computerized mine planning. The transportation of ore to the Alumina Refinery, located downhill, is done through a 14.6 kms long, single-flight, multi-curve, cable belt conveyor system.

ALUMINA REFINERY

One among the top ten alumina refineries in the world, this 15,75,000 tpa energyefficient Alumina Refinery at Damanjodi in Koraput district of Orissa utilizes timetested Bayer process technology of atmospheric pressure digestion at low temperature. After meeting the consumption needs of the company's Smelter, the balance quantity of alumina goes to international markets through Visakhapatnam Port.

Manufacturing of 26,000 tpa special grade aluminas and hydrates as well as 10,000 tpa detergent grade zeolite are well-integrated with the main process streams.

ALUMINIUM SMELTER

Located at Angul in Orissa, the 3, 45,000 tpa Smelter comprises three pot-lines with 240 electrolytic pot cells in each, along with integrated facilities for casting of ingots, sows, billets, strips and wire rods. With the acquisition and subsequent merger of International Aluminium Products Limited (IAPL) with NALCO, the 50,000 tpa exportoriented rolled products unit having the advantage of direct molten metal transfer from the Smelter, NALCO has added a major downstream capability.

POWER PLANT

The 960 MW Captive Thermal Power Plant at Angul, close to the Smelter and near Talcher coalfields, is another showpiece in efficient and reliable power generation. Besides firm and uninterrupted power supply to the Smelter, it is connected to the state grid for greater reliability as well as for sale of surplus electricity.

PORT FACILITIES

NALCO has a dedicated Port Facilities at the inner harbour of Visakhapatnam Port in Andhra Pradesh on the Bay of Bengal, for bulk export of alumina and import of caustic soda lye. With storage facility up to 75,000 tonnes and ship-loading rate of 2200 tonnes per hour, this gateway to overseas market can reliably handle export of about one million tonnes of alumina per annum.

PRODUCTS OF NALCO

Registered with London Metal Exchange, in the primary Aluminium segment, NALCO products enjoy worldwide reputation on account of their quality, reliability in shipment and backed by high standard customer services. The products are:

(i) ALUMINA/CHEMICALS

- Alumina hydrate
- Calcined alumina
- Speciality aluminas & hydrates
- Detergent grade Zeolite

(ii) ALUMINIUM METAL

(High Purity, CG, EC & LME grade)

- Standard ingots (Nominal size 20/22.5kgs)
- Sow ingots (each max. 750kgs)
- Wire rods (in coil form, 9.5/11.95mm dia, weight approx. 2 tonnes)
- Billets (in four sizes: 127mm/152mm/178mm/203mm dia)
- Cast strips (max. width 1600mm, gauge 6 10 10mm)
- Flat Rolled Products (coils and sheets)

(iii) ROLLED PRODUCTS

After acquisition and merger of International Aluminium Products Ltd., NALCO has started production from the 50,000 tpa plant. This 100% export-oriented Rolled Products Unit has facilities to produce foil stock, fin stock, can stock, circles, coil stock, cable wraps, standard sheets and coils for a variety of end uses. Set up in technical collaboration with Fata Hunter, Italy, the plant incorporates high precision equipments and on-line quality monitoring systems."

2.2 Performance

2.2.1 Asked to furnish details on their performance in the domestic and international market in comparison with its competitors, the company in their reply stated:-

"As regards Aluminium metal, the performance of NALCO vis-à-vis its competitors in the domestic market is mentioned below:

PRODUCTION OF PRIMARY PRODUCERS OF ALUMINIUM IN INDIA

COMPANY/YEAR	2004-05	2005-06	2006-07	2007-08	2008-09
HINDALCO	411,831	438,536	450,725	484,645	530,743
VEDANTA	135,949	210,702	352,772	396,551	457,420
NALCO	338,483	358,954	358,735	359,213	361,261
TOTAL	886,263	1,008,192	1,162,232	1,240,409	1,349,424

INDIAN PRIMARY PRODUCERS DOMESTIC SALES

COMPANY/YEAR	2004-05	2005-06	2006-07	2007-08	2008-09
HINDALCO	362,957	354,164	362,675	388,807	370,092
VEDANTA	135,112	194,252	256,942	288,125	311,593
NALCO	205,701	258,095	263,494	251,612	271,273
TOTAL	703,770	806,511	883,111	928,544	952,958

INDIAN PRIMARY PRODUCERS EXPORT SALES

COMPANY/YEAR	2004-05	2005-06	2006-07	2007-08	2008-09
HINDALCO	48,066	79,159	87,129	94,853	157,369
VEDANTA	0	14,039	96,128	107,067	142,185
NALCO	132,730	95,746	93,122	101,723	82,316
TOTAL	180,796	188,944	276,379	303,643	381,870

INDIAN PRIMARY PRODUCERS TOTAL SALES

COMPANY/YEAR	2004-05	2005-06	2006-07	2007-08	2008-09
HINDALCO	411,023	433,323	449,804	483,660	527,461
VEDANTA	135,112	208,291	353,070	395,192	453,778
NALCO	338,431	353,841	356,616	353,335	353,589
TOTAL	884,566	995,455	1,159,490	1,232,187	1,334,828

NALCO is a small player globally with a production quantity of 0.36 million tonnes aluminium metal as against the World production of 39.909 million tonnes i.e. 0.9% of the World production. However in Alumina NALCO does have a relatively better presence with a production of 1.55 million tonnes against a World production of 79.118 million tonnes i.e. 1.95% of the Word production. There is hardly any competition in the domestic alumina market as NALCO sales a very small quantity in the domestic market and the other two primary producers manufacture alumina mostly for their captive consumption.

In terms of cost of production as per Brook Hunt Report NALCO stands the 10th lowest in World in Aluminium metal production and 3rd lowest in the World in Alumina refining much better placed than its domestic competitors HINDALCO & VEDANTA.

A. Physical and financial Performance

2.2.2 The five year physical performance of the company is given below:-

SI. No.		Unit	2008-09	2007-08	2006-07	2005-06	2004-05			
1.	Production	Production								
	Bauxite MT 4,700,027 4,684,684 4,623,278 48,54,253 4,85									
	Alumina Hydrate	MT	1,576,500	1,575,500	1,475,200	15,90,000	1,575,500			
	Aluminium for Internal Consumption	MT	361,262	360,457	358,734	3,58,954	338,483			
	Power (net)	MU	5,541	5,609	5,968	5,679	5,613			
2.	Export Sales									
	Alumina	MT	851,886	859,943	773,573	862,616	909,081			
	Aluminium	MT	82,317	101,723	92,678	95,747	132,730			
3.	Domestic Sales									
	Alumina / Hydrate	MT	20,929	11,307	10,920	12,994	21,177			
	Aluminium	MT	271,274	251,612	263,494	258,094	205,797			
	Power	MU	81	129	421	322	406			

2.2.3 The five year financial performance of the company is given below:-

Particulars	2008-09	2007-08	2006-07	2005-06	2004-05
Income Statement:					
1. Exports	2,085	2,134	2,586	2,306	2,200
2. Domestic Sales	3,446	3,340	3,929	3,018	2,220
3. Gross Sales (1+2)	5,531	5,474	6,515	5,324	4,420
4. Less : Excise Duty	423	485	575	435	316
5. Net Sales (3 - 4)	5,108	4,989	5,940	4,889	4,104
Other Income:					
6. Operating	123	146	103	101	174

7. Non-operating	400	441	311	132	77
8. Operating expenses	3,427	2,822	2,412	2,311	1,965
9. Operating Profit (5+7-9)	1,804	2,313	3,631	2,679	2,313
10. Earning before interest, dep. & taxes (EBIDT)(10+8)	2,204	2,754	3,942	2,811	2,390
11. Interest & Financing charges	4	2	-	-	61
12. Earning before dep. & taxes (EBDT) (11-12)	2,200	2,752	3,942	2,811	2,329
13. Depreciation and Amortisation	273	285	322	381	459
14. Profit before Tax (PBT) (13-14)	1,927	2,467	3,620	2,430	1,870
15. Provision for Tax	655	835	1,239	868	635
16. Net Profit (PAT) (15 - 16)	1,272	1,632	2,381	1,562	1,235
Balance Sheet :					
17. Equity Capital	644	644	644	644	644
18. Reserves & Surplus	9,126	8,230	7,051	5,249	4,054
19. Networth (18+19)	9,770	8,874	7,695	5,893	4,698
20. Loans Outstanding	-	-	-	-	-
21. Net Fixed Assets	4,032	3,531	3,711	3,944	4,139
22. Net Current Assets	2,596	3,500	3,755	2,357	1,005
23. Capital Employed (22+23)	6,628	7,031	7,466	6,301	5,144
Ratios :					
24. Operating Profit Margin (OPM) (%) (10 / 5*100)	35.32	46.36	61.12	54.81	56.36
25. Net Profit Margin (%) (17 / 5 *100)	24.90	32.71	40.09	31.96	30.09
26. Return on Capital Employed (ROCE) (%) (17/24*100)	19.19	23.21	31.89	24.79	24.01
27. Return on Networth (RONW)(%) (17/20*100)	13.02	18.39	30.95	26.51	26.29
28. Debt Equity (21 / 20)	-	-	-	-	-
Others :					
29. Book value per share of Rs.10 each(in Rs.)	151.64	137.73	119.43	91.46	72.91
30. Earnings per share (in Rs.)	19.75	25.32	36.96	24.25	19.17
31. Dividend declared (%)	50	60	75	50	40

2.2.4 Asked to explain the slipping of the company to third place from being the prime player in the aluminium sector till a few years ago, the company in their reply stated:-

"It is true that NALCO has declined to 3rd place in the country from 2nd position in terms of production quantity which is due to capacity constraint and growth and takeover by private companies. It may please be noted that the production units of NALCO are operating near or more than rated capacity (100% capacity utilization) over the years.

The performance of NALCO vis-à-vis competitors is given below:

PRODUCTION OF PRIMARY PRODUCERS OF ALUMINIUM IN INDIA

COMPANY/YEAR	2004-05	2005-06	2006-07	2007-08	2008-09
HINDALCO	411,831	438,536	450,725	484,645	530,743
	405.040	040 700	050 770		457 400
VEDANTA	135,949	210,702	352,772	396,551	457,420
	338 483	358 954	358 735	350 213	361 261
INALOO	550,405	000,004	550,755	555,215	501,201
TOTAL	886.263	1.008.192	1.162.232	1.240.409	1.349.424
		.,	.,,	-,,	.,,

INDIAN PRIMARY PRODUCERS DOMESTIC SALES

COMPANY/YEAR	2004-05	2005-06	2006-07	2007-08	2008-09
HINDALCO	362,957	354,164	362,675	388,807	370,092
VEDANTA	135,112	194,252	256,942	288,125	311,593
NALCO	205,701	258,095	263,494	251,612	271,273
TOTAL	703,770	806,511	883,111	928,544	952,958

INDIAN PRIMARY PRODUCERS EXPORT SALES

COMPANY/YEAR	2004-05	2005-06	2006-07	2007-08	2008-09
HINDALCO	48,066	79,159	87,129	94,853	157,369
VEDANTA	0	14,039	96,128	107,067	142,185
NALCO	132,730	95,746	93,122	101,723	82,316
TOTAL	180,796	188,944	276,379	303,643	381,870

COMPANY/YEAR	2004-05	2005-06	2006-07	2007-08	2008-09
HINDALCO	51.6	43.9	41.1	41.9	38.8
VEDANTA	19.2	24.1	29.1	31.0	32.7
NALCO	29.2	32.0	29.8	27.1	28.5
TOTAL	100	100	100	100	100

DOMESTIC MARKET SHARE OF NALCO vis-à-vis OTHER PRIMARY PRODUCERS

The global economic crisis and financial crisis have affected all economies and industries across the globe and the aluminium industry is no exception. The LME cash settlement prices which had touched a high of \$3291.50/t on 11th July 2008 crashed to a low of \$1253.50/t on 24th February 2009, a drop by more than 60%. This drop in LME prices affected the alumina and aluminium producers who had to announce curtailments to tide over the crisis. In this situation companies were forced to sell metal below their cost of production to keep their Plant running. However, because of being a low cost producer NALCO was able to sale their material above the cash cost without affecting its production schedule.

From the above figures, it may be seen that the domestic share of NALCO has increased despite its production remaining at the same levels. Intentionally, the Company reduced its exports and increased its domestic sales to optimize overall realization. Similarly, though the overall production level remained flat, production/sale of value added products was improved in the product-mix. However, our competitors who had increased their production levels could not retain the market share in the domestic market and had to eventually export their surplus material otherwise they would have landed up with huge inventories. It is expected that the market would improve gradually from 2010 onwards.

The company to retain and increase its domestic market share is on the verge of increasing its production levels. The 2nd phase expansion of Smelter is substantially in operation and 190 pots are presently working out of 240 pots envisaged in this expansion. The expected production of the company in the year 2009-10 would be approx. 4,40,000MT. This would help the company in improving its position vis-à-vis its competitors. In addition, the company is on the look-out for opportunities to build Greenfield/Brownfield projects in India and abroad depending upon the viability of such projects."

B. Exports

2.2.5 The export performance of NALCO during the past three years as furnished in the Company's reply is given below:-

	(Figures ir		
Year	2006-07	2007-08	2008-09
Aluminium	93,122	101,723	82,314
Alumina	7,73, 574	8,59,983	8,51,886

2.2.6 Asked to explain the fall in quantity of exports during the year 2005-06 from the previous year, the company in their reply stated:-

"In fact export sale in the year 2005-06 was Rs.2306 crores compared to Rs.2200 crores achieved in 2004-05 i.e. a growth of 4.8%. However, in physical terms, alumina export declined from 9,09,081MT in 2004-05 to 8,62,616MT in 2005-06 to cater to higher captive consumption in Smelter Plant where the production increased from 3,38,483MT in 2004-05 to 3,58,954MT in 2005-06. There was also a decline in export of aluminium metal from 1.32,730MT in 2004-05 to 95,746 in 2005-06. Normally the quantity of alumina available after meeting captive consumption in Smelter is entirely exported except a small quantity for domestic sale whereas in case of aluminium, export and domestic quantity is balanced with the objective of optimizing realization. The increase in export of aluminium metal in 2004-05 was to avail the benefit of target plus scheme of import-export trade policy that yielded an export incentive in form of DEPB certificate amounting to Rs.44.44 crores. Similar benefit could not be availed in the subsequent years. The company made little quantity variation in export & domestic sales depending on various domestic and overseas marketing factors and conditions."

2.2.7 In this regard, the CMD, NALCO during evidence before the Committee stated:-

"Sir, some comments have been made about exports saying that it is less. Actually, intentionally we have exported less. There are mainly three manufacturers, namely, Vedanta, Hindalco and NALCO. Earlier we only were exporting and others were not exporting and we have found that the domestic realization is more. We have got an Aluminium Association and in that Association we have told them that let us share it equally so that the burden is less. We have gone as per that. So, production is not less. So, aluminium production is not less."

2.2.8 Asked whether the company has an export division to ensure maximum realization of value for its products by reading the market trends, the company replied:-

"NALCO has an export division which is headed by a General Manager. Under him there are executives exclusively handling products like Alumina, Aluminium metal and Rolled Products so that no export opportunity is missed. In addition, there are executives in Logistics and the Ports located at Vizag, Kolkata and Paradeep to provide support services to the above export executives. Infact almost 95% of alumina available after meeting captive consumption of Smelter plant and 30-40% of aluminium metal is exported by the company. The company was awarded Five Star Export house status in 2005 and has been receiving the top export award of Capexil for 20th year in succession since 1988. In addition, the company has earned other awards such as EEPC Export Award(1998-99), FIMI Niryat Shree Award(2002-03), etc.

The company takes a judicious decision in deciding the quantities to be sold in domestic and overseas markets based on the production schedule, the market potential, domestic demand-supply situation and optimization of realization."

2.2.9 When asked to explain the decline in exports of NALCO, the Company claimed to have made variation in export and domestic sales depending upon various factors. However, the fact still remains that the sales figures of the company (export and domestic sales) are limited by their production capacity which have either stagnated or declined while its private competitors are soaring past NALCO in every segment. Asked to comment on the steps the Ministry have taken to bring NALCO out of the apparent complacency, the Ministry submitted:-

"The quantity of aluminium and alumina exported by NALCO during the last three years are as follows: - Unit: in tonnes

Product	2006-07	2007-08	2008-09
Aluminium	92,678	1,01,723	82,317
Alumina	7,73,573	8,59,943	8,51,886

The quantity of the aluminium metal to be exported vis-à-vis the quantity to be sold in the domestic market is decided by the Company's management after taking into consideration many factors which would help to maximize its profits."

Performance in Capacity Utilization

2.2.10 Asked to furnish a detailed statement of capacity utilization in the company's various plants, the company in their reply submitted as follows:-

"Capacity Utilization of NALCO's Alumina Refinery at Damonjodi for last three years:

SI.	Year	Installed Capacity	Actual	Capacity
No.		(MT)	Production (MT)	Utilized(%)
1	2006-07	15,75,000	1,475,200	93.66
2	2007-08	15,75,000	1,575,500	100.03
3	2008-09	15,75,000	15,76,500	100.10

SI.	Year	Installed Capacity	Actual	Capacity
No.		(MT)	Production (MT)	Utilized qq (%)
1	2006-07	345,000	358,734	103.98
2	2007-08	345,000	359,213	104.12
3	2008-09	345,000	361,262	103.40*

Capacity Utilization of NALCO's Aluminium Smelter Plant at Angul for last three years:

* Capacity utilization is calculated excluding 4,527 MT cast metal production from Pot Line-IV under 2nd Phase expansion of Smelter plant

Capacity Utilization of NALCO's Captive Power Plant at Angul for last three years:

SI.	Year	Installed Capacity	Actual	Capacity
No.		(MW)	Production	Utilized
			(MU)	(%)
1	2006-07	960	5,968	93.44
2	2007-08	960	5,609	86.30
3	2008-09	960	5,541	86.82

2.2.11 The Committee, emphasizing on the importance of conducting regular benchmarking exercise on the performance of the company's various processes wanted to be apprised of the efforts made by the company in this regard. In reply, the company stated;

"As per latest published report based on 2009-Q2 result of Woodmac Research Group, a global service provider, NALCO's Alumina Refinery at Damonjodi ranked 3rd among 69 Refineries of the world and Aluminium Smelter at Angul ranked 12th among 159 Smelters all over the world based on cash cost. In comparison with the domestic peers with respect to cash cost, NALCO is the lowest cost producer.

For the purpose of technical bench marking, TALUM in Slovenia, which is the closest one to Nalco in AP-18 plants, has been chosen.

The corresponding figures of Talum and Nalco are given below:

Organization.	Average	Current	Pot Productivity.	DC Energy
	Amperage. KA	Efficiency	Kg/Pot Day	KWH / T
Nalco	183.5	94.3 %	1390	13522
Talum	186	95.0 %	1420	13229

2.2.12 Extracts from Brook Hunt report showing cost under different heads of NALCO both for Alumina and Aluminium in comparison with the major domestic and international players of the Aluminium industry as provided by the company is given at **Annexure II.**"

2.2.13 When asked to furnish steps taken by the Ministry to bring NALCO out of its capacity constraints affecting its performance in the areas of production sales and export figures, the Ministry in reply stated;

"..... NALCO is on the verge of completing its 2nd phase expansion which inter alia envisages increase in alumina refinery capacity from 15.75 lakh tonne per annum(TPA) to 21 lakh TPA and aluminium metal production capacity from 3,45,000 TPA to 4,60,000 TPA. The Ministry reviews the performance and growth plans of the Company every quarter and has been advising the management in formal meetings as well as through Government nominee Directors on the Board of the Company to concretize its other growth plans to make it emerge as a reputed global player in the metals and energy sectors especially after conferment of Navratna status on 24.4.2008. As a result, NALCO has mooted a defined growth plan with set time frames in its Corporate Plan. A total of Rs. 57,900 crores is proposed to be invested by 2020 in different ongoing projects, proposed 3rd phase brown field expansion and various growth plans in India and abroad, details of which are as under:

The 3rd phase expansion is planned from 2010-11 and is expected to be completed by 2014-15 at an estimated investment of Rs. 6980 crores.

- A 0.5 million tonnes per annum (MTPA) smelter and 1250 MW coal based captive power plant in two phases in Indonesia at an estimated investment of Rs. 16500 crores in JV mode. The project is expected to start in 2010-11 and both phases are to be completed by 2016-17.
- (ii) A 0.31 MTPA smelter plant and a 750 MW gas based captive power plant is proposed to be set up in Iran in JV mode at an estimated investment of Rs. 9100 crores for the project. Expected completion for both phases is 2016-17.
- (iii) A 0.5 MTPA ton smelter and 1260 MW coal based captive power plant in two phases are envisaged at Brajarajnagar in Jharsuguda, Orissa at an investment of Rs 16345 crores. The project is scheduled to start in 2011-12 and both phases are scheduled to be completed by 2017-18.

- (iv) A mines and alumina refinery project of 1.4 MTPA capacity at an estimated investment of Rs. 5600 crores is planned in Vishakapatnam district in Andhra Pradesh based on bauxite blocks of Gudem and KR Konda. The project is scheduled to start in 2010-11 and is scheduled to be completed by 2013-14.
- (v) It is also proposed to form a JV with Hindustan Copper Ltd. (HCL) to set up a 1.5 MTPA copper mining and beneficiation plant at Khetri, Rajasthan at an estimated investment of Rs. 500 crores. Expected completion of the project is 2013-14.
- (vi) An IPP of 1000 MW capacity is scheduled from 2012-13 and is planned to be completed by 2015-16 at a total projected cost of Rs. 5000 crores.

The turnover of the company is projected to reach Rs. 25,000 crores by 2020. The aluminium metal production with the projected expansions will be 1.7 MTPA and alumina production by the same period will reach to a level of 4.375 MTPA."

Research and Development

2.2.14 Asked to furnish the Research and Development activities of the company, outcome thereof and expenditure incurred, the company submitted a comprehensive note on the relevant matters. On the whole, the company has its in-house R&D as well as Joint Venture R&D projects and spend between 0.06 to 0.11 percent of its annual turnover towards R&D between 2003-04 and 2005-06. The details regarding the projects, outcomes thereof and expenses incurred as submitted by the company is enclosed as **Annexure III** to this report.

Chapter 3

Management of Resources

3.1 Manpower Management

3.1.1 Asked to furnish details on their manpower management, the company in their reply submitted as follows.

"Company's HR practices in relation to (a) Manpower (b) Recruitment (c) Training and (d) Retention incentives are given below :

- (a) **Manpower Planning**: NALCO Manpower Planning provides a system for manning executive and non-executive posts in the Company with persons having appropriate level of academic/professional qualification, skill, competence, experience and motivation. Adequate number of right type of people are selected and made available at right time for carrying out the various activities. It is ensured that optimum manpower are distributed in accordance with the requirement of the organization and that of the particular job. This is within the sanctioned manpower approved by Board of Directors and complying with relevant Govt. Policies and Directives.
- (b) Recruitment: The recruitment to various positions of the Company are made in accordance with the sanctioned man power strength and Recruitment & Promotion Rules (separately for Executives and Non-executives) approved by the Board of Directors of the Company. The Rules inter-alia prescribes the Central Government directives on reservation to various categories, the methodology of notification of the vacancies, selection procedure and issue of offer of appointment etc.
- (c) **Training**: The company fulfills its task of training & development its employees to the optimum extent by sponsoring them to various in-house programmes and to the courses offered by the reputed institutes in the country and abroad. A training proposal may either come from the department where an employee is working or it may come in the form of a suggestion from the Training Department based on the training needs reflected in the Appraisal and Competency Mapping Process. Besides short range & prospective training, plans are also made for various groups of employees after elaborate consultations with the departments. The training proposals including proposals of participation in seminars & conferences are processed by the Training department. After attending any course of training, it is necessary for an employee to give feedback on the course to his superiors and to the Training department. Training feed-back can be given through a formal meeting or by circulation of a written report on the course.

Year	Exect	utives	Non-executives		Total	
	Persons	Mandays	Persons	Mandays	Persons	Mandays
2003-2004	2856	8080	2333	6820	5189	14900
2004-2005	3727	9855	3414	14168	7141	24023
2005-2006	3322	8463	4261	1357	7583	19820

Statistical Report on Training for last three years is given below:

(d) **Retention incentives**:

Of all policies formulated to define the frame work of an organization, the most complex is the set of HR Policies, simply because the Human Resource of the organization is the single most critical resource that determines the effective utilization of all other resources of the company. The rapidly changing business scenario necessitates keeping the HRM policies well aligned not only with the business policies of the company but also with the changing needs and expectations of the employees. The Company has formulated quite a good number of progressive HR practices to contain and retain its human resource. A few of the practices are enumerated below:

- i) Pay Scale: The Company has very attractive pay scales both for Nonexecutive and Executive employees. The pay scales in respect of all Nonexecutive employees are reviewed and revised once in 10 years after negotiations with the Trade Unions and with reference to Govt. of India guidelines on the subject. Similarly, all Executives have been offered the scale under guidelines issued by the Department of Public Enterprises, Govt. of India. The present pay scales for both categories of employees are in operation since 01.01.1997.
- ii) **Promotion Policy**:- The Company through its Promotion Policy offers excellent opportunity for career growth to its employees consistent with their seniority, qualification, performance and growth potential subject to availability of vacancies. Besides, executives not possessing the prescribed qualification are considered for Stagnation Promotion.
- iii) Allowances & benefits:- The existence of well defined and attractive allowances/benefits play a vital role to retain its manpower in the organization. The Company provides Conveyance Allowance/Conveyance Subsidy, House Rent Allowance, Tiffin Allowance, Night Shift Allowance, Split-Shift Allowance, Traveling Allowance, Cash Handling Allowance, Composite Allowance, Non-Practising Allowance, Special Compensatory Allowance, City Compensatory Allowance, Payment of Electricity Subsidy, Reimbursement of Water Charges, reimbursement of cost of Newspaper and Magazine, reimbursement of rental charges of P&T Telephone, reimbursement of educational allowance & transport subsidy, Leave Travel Concessions, encashment of Leave, Liveries,

Scholarships to employees children, incentive on promotion of family welfare scheme, incentive on acquiring professional qualification.

- iv) **Incentive Schemes:** Productivity Linked Monthly Incentive Scheme is being operated to reward employees for their extra effort which, in turn, increase the Production and Productivity of the Company. Besides, the company has a reward Scheme known as Nirantar Utkarsa Utpadan Puraskar Scheme in which the employees are paid on monthly basis if the Monthly Targets of major outputs are achieved.
- v) Awards & Rewards:- With a view to encouraging involvement and creative thinking, the Company has a Suggestion Scheme to reward employees for their creative ideas which result in improving productivity, quality of products or services and reduction in costs. In addition, Problem Solving Reward Scheme, House Keeping Reward Schemes are some of the important motivating factors to retain the human resource.
- vi) **Loans & Advances**:- The Company provides various loans & advances to its employees for leading a dignified social life such as Motor Vehicle Advance, House Building Advance, Multi-Purpose Advance, Furniture Advance, Interest-free Special Advance, Calamity Advance etc.
- vii) **Medical Benefits**:- The company is quite conscious of healthy life of its employees. The Company provides a very comprehensive, integrated and well equipped health service to its employees and their dependent family members through its fully-equipped hospitals at its complexes. The employees are also referred to other specialised Hospitals in appropriate cases for specialized treatment. Besides, the Company has formulated Post Retirement Medical Facilities Scheme for its retired employees and their spouses. Under this Scheme they avail life long medical benefits.
- viii) **Housing Facilities**:- The company has constructed well planned Townships at its various locations where modern housing facilities have been provided to its employees along with Market Complexes, Community Centres, Clubs, Swimming Pool, Play Ground, Park, Guest House, Trainee Hostels, Schools, Post Office, Police Station, Bank etc.
- ix) Social Security Measures:- In addition to Provident Fund and Group Gratuity Scheme which are statutory in nature the company has developed other Social Security Schemes for the benefits of the family members in the event of unfortunate death of an employee while in service such as Group Insurance Scheme, Benevolent Fund Grant Scheme. The Company has also framed a Scheme called as Nalco Employees Family Financial Assistance Rehabilitation Scheme where on separation of an employee from the services of the Company due to death or in case of Permanent Total Disablement, the beneficiary or the employee as the case may be, is eligible to get the benefit equivalent to last drawn salary (Basic Pay+DA) of the employee till the normal date of superannuation."

3.1.2 Asked to furnish the departmental promotion policy of the Company and highlight any changes that have been effected during the last three years, the company in their reply stated:-

".... The following changes have been incorporated during the last three years in the said rule;

- i. As per clause 1.1.21.1 of the said rule, the qualifying period of service in the Company for the purpose of promotion from E00 to E01 has been changed and shall be as follows;
 - a) From One year to Two years for those satisfying the prescribed qualification
 - b) From Two years to Three years for those having the relaxed qualification; and
 - c) Five years for those not having the relaxed qualification(remains unchanged)
- ii. As per clause 1.1.22.6 of the said rule, "While recommending promotions the DPC, in addition to considering the records placed before it, may hold interviews of eligible executives" has been changed to;

"While recommending promotions to vacancy based posts, the DPC in addition to considering the records, placed before it, shall hold interviews of eligible executives. Candidates called for interview shall be in the following ratio (number of vacancies vis-à-vis number of candidates called):

Number of vacancies	Number of candidates to be called for interview
1	5
2	8
3 and above	3 times the number of vacancies

3.1.3 In this regard, in reply to the Committee's concern of demoralization in the organization because of problems in promotions, the Secretary Mines clarified:-

"The Chairman mentioned specifically the question of demoralisation because of internal problems in promotions. It is true that we have come across at least two cases which were bad cases. We have written to the management saying that it was not acceptable. In one case there was a question of a CVC inquiry. Ultimately the CVC inquiry held that the person was not guilty at all. We have instructed NALCO Board to ensure that the wrongdoing be rectified. In another case similarly a person was promoted over his seniors. That also the Government has taken note of and

issued instructions. I am personally monitoring this. It has come to our notice that such instances did happen and do happen, and should not happen in the future. I myself visited both the plants and I have heard some of these representations made to me in person also. We have taken serious note of it and we hope that it will not happen again. ..."

3.1.4 Asked whether the company complies with Government of India's guidelines on reservations for SC and ST communities, the company in their reply stated:-

"In NALCO, reservation for SC/ST for employment and promotion is strictly being followed as per the Presidential Directives as well as Government guidelines received from time to time. The following percentage of reservations is made in the organization in favor of SC/ST:-

i) Posts filled by direct recruitment.

ii)

(a) Direct recruitment on All India basis by means of open competitive test.

Group – 'A' Executives Group – 'B'	SC ST	15% 7 ^{½%}
(b) Direct recruitment on All India basis otherwise than (a) above.		
Group – 'A' Executives	SC ST	16 ^{2/3%} 7 ^{½ %}
Group – 'B' (Technical and Non-Technical)	SC ST	16 ^{2/3%} 7 ^{½ %}
Group – 'C' & 'D' (Technical and Non-Technical)	SC ST	16% 22%
Post filled by Promotion Group – 'A', 'B', 'C' & 'D'	SC ST	15% 7 ^{½%}

iii) The number of SCs and STs employed in the Company against prescribed percentage in different grades is as under as on 31.03.2009.

Group	Total No. of employees	SCs	% of SC	STs	%of ST
А	1839	217	11.80	121	6.58
В	3101	610	19.67	665	21.44
С	2398	343	14.30	501	20.89
D	123	17	13.82	28	22.76
Total	7461	1187	15.91	1315	17.62

As would be seen from the above, every third employee of the Company belongs either to SC or ST category."

3.1.5 Asked as to the company's initiatives for providing equal opportunity to women and physically handicapped persons, the company furnished the figures of employment of these categories as below:-

GRADE	NO. OF FEMALE EMPLOYEES	TOTAL NO. OF EMPLOYEES	% OF FEMALE EMPLOYEES
Executive	59	1839	3.21
Supervisor	77	851	9.05
Workmen	185	4771	3.88
Total	321	7461	4.30

Grade Wise Break-up of Women Employees as on 31.03.2009

Grade Wise Break-up of Physically Challenged Employees as on 31.03.2009

GRADE	NO. OF PHYSICALLY CHALLENGED EMPLOYEES	TOTAL NO. OF EMPLOYEES	% OF PHYSICALLY CHALLENGED EMPLOYEES
Executive	08	1839	0.44
Supervisor	20	851	2.35
Workmen	46	4771	0.96
Total	74	7461	0.99

3.1.6 Asked about the welfare measures the company has in place for women and physically challenged categories the company replied:-

"Welfare measure in place for women

The Company has adopted the principle of equal opportunity to women employees in the matter of employment and the Company has 321 number of women employees at different levels and categories.

Need based developmental and functional training programmes are provided to the women employees. Institutional mechanism through conduct rules has also been put in place to avoid sexual harassment of women. As a mark of development in their individual leadership, women executives of the Company have got a place as coordinator/member of National Organisations like Women in Public Sector (WIPS).

The Ladies Clubs are extended necessary assistance for carrying out their various activities which in turn enhances their leadership and organising capabilities.

Welfare measure in place for Physically challenged employees.

Instructions received from time to time from the Ministry in this regard is widely circulated amongst the concerned officials for compliance and in order to have a control over the implementation of such instructions, Liaison Officers have been appointed for the respective units.

The following concessions/relaxations are extended to the persons with disability:

(a) Direct Recruitment:

- (i) 3% reservation for Group 'C' & 'D' posts and for Group 'A' & 'B' posts 3% reservation in identified posts only.
- (ii) Relaxation in upper age limit up to 10 years for UR category, 15 years for SC/ST and 13 years for OBC category.
- (iii) Exemption in payment of application fee.
- (iv) Reimbursement of single return journey fare for attending the test/interview.

(b) Promotion:

3% reservations for Group 'C' & 'D' posts only.

(c) **Conveyance allowance** as per Govt. directives issued from time to time.

As on 31.03.2009, there are 74 physically challenged persons in employment of the Company in various identified posts."

3.1.7 Asked to explain the gap between the sanctioned strength and actual number of employees and its impact on the company, the company stated:-

"No. of positions unfilled at various levels as on 31.03.2009 (2008-09) are as indicated below:

Executives	:	373
Skilled/highly Skilled/Supervisory	:	837
Unskilled/Semi-Skilled	:	237

TOTAL : **1447**

- (b) Though the Company has a total sanctioned strength of 8908 as on 31/03/2009, posts are not filled immediately. It is filled up in phases as per actual requirement from time to time. The vacant posts are mainly for the Company's present expansion projects and other small projects.
- (c) It has a positive impact on the performance and finance of the company, as the Company is operating with optimum manpower in order to keep utilization level of the employees to the maximum extent possible."

3.1.8 On management of manpower and attrition within the company, the company in their reply submitted:-

"Industrial Relations is cordial with Unions and Officers' Associations. Periodic meetings are held at unit and apex level to discuss various employee related issues. The recruitment and placement of manpower is kept well within the number sanctioned by the Board. Existing vacancies are filled up in a phased manner and as per requirement from time to time.

 Year
 Number of employees left
 Attrition rate

 2006-2007
 29
 0.39 %

 2007-2008
 27
 0.36 %

 2008-2009
 22
 0.29 %

The year-wise break-up of attrition rate during last three years is as under.

Nalco has achieved a decreasing attrition rate."

3.1.9 On the issue of Grievance redressals, the company in their reply to the Committee's query furnished a comprehensive detail on their Grievance redressals system which has separate mechanisms for Executives, non-Executives and the Public. The details are annexed as **Annexure-IV**.

3.2 Inputs Management

3.2.1 The primary inputs for the Aluminium industry include bauxite ore and coal. Whereas bauxite is directly mined by the company, coal largely has been sourced from various places to meet the power requirements of the refineries and smelter plants of the company. The criticality of adequate and uninterrupted coal linkage/supply is brought out by the fact that smelter plants require uninterrupted and fluctuation free power supply for smooth functioning. For this reason, Aluminium plants the world over operate Captive Power Plants (CPPs) as power from the Grid is liable to lots of fluctuations.

3.2.2 Asked to furnish details on the availability of bauxite ore in the country as a whole and the company's share in terms of mines allocated, the company in their reply stated

"As per reports of Indian Bureau of Mines(IBM), the estimated bauxite reserves in the country is around 3,290 mln tons out of which 900 mln tons are proven reserves. As per IBM records, 15.54 mln ton bauxite was mined in the country in FY08-09. Details noted below:

Bauxite Reserves in India All India Mineral Resources as on 1.4.2005 (Source: www.ibm.nic.in)

SI.No.	Mineral	Unit	Reserves	Remaining Resources	Total Resources
7	Bauxite	MIn tonne	900	2390	3290

As per Brook Hunt Report (2008 Edition)

Mine/Deposit	Proved & Probable Reserves		Inferred Resources	
	MIn tonne	Alumina (%)	MIn tonne	Alumina (%)
BALCO- Mainpat/ Bodai- Daldali	11	48.1	31	48.0
HINDALCO- Chandgad/Durgmanwadi	-	58.0		
HINDALCO -Lohardaja/Samri	27	43.0		
Lanjigarh Project	78	47.2		
MALCO- Yercaud/ Kolli Hill	5	43.0	-	-
NALCO-Panchpatmali	281	44.0	70	47.0
Orissa State	-	-	1063	-
Andhra Pradesh State	-	-	613	-
Gujrat State	-	-	179	-
Chhatishgarh State	-	-	75	-
Madhyapradesh State	-	-	122	-
Maharashtra State	-	-	119	-
Jharkhand State	-	-	95	-
Gandhamardan State	-	-	220	-

Production of Bauxite (As per Brook Hunt Report-2008 Edition)

	Year to March 31 (Thousand tonne)	2005	2006	2007	2008
BALC O	Mainpat	493	565	665	629
	Bodai-Daldali	3	66	332	520
	Purchases	0	0	0	0
	Total	496	631	996	1149
MALC O	Total	302	300	342	343
NALC O	Total	4,852	4,854	4,623	4,685

NEW BAUXITE RESERVES (The Financial Express, Bhubaneswar, Jul 12, 2008)

The Orissa government has identified a new bauxite reserve in Kandhamal district, besides getting indication of presence of heavy minerals along the coast in Puri, official sources said. According to a preliminary estimation made by the directorate of geology, nearly 8 million tonne (mt) of bauxite was reserved at Ushabali plateau in Kandhmal district.

"Estimation regarding bauxite reserve in Kandhamal district is preliminary. The volume of reserve could be more", an official said, adding survey work would be extended to nearby areas this year."

3.2.3 Asked to furnish details on the company's exploration activity, if any, for locating Bauxite reserves, they stated:-

"NALCO's exploration activity is presently confined to its Panchpatmali Bauxite Mine over which ML is available. Exploration drilling is done in 2 patterns 100 x 100m grid and 25 x 25 m grid. The 100m grid is used for long term mine plan while the 25m grid is used for short term mine plans. The detailed status of exploration at Panchpatmali deposit **upto June-2007** is given below. It may be seen that the entire deposit of 1142 hectares has been covered by 100m grid for the purpose of mine planning.

Block	Grid (in Mtrs.)	Area covered (H)	Area yet to be covered (H)
Central Block - I	100 x 100	270	0
	25 x 25	329	28
Central Block - II	100 x 100	239	0
	25 x 25	0	239
North Block - II	100 x 100	173	0
	25 x 25	139	34
North Block - I	100 x 100	150	0
	25 x 25	0	150
South Block	100 x 100	310	0
	25 x 25	0	310

3.2.4 The Committee wanted to know the company's efficiency of process for the extraction of alumina from bauxite and whether there was any truth in reports about the conversion rate being lower at NALCO in comparison to some of its domestic competitors. The company in their reply submitted:-

"Conversion Rate of bauxite into alumina depends on process technology for extraction/digestion of alumina and quality of bauxite. HINDALCO has adopted medium pressure digestion process and in NALCO the process is atmospheric digestion. The figures of bauxite quality and conversion rates of bauxite into alumina of HINDALCO are not available with NALCO. Hence, it is not possible to compare 'Conversion Rate of bauxite into alumina' of NALCO vs. HINDALCO.

However, as per Aluminium Pechiney (the Process Licensor of NALCO), the figure for 'Conversion Rate of bauxite into alumina' has been worked out as 3.025 T/T corresponding to bauxite quality of 9% moisture and 39.7% ATH (alumina trihydrate). NALCO's achievement for the above parameter for the last 2 financial years is given below:

Particulars	2007-08	2008-09
Conversion Rate of Bauxite into Alumina, T/T	3.043	3.026
BAUXITE QUALITY		
Moisture in Bauxite, %	9.69	9.94
ATH in Bauxite, %	39.23	39.41

The above figures show that conversion rate of bauxite into alumina in NALCO is better than the norm given by Aluminium Pechiney, though the quality of bauxite is inferior to Aluminium Pechiney's projection."

3.2.5 In this regard, Special Secretary, Mines elaborated further:-

"On the relative position of HINDALCO and NALCO there are two issues here. One is the way the production process is managed by both. Though HINDALCO was set up much earlier, in the sixties, they have upgraded their technology. Their technology uses what is called AP-36 technology. Both at the refinery and at the smelter their efficiency of production is higher. In case of refinery they use what is called medium pressure digesters. So, the productivity of Alumina in their digesters is higher than NALCO which produces using atmospheric pressure digesters. Similarly, in the smelters while NALCO is using AP-18 technology which uses a current of 185 K.A. HINDALCO uses AP-36 technology which takes the current up to 220 K.A. The Kilo Ampere is directly proportional to the amount of Aluminium that is deposited. So, there is a huge technical advantage by going for a higher Ampere range. NALCO is now in the process of adopting these technology improvements. Possibly why HINDALCO did it was they are an older company and so, they have reached the end of their existing machinery earlier and they went for upgradation earlier. NALCO having started later has reached the end of its existing technology efficiency now and they are upgrading. But beyond a point, actually there will have to be huge capital investment because the world is moving towards even higher Kilo Ampere range. Commercially, 360 K.A. are available and within a few years 400-500 K.A. will be required. In the Board the Government had directed NALCO to prepare a corporate vision and a plan. In that plan NALCO has put in place a programme, in the green field to go for AP-36 technology where there will be much higher K.A. in the pot line where the Aluminium is produced. There are technological limitations because of which the existing pot line cannot be upgraded to 360 K.A. because the size of pot has to increase.... So in the production itself, there is an advantage that Hindalco has.

Second advantage that Hindalco has is that NALCO is a producer of primary aluminium. Either they sell alumina in the world market or they sell primary aluminium which is aluminium metal. Hindalco does a lot of value addition on the metal and they sell down stream products which could be used commercially and they can be used within the country for various domestic products. Aluminium as a

metal – NALCO also understands – has a huge potential. In fact, as part of the corporate plan, we had a look at what is the pattern of the consumption of aluminium in various countries. India is amongst the lowest consumers of aluminium with per capita consumption of 1.6 kilogram per person. The United States consume 36 kilogram per person. So today when we say that our domestic market is complete and we have to sell abroad, it is only because the full latent demand within the country has not been exploited. In construction sector, transportation sector, railways, infrastructure, there is need to actually move from other materials towards aluminium and then the domestic cake will increase and with that the total quantity of NALCO's consumption domestically will also increase. Of course, even today proportion of NALCO share in the domestic consumption is still lower than Hindalco. Hindalco is about 42 per cent and NALCO is only about 30 per cent. So, on the one hand, we need to increase the total production in NALCO and also expand the domestic consumption so that it can be used domestically. It would also retain the competitive edge for primary metal and diversify into the value added products for which NALCO is preparing."

3.2.6 Asked to furnish details regarding the reasons for delay in commencement of mining from the Pottangi Bauxite deposits which have been allotted to NALCO, the company in their reply submitted:-

"Govt. of Orissa vide letter No.11(BX)SM-4/03/SM, dtd.31.07.04 has conditionally granted mining lease over Pottangi Bauxite deposit in favour of NALCO subject to the following conditions:

- (i) Pottangi deposit shall be available only after Phase II expansion of Alumina Refinery and Smelter.
- (ii) NALCO should earmark and spend 5% of annual profit for peripheral development.
- (iii) NALCO would have in its Board of Directors a nominee of State Govt.
- (iv) NALCO must have cleared up all state govt. dues like electricity duty, sales tax, mining royalty, etc.
- (v) NALCO shall not make any claim on Kodingamali Bauxite deposit.

On receipt of consent of NALCO authority and GOI on conditionalities as above, further action will be taken for reservation of Pottangi Deposit in favour of NALCO u/s 17 (1A) of the MMDR Act, 1957.

Compliance to State Govt's conditions :

- (i) 2nd Phase Expansion of NALCO is nearing completion.
- (ii) Expenses peripheral development.
 - a. No such conditions were imposed on earlier leases.
 - NALCO has earmarked 1% of net profit for peripheral development. Considering net profit from Mines only, the Company spends more than 7% of net profit for peripheral development as tabulated below:
| | | | | | | Rs Crs. |
|---------------------|-----|-------------|-------------|-------------|-------------|-------------|
| | | 2003-
04 | 2004-
05 | 2005-
06 | 2006-
07 | 2007-
08 |
| SALES | | | | | | |
| TURNOVER | | 3338.87 | 4420.14 | 5287.36 | 6514.51 | 5474.45 |
| NET PROFIT (PAT) | | 737.37 | 1234.84 | 1562.20 | 2381.38 | 1631.52 |
| Expenditure for | @1% | 7.37 | 12.35 | 15.62 | 23.81 | 16.32 |
| peripheral | of | | | | | |
| development | PAT | | | | | |
| Evaluated Mines | | 97.59 | 163.43 | 206.75 | 315.17 | 215.93 |
| profit | | | | | | |
| Peripheral | % | 7.56 | 7.56 | 7.56 | 7.56 | 7.56 |
| expenditure as % of | | | | | | |
| Mines profit | | | | | | |

- (iii) The representatives to NALCO Board is decided by Ministry of Mines, GOI. However, at present, two eminent persons belonging to State of Orissa are in Nalco Board. Earlier, State Govt. representatives used to be on Nalco Board.
- (iv) NALCO has been making regular payments of all State Govt. dues like electricity duty, sales tax, mining royalty, etc. except for claims which are subjudice and is committed to pay all State Govt. dues which are clear and not subject to any legal bars.
- (v) NALCO had applied for mining lease of both Kodingamali & Pottangi deposits. Being a premier Public Sector Unit in the State which has contributed to State Govt. Exchequer in a big way, it would still prefer to have mining lease on both Kodingamali & Pottangi in view of long term growth and sustainability of the company and the strategic need to have dependable supply of Bauxite.

Details of NALCO's follow up on Pottangi deposit is hereunder:

SEQUENCE OF EVENTS ON POTTANGI BAUXITE DEPOSIT

DATE	DETAILS
18.08.92	NALCO submitted the Mining Lease Application for Pottangi
	Deposit to Collector Dist. Koraput, Orissa over an area of 2618
	Ha. with a geological reserves of 75 Million Ton & mineable
	reserve 59 Million Ton
19.02.96	NALCO requested Ministry of Mines, Govt. of India for reservation
	of Pottangi for future use of NALCO.
15.12.00	Meeting held in between NALCO's officials & Chief Secretary,
	Orissa under the chairmanship of Secretary Mines, Govt. of India
	regarding different Bauxite Bearing area in the state. Decided to
	reserve Pottangi for PSU.
21.08.01	Personal hearing by Commissioner cum Secretary, Steel & Mines
	with NALCO's officials over Pottangi deposit.
27.12.01	Secretary, Ministry of Coal & Mines, Deptt. of Mines, New Delhi

	requested Chief Secretary, Govt. of Orissa to consider the
	necessity of reservation of Pottangi deposit in favour of NALCO.
30.01.02	Revised application submitted to Govt. of Orissa by reducing the area from 2618 Ha (applied in 1992) to 1738.04 Ha.
31.07.04	In principle recommendation by Govt. of Orissa in favour of
	NALCO with (05) five conditions for mining lease over Pottangi
	deposit.
01.10.05	NALCO requested to Ministry of Mines, GOI regarding reservation
	of Pottangi area u/s 17-A(1a) of MMDR Act. 1957.
25.02.06	Meeting held between CMD, NALCO & Principal Secretary, Steel
	& Mines, Govt. of Orissa regarding Pottangi deposit.
27.02.06	CMD, NALCO submitted letter to Principal Secretary, Deppt. of
	Steel & Mines, Govt. of Orissa with clarification on all the five
	conditions.
12.04.06	Recommendation given by Chief Secretary, Hon'ble Minister of
	Steel and Mines, Govt. of Orissa to Hon'ble Chief Minister, Orissa
	to recommend the cause.
22.06.06	Board authorized CMD, NALCO to negotiate with the State Govt.
15.07.00	w.r.t. payment of water tax dues.
15.07.06	of Origon for neumont of water tax. Chief Secretary, Govi.
	of Offissa for payment of water tax. Office Secretary agreed to
18.07.06	Lindor Socretary Dontt of Stool & Minos Covt of Orisso
10.07.00	requested NALCO to pay all the water tax dues before
	recommending the case in favour of NALCO
23 08 06	Hon'ble High Court of Orissa gave clarification on stay over
20.00.00	payment of water tax dues.
27.10.06	IBM, Bhubaneswar region recommended for reservation of
	Pottangi deposit over an area of approx. 900 Ha.
15.12.06	NALCO Board decided for ad hoc payment of Rs. 10 crore against
	the water tax dues.
20.12.06	NALCO requested Chief Secretary, Govt. of Orissa for conveying
	high level meeting w.r.t. Pottangi deposit.
06.02.07	Meeting held between NALCO & Chief Secretary, Orissa where
	NALCO paid Rs. 10 crores as ad hoc payment. The proceeding
	of the meeting is awaited.
14.03.07	Meeting of CMD I/C NALCO with Chief Secretary, Govt. of Orissa
20.04.07	Request letter to Chief Secretary Govt. of Orissa for expeditious
	action in view of payment of Rs. 10 crores, against claim towards
27.04.07	Water tax dues, and as agreed.
27.04.07	in favour of NALCO for 10 years.
02.05.07	Meeting of CMD I/C NALCO with new Commissioner-cum-
	Secretary, Dept. of Steel and Mines, Govt. of Orissa on the issue.
25.08.07	Meeting of CMD I/C NALCO WITH Commissioner-cum-Secretary,
	Dept. of Steel and Mines, Govt. of Orissa on the issue.
14.09.07	Letter from Secretary, Ministry of Mines, Govt. of India to Chief
	Secretary, Govt. of Orissa to expedite forwarding of Mining

	Lease application to Govt. of India for prior approval.
22.04.08	Meeting of CMD I/C with Chief Minister, Orissa along with Chief
	Secretary, Govt. of Orissa to request expediting the ML
	application.
10.07.08	Hon'ble Minister Mines, Govt of India wrote to Chief Minister,
	Orissa requesting grant of mining lease of Pottangi in favour of
	NALCO
21.11.08	Secretary Mines, Ministry of Mines, Govt. of India met Hon'ble
	CM, Orissa and handed over a cheque of Rs 5 crore for flood
	affected victims of Orissa and made a presentation on NALCO's
	need of Pottangi mines.
06.12.08	A request letter was issued from NALCO to Secy, Steel &
	Mines , Govt of Orissa for recommending Pottangi deposit in favour
	of NALCO
05.01.09	Jt.Secy, Steel & Mines, Govt of Orissa was personally appraised
	of the situation and was requested to initiate action.
21.02.09	Secy, Steel & Mines, Govt of Orissa was personally appraised
	and was requested to review and initiate action.
02.03.09	CMD & D(F), NALCO met Secy Industry, Govt of Orissa and
	requested for allotment of Pottangl deposit. Industry Secreatry
	requested to de-link Pottangi issue from Aluminium Park at Angul
02.04.00	and the same may be set up in JV with IDCO.
03.04.09	A letter was issued based on discussion made on 21.02.2009 to
10.06.00	As communicated by Govt, of Orissa, delinking of Pottangi Bauxite
19.00.09	mines from the Aluminium Park was put to Board held on 10 th
	June'09 Board has agreed and recommended that Nalco to try to
	be a 50% partner in Aluminium Park in JV with IDCO
27.06.09	A reminder has been issued requesting for decision on Pottangi
	Mine. Appointment also has been sought to meet Secretary. Steel
	& Mines Govt. of Orissa.
30.06.09	Hon'ble Minister of Mines, Gol vide OM dtd. 30.06.09has
	requested Hon'ble Chief Minister, Orissa for expediting the Mining
	Lease over Pottangi in favour of NALCO.
15.07.09	NALCO has sent a reminder letter on 15.07.2009 to Secretary,
	Ministry of Steel & Mines, Govt. of Orissa requesting for organizing
	meeting between Govt. of Orissa and NALCO management to
	mutually settle related issues across the table.
28.07.09	Secretary, Ministry of Mines, Gol vide OM dtd. 28.07.09 has
	requested Chief Secretary, GoO for expediting the ML over
	Pottangi in favour of Nalco.
10.08.09	CMD, NALCO vide letter No.CMD/207, dtd.10.08.09 has
	requested Chief Secretary, GoO, for an early date of meeting to
	discuss and sort out all outstanding pending issues including
47.00.00	Pottangi.
17.08.09	Additional Secretary, MoM, vide OM dtd. 17.08.09 has requested
	Principal Secretary to Chief Minister for a meeting between
	NALCO and GOO to sort out the issues related Pottangi Mines.

3.2.7 On whether any wastage of bauxite ore occurs due to limitations in the mining technique, the company submitted:-

"At NALCO's Panchpatmali Bauxite Mine, excavation of bauxite is done through completely mechanized process. No manual or semi-mechanical sorting of bauxite is done at NALCO Mines. The ore extracted does not call for any beneficiation technique to be used for utilization in NALCO's Alumina Refinery. Any ore that is left out in mine is due to limitation of mining the same using mechanized scheme adopted, which is otherwise non-economical for operation. As such, from the method of mining adopted by NALCO, there is no declarable wastage or loss of valuable natural resources."

3.2.8 On coal linkage, asked to furnish the arrangements made to ensure adequate supply for its captive power plants, the company in their reply stated as follows:-

"Coal Linkages: The annual contracted quantity (ACQ) of coal agreed to be supplied by MCL for 8 units has been 47,16, 480 MT / Year (Grade E/F coal) Fuel Supply Agreement (FSA) for the same has been signed between NALCO & MCL on 29/04/2008. Letter of assurance (LOA) for additional quantity of 10,93,000 MT / Year (Grade E/F coal) for additional 2 x 120 MW units under Phase- 2 expansion (unit #9 & #10) has been issued by MCL Out of which 5,46, 500 MT/ year & effective quantity of 2,73,250 MT in 2009-10 (for current year) against Unit #9 has been sanctioned by MCL w.e.f. Sept'09."

3.2.9 Asked to comment on the Ministry's initiatives to help the company with regard to streamlining its coal linkage, the Ministry in their reply stated:-

"Whenever NALCO has faced impediments in the supply of coal, it has approached the Ministry of Mines for necessary assistance. The Ministry of Mines has been regularly interacting with Ministry of Coal formally/informally through meetings and correspondence, as and when NALCO has faced shortage of coal. The matter has been pursued at regular intervals for ensuring that coal supplies has been augmented /restored at the earliest and the Company gets it full quantity of approved linkage. The Ministry of Mines has taken up the matter with Ministry of Railways also for making immediate arrangements of wagons etc. so that there are no obstacles in the supply of coal."

3.2.10 Asked as to why the company is still importing coal despite having been allotted captive coal mines to feed its captive power plants, the company submitted:-

"The Company does not have Captive Coal Mines to feed its CPPs. One captive mine – Utkal E-Block allotted by Govt. of India is still under construction. The company has signed Fuel Supply Agreement (FSA) with MCL for supply of coal to Captive Power Plant (CPP) at Angul and Steam Generation Plant (SGP) which satisfies 90% and 75% of requirement respectively on normative basis. The remaining requirement is to be met either by import or purchase of washed coal."

3.2.11 Asked to explain the delay in mining coal from Utkal-E, the company in their reply stated as follows:-

"The delay in implementation of Utkal-E Coal Mines Project is primarily due to several unforeseen and unavoidable circumstances which are not in Nalco's control, besides being a green field project in which the company had no prior expertise. A detailed explanation on delay reasons are submitted herewith:

Delay in Utkal-E Coal Project:

- I. Procedural delay in getting approval from state government for acquiring 294.86 Ha of private land. The approval was given on 13.11.2006 against the submission of documents by NALCO on 30.12.2005.
- II. Additional 49 Term of Reference (TOR) points which was received from MOEF, Government of India on 13.04.2007. This was a new requirement given by MOEF for getting Environmental clearance. NALCO had to go for many extensive studies, which were time consuming.
- III. Non finalization of R&R policy and identification of alternate site for land displaced persons.
- IV. Delay in approval of Mining Plan, as Ministry of Coal insisted Nalco to confirm non – coal bearing nature for the area earmarked for external OB dump-II area as per Mining Plan for which Nalco had to engage Director of Geology, Government of Orissa for carrying out drilling operation to confirm the above. Thus, the original Mining plan has undergone various changes as per the recommendations of Technical standing Committee of Ministry of Coal, which in turn delayed the entire process of implementation.
- V. The survey work for acquisition of land was frequently interrupted by local people for fulfillment of various demands. Nalco and District Administration wanted for an amicable and peaceful settlement of the issues, instead of resorting to any forceful act.
- VI. Difference of opinion between District Administration & IDCO officials, regarding the execution of lease deed for non-forest Govt. land, which in turn delayed the acquisition process.
- VII. NALCO's application for the Mining lease deed approval, is long pending with IDCO. In spite of our several follow ups, we have not yet received the same.
- VIII. The other issues with Govt of Orissa, viz: Aluminium Park at Angul and grant for mining lease of Pottangi bauxite deposit in favour of Nalco have cropped up, which in turn delayed the whole process of Utkal-E Coal Project implementation.
- IX. For obtaining various statutory clearances, NALCO has to incur some additional expenditure in many activities, which were not envisaged earlier i.e. change in coal evacuation route as suggested by MoEF, implementation of wild life conservation plan, implementation of R&R plan as per Orissa State R&R Policy and incur an expenditure of Rs. 1.0 Crore per year towards CSR over the life of Mines. All these expenditures resulted in cost overrun to an account of 100% over and above the original project cost."

3.2.12 On this issue, the Secretary, Mines during evidence before the Committee stated the following:-

"... The allocation of the block is made by the Union Government, which they did; the Coal Ministry made an allocation to the NALCO for Utkal-E block, but thereafter, much of the action lies with the State Government. The land has to be acquired and handed over to NALCO. This acquisition did not take place because there was some objections locally, and because land acquisition proceedings were stalled and also, the forest and environment clearance was not given. It reached such a stage that the Coal Ministry issued a notice to NALCO saying that it has not yet started the production and they gave a notice saying that it is liable to be cancelled because they did not started since 4-5 years hence we gave the coal blocks allocation. We went back and gave all these reasons why it could not be done; it was beyond the control of NALCO to be able to get the block and they have extended the block allocation to NALCO, following which I went personally to Orissa; I met the Chief Secretary and all the officers; now, I am happy to report that it has crossed 4.1 stage and reached 6.1 stage; there was a contentious issue of a particular village which demanded huge amount as compensation. We took a joint decision to drop that village from the acquisition proceedings; now, we hope that all these issues would be settled and we would be able to take up production within 6-8 months; the Environment Ministry also had given clearance. These have now been received; we are now hopefully in the position where we will be able to use Utkal-E block. That is the position as far as Utkal-E is concerned."

3.2.13 The Ministry of Mines was asked as to what steps have been taken by them to expedite the processes that will enable NALCO to start mining from the block. In their reply to the Committee, the Ministry stated:-

"The Ministry of Mines is very much concerned in view of the delay in commencement of mining of coal by NALCO in Utkal-E Coal block. This matter has been reviewed in the Ministry several times including the various quarterly performance review meetings of the Company and directions have been issued to NALCO management from time to time to complete all formalities for commencement of mining of coal as expeditiously as possible. The Ministry has assisted NALCO by taking up matters such as diversion of nalla water, grant of forest clearance, grant of mining lease, etc. in respect of Utkal-E Coal block with the concerned Departments of State Government of Orissa. However, the requisite approvals are still awaited.

The Ministry will continue to closely monitor this project so that mining is commenced at an early date."

3.2.14 Asked whether the company floated global tenders for importing coal, their reply before the Committee stated:-

"Presently, NALCO is procuring imported coal through floating limited tender enquiries to following four Central Public Sector Undertakings – (i) M/s. MMTC, New Delhi, (ii) M/s. STC, New Delhi (iii) M/s. PEC, New Delhi and (iv) M/s. MSTC, Kolkata. NALCO's Board has been duly apprised on the procurement modality vide agenda note "Procedure for procurement of Imported Coal" put up before the Board. The Board noted the contents of the agenda note. Comparative analysis for procurement of imported Coal through Limited Tender to CPSUs (LTC), instead of through Direct Global Open Tender (DGOT) is enclosed....

Nevertheless, in the month of August 2009, NALCO contacted M/s NTPC, New Delhi (who annually procures more than 10 million tones of imported coal) for getting details of their modus operandi for procurement of imported coal. As emerged, their procurement procedure is as below:

- a) M/s. NTPC issues tenders to the following CPSUs inviting sealed bids to engage an agency, on service charges (margin) basis, for awarding a contract for procurement of imported coal.
 - i) M/s. MMTC Ltd.
 - ii) M/s. STC Ltd.
 - iii) M/s. MSTC Ltd.
 - iv) M/s. Coal India Ltd.
- b) The CPSU which quotes the lowest Service Charges (margin) is awarded the contract for procurement of imported coal on behalf of M/s. NTPC.
- c) The selected agency (CPSU) thereafter floats Open (Global) Tender, and as per their tendering procedure the successful bidder against that open tender is awarded the contract for supply of imported coal.

The procedure adopted by M/s NTPC tantamounts to floating open (global) tender.

On similar lines, an agenda note will be put up shortly to the NALCO's Board of Directors for adopting the procedure as is being followed by M/s NTPC for procurement of imported coal."

3.2.15 In view of the high cost of power in the country and the problem of coal supply to its captive power plants, the Committee desired to know the quantity of units of power exported to the grid by NALCO from its CPPS. In reply, the company submitted:-

"From CPP, Angul all the time power was exported to the Grid as per details given below for last 3 years:

Year	Net power exported from CPP(in MU)
2006-07	604
2007-08	259
2008-09	143

Company was importing power to cater to the requirement of balance power of Damanjodi Mines & Refinery as the design of 3 Nos. of TG sets at Refinery is such that power need to be imported all the time. Details of import of power due to Damanjodi requirement are as below:

Year	Power imported at Damanjodi (in MU)
2006-07	191
2007-08	173
2008-09	201

The Company imports power due to less generation of units than the demand by Smelter during -

- a) Abnormal situations like unit tripping or forced shut down of units.
- b) Due to non availability of adequate quantity of coal.

The details of power imported over last three years are furnished as below:

Year	N <u>o of units</u>	<u>Unit cost</u>
	КМН	In Rs.
2008-09	144,059,003	3.91
2007-08	52,771,461	3.90
2006-07	15,907,775	3.60

NALCO has an agreement to buy power from M/S GRIDCO only."

3.3 Security Management

3.3.1 Citing the Naxal attack on the explosives consignment in one of its mining sites, the Committee desired to be apprised of the security measures taken to ramp up security of its mines and plants. The company in their reply submitted:-

"The Central Industrial Security Force (CISF) has been engaged for the security of Plants and Mines (Alumina Refinery, Bauxite Mines, Smelter & Captive Power Plant).

CISF Security Wing was inducted in M&R Complex, Damanjodi on 27.8.1986 with a total initial strength of 322 nos. Similarly, the CISF Fire Wing was inducted on 29.06.1990 with a sanctioned strength of 97 personnel. Considering the requirement based on survey by a committee consisting of members from NALCO & CISF, the strength of the CISF has been increased from time to time. In the year 2004, after the resurvey the sanctioned strength of Security Wing was increased to 417 and that of the Fire Wing was increased to 107 personnel.

Security measures in place at the Mining sites prior to April, 2009

i) Deployment of CISF - CISF being a Central Security Agency under the Ministry of Home Affairs, Govt. of India is considered to be professionally sound in respect of security of industrial unit. CISF was constituted under CISF Act, 1968 for better protection and intensive coverage to security of industrial undertakings. They have been provided with training and modern sophisticated weapons for their use. The Power & functions including role & responsibility as well as conditions of engagement etc. of CISF is governed under the Central Industrial Security Force Act, 1968.

- ii) A committee was constituted comprising of Commandant, CISF, NALCO's representatives and Consultant (Security) of Corporate Office for undertaking another resurvey of CISF deployment for increase of CISF manpower strength pertaining to Mines as well as Alumina Refinery.
- iii) A Quick Reaction Team (QRT) of CISF was functioning for reinforcement of CISF personnel at the Explosive Magazine area after retreat (sunset).
- iv) For better communication, Land-line Telephones and VHF sets have been provided.
- v) Sodium Vapor Light Posts and Movable search lights have been provided at the Mining face as additional illumination.
- vi) The CISF contingents have been provided with additional arms and ammunitions exclusively for the Explosive Magazine area.
- vii) A Watch Tower and two Morchas have been constructed at the Magazine area.
- viii) CISF contingents have been provided with 63 Bullet Proof Jackets and Helmets.
- ix) The proposal to shift the Explosive Magazine to another location was kept pending till such time SMS trial was undertaken and completed. SMS trial finally completed and failed. Therefore, the proposal to shift the Magazine to another location was expedited.

Security arrangements subsequent to Naxal attack on 12.04.2009 at M&R Complex.

To augment the security arrangements in the light of Naxal attack on 12.04.2009 at Mines, Damanjodi and the intelligence reports of revenge attack from the said group, the following **short term, medium term and long term** security arrangements have been taken up based on need and in consultation with CISF as well as in pursuance with the inputs received from various meetings held at different levels including Secretary (Mines), Chief Secretary, Govt. of Orissa, DG, CISF etc.

Short Term Security Measures :

To be in preparedness for any eventuality, the following measures have been taken up on immediate basis at M&R Complex, Damanjodi:

Strengthening of existing Magazine House of Mines and other arrangements :

SI.	Items	Status
No		

i)	Increase in CISF contingent	Approval for enhancement of sanctioned strength of CISF personnel from 417 to 700 has been accorded, with net increase of 283 for M&R Complex. The CISF authorities have deployed additional 82 personnel on temporary basis and the requisition for sanction of additional strength is under active consideration of CISF Head Qtrs. and Ministry of Home Affairs, Govt. of India.
ii)	Supply of bullet proof jackets and helmets	In addition to 63 bullet proof jackets and helmets provided earlier, further 84 bullet proof jackets with helmets have been approved to be provided. Procurement action is under progress.
iii)	Construction of Morchas	02 (two) brick morchas have been made over the toilet in Explosive Magazine area. 2 (two) nos. of sand bag morchas have been erected on the roof of the Magazine. Besides, one sand bag morcha and 04 brick morchas erected over the barrack.
iv)	Amenities to CISF Jawans on duty and fortification of their living accommodation.	For the Jawans posted at Magazine area, amenities viz. water coolers, air coolers, repair of existing containers, raising of the wall in front of the container and fortification of the control room in the Magazine area have been completed. Besides, erection of additional prefab cabins / containers have been completed.
V)	Fortification of Magazine area	Concertina fencing as per CISF specification has been completed including repair of existing barbed fencing. Besides, Power fencing erection work has been completed on 20.8.2009. Intimation on installation has been sent DDMS, Ranchi.
vi)	Illumination of Magazine area	56 High-mast outward focused light fixtures were provided earlier at Magazine House. Besides, erection works of 04 nos.12 mtrs. High Light Towers has been completed.
vii)	Repair of watch tower	Repair of present watch tower has been completed and 02 additional High Tower morchas have been agreed to be constructed for which specification from CISF is awaited.
viii)	Sand bags	1000 nos. of sand bags have been provided and placed as per CISF requirement in Magazine area.
ix)	Minimum stock of explosives	Suppliers of explosives have been advised to ensure arrival of explosive vans in forenoon and the minimum stock of explosives at Magazine House is maintained.

x)	Dogs squad	Proposal of CISF for 04 dogs comprising of 02 Sniffers and 02 Trackers has been agreed for which CISF has been requested to provide the likely sources & liaise with suppliers. In the meanwhile CISF is liaisoning with Army, BSF and Kennel Clubs at Kolkata, Hyderabad and Chennai.
xi)	Bomb detection / disposal team	A bomb detection / disposal team with required equipments for the Mines and Refinery Complex has been agreed and procurement action for equipments has already been initiated as per the specification provided by CISF.
xii)	Bullet/ Land Mine Proof Vehicle	The proposal of CISF for providing Bullet / Mines Proof Vehicle has been agreed and Ordinance Factory, Medak is being contacted for the detail specification.
xiii)	Alarm System	Alarm system as proposed by CISF has been agreed and specifications and the probable reputed suppliers name are awaited from CISF.
xiv)	Lightning	The works of providing lightning arrestors on all the structures
	Generators	been commissioned.
xv)	Gum boots and rain coats.	Gum boots and rain coats to CISF personnel at Mines have been provided.

Medium and Long Term Security Measures :

SI.	ltems	Status
No.		
i)	Shifting of Magazines	Approval of Chief Controller of Explosives for shifting of the Magazine to the new location has been obtained. Application for NOC from the State Government has also been received. Letters of intimation has already been sent to IBM, Dept. of Mines of State Govt. and Directorate of Mines Safety. The new site for Magazine has been selected in consultation with CISF. CISF has been requested to provide the lay out plans and specifications for alarm system, rotating lights, concrete watch towers and concrete morchas to be provided at new Magazine House. The job is scheduled to be

		completed by March, 2010.
ii)	06 layer fencing	It has been agreed to provide 06 layer fencing and protection walls connecting the concrete morchas at new magazine which is scheduled to be completed by March, 2010.
iii)	Power fencing in the entire conveyor belt and patrolling track	Repair and replacement of existing barbed wire fencing completed. Clearance from Dist. Magistrate for total fencing and power fencing of conveyor belt has been sought on 11.05.2009 and is awaited. It has been jointly decided to go for chain link fencing with provision of power fencing in vulnerable areas in future. Erection of chain link fencing along the conveyor corridor has been tendered. The CISF has been requested to furnish the details of patrolling track route to take up the work. The job is scheduled to be completed by Nov.,2009 for power fencing and March, 2010 for patrolling track.
iv)	Construction of Barrack for 120 CISF personnel and SO's Mess	Drawing and estimation for the tender completed and job is scheduled to be completed by March, 2010.
V)	Boundary wall of CISF colony and existing Mining area	Estimation completed and the work is to be completed by March, 2010 for boundary wall at CISF colony and by 31 st October, 2009 at the demarcated area of Mines.

Monitoring :

- i. Commissioner-cum-Secretary, Home Dept., Govt. of Orissa has been requested to constitute a committee comprising of Executive Director, NALCO, Commandant, CISF and Superintendent of Police of the District to review the security arrangements and other issues related to law and order in respect of our Units on regular basis. This is being followed up.
- ii. Regular meetings are being conducted with District Administration and Police authorities to discuss various aspects of security matters.
- iii. At M&R Complex, Damanjodi, Bi-Monthly Security Meetings are conducted between NALCO Management, Commandant, CISF and Inspector In-charge of Damanjodi Police Station to discuss regarding security related matters.
- iv. The general security environment at M&R Complex, Damanjodi has been peaceful and under control. However, in the areas surrounding Damanjodi, the Naxal activities gained ground and some incidences have been reported. The State Govt. has posted a CRPF contingent in the area and also a COBRA Platoon an anti-terrorist squad of

State Police. As a result, the alertness has been maintained at highest level by CISF in M&R Complex.

3.3.2 The Secretary Mines, further elaborated:-

"Members have raised the issue about the security. After this incident took place I have taken more than five-six meetings with the officials of NALCO, Home Ministry, CISF and the Chief Secretary of Orissa. The first thing that I want to say is that this issue arose out of the Maoists wanting to get the explosives. It was not an issue of an attack against the mines or the smelter or the refinery. Their intention was to get the explosives. So, the attack was on the magazine and the place where the explosives were actually stored.

There are a couple of points which I have taken up with the Home Ministry and now they have resolved it. One of the issues is that according to law near a magazine there can be no habitation of any kind. So, one of our problems was that near the exact location where the explosives were held the CISF personnel even if he is guarding has to be stationed far enough, away from that as per the law. The CISF has been repeatedly asking us to build their barracks closer to the magazine. We were not able to do that because under the explosives Act you are not allowed to put up the barrack. I have got this thing changed. We went to the Home Ministry and said that this rule should not apply across the board especially because it is causing security concerns in places like this. This was originally the case only to prevent mishaps, fire or explosions taking place in crowded places where explosives are stored and there is human habitation nearby. We have got a slight amendment done and we have given instructions not only to NALCO but to the entire industry. I had a meeting with the entire mining industry and said that wherever you have the explosives this could be a problem.

The second was in the transport and movement of explosives. According to law you shall move explosives but shall not store them after 6.00 p.m. in the evening. It so happened on that day that the explosives arrived at around 6.00 p.m. so, the person in the magazine refused to allow it to be stored. So, it was left in the truck outside and that was the first thing the Maoists took away. They took away the truck along with the explosives. It is our good fortune that we recovered the truck and the explosives later. But again this was a matter of the rule which we have got amended; that in cases of extreme security concerns that rule shall not apply. We have got this done because of the NALCO incident.

Besides this, Sir, the threat perception which was pointed out by the DG CISF repeatedly, NALCO perhaps did not consider it so seriously because they did not see the threat locally. Now, we have taken care of that. I have myself visited the mines immediately after the attack took place when the CISF javans were actually being part of the gun battle between the Maoists. Eleven CISF personnel lost their lives. I have personally laid the entire action plan of NALCO for fortifying the place. As of now, I have had meetings with DG CISF and the Home Ministry and they are satisfied with the action that NALCO has taken. We are closely following this for the future.

Other important element I would like to place before you is that we do need to improve our peripheral development work in that area because I felt that if such an attack was taking place there was definitely some local information which did not reach NALCO. This was what the intelligence people also later told us. This communication with local people was probably not built up well enough by NALCO because they are giving money for peripheral development to the district authorities. The district authorities place it in a district committee where it gets spent in many places perhaps not in the villages nearby. When I went there to visit the mine, I was gheraoed by the local people. They asked me to first suspend the Chairman. Secondly, they told nothing was done for them locally. After that we took a decision in the Board to double the amount of money that we are spending on peripheral development. The portion that has been so far given to the district will go to the district but the remaining amount by doubling we are not going to give back to the district but we have reserved it for the Board to directly take up the development works in the peripheral area. So, one of the things we are taking up immediately is building a hospital for the local people because this is a big concern for them. They are very far away. There are many other points which they have raised about water, education and so on and so forth. A blend of the actual security measures plus peripheral development and local sensitivity we think will add to the improvement in the security of the NALCO mines. The experience and lessons we have learnt in NALCO, we are making sure are given to all our other PSUs as also the entire mining industry.

Another point that I am personally trying to follow up with the entire mining industry is to see to what extent we can have blast free mining. If we can take away explosives from mining and go in for mining which is less dependent on explosives then to that extent the security concern immediately comes down. There have been some excellent research work done on this and I have asked the NALCO to be the forerunner and to be the example whether we can do maximum amount of blast free mining. So, we are going in that direction. Besides being the security thing it will be very good for the environment also. So, from both these points of view we are pursuing that."

3.3.3 Asked to furnish details of the expenditure incurred and allocated for security measures after the Naxal attack, the company in their reply stated:-

"After the incident, now a number of modification, rectification, additional construction, increase in manpower, addition of dog squad, bomb disposal squads etc. have been asked by CISF, to fortify the magazine house and other sensitive areas. Total fund allocated for augmentation of security at M&R Complex, Damanjodi and S&P Complex, Angul are as follows:

i) Mines at Panchpatmali	-	Rs.23.12 crore
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- ii) Refinery at Damanjodi Rs.04.98 crore
- iii) S&P Complex at Angul <u>Rs.08.08 crore</u>
 - TOTAL <u>Rs.36.18 crore</u>

In this regard the following action have been taken :

Minimum stock of Explosives:

- Minimum stock of explosives as well as blasting is being ensured. Average holding of explosives has reduced by 89%.
- II) Suppliers of explosives have been advised to ensure arrival of explosive vans in forenoon only.
- III) Stock verification of the explosives is being done periodically to monitor stock position of explosives.
- IV) Action for trail run for surface miner has already been taken to go for blast free mining in future. Hence, no explosive will be used, if surface miner will be proved to be successful.

Fortification of Magazine area :

The existing Magazine has been fortified by construction of brick morchas, sand morchas, structural morchas, barbed wire fencing, chainlink fencing, concertina fencing, provision of watch towers etc. Adequate outward focused lights have been provided – 56 fixtures have been fixed on 20 poles. Installation works of 4 nos. of 12M high light towers are under progress. P.A. system has been installed at the Magazine and the CISF personnel have been provided Voice Communication System (VHF).

Fabrication of antiscaling device in the Main gate of Magazine has been completed. Electrical / Manual Sirens System has been installed.

Shifting of Magazines :

NALCO Management has already approved the proposal of CISF regarding shifting the existing Magazine to another location. In this connection the following information are submitted.

- i) Approval of Chief Controller of Explosives for shifting of the Magazine to the new location has been obtained.
- ii) NOC from State Government has been received.
- iii) Letter of intimation sent to IBM, Dept. of Mines of State Government and Directorate of Mines Safety.
- iv) Layout drawing has been developed as per provisions under explosive rules and as per requirements of CISF and the Drawing has been forwarded to CISF for approval.

As per estimate entire activities like construction of the new Magazines, concrete watch towers, concrete morchas, protection walls connecting the concrete morchas, all layers of fencing (06 layer fencing) and issue of licence are expected for completion by March, 2011.

The Explosive Van which had arrived that evening i.e. 12.04.2009 from Orient Explosives, Raipur having column explosive was taken away by the Naxals and left the Van at about 2 Kms. from Mines. Out of the 9 MT dispatched, recovered quantity is 6.025 MT. 2.975 MT was taken away by the Naxals."

3.3.4 Asked to comment on the extent to which the Ministry can monitor the security measures being taken by NALCO to ward off the security threat and to ensure appropriate security measures, the Ministry submitted:-

"The company undertook an experiment of using slurry explosive in lieu of traditional explosive in 2007 and 2008. The experiment was not found to be successful and use of slurry explosive on permanent basis has been abandoned, resorting back to traditional explosive.

The Ministry does not have a direct role in day-to-day monitoring of security situation at its PSU establishments as the same is monitored by their respective Boards. The management of these establishments maintain close liaison with local law and order authorities. The attack by Naxalites, at the Damanjodi Mines of NALCO on 12.4.2009, was an untoward incident, and in this case, the Ministry of Mines immediately reviewed the security in mines and other vital installations of the Company in consultation with Ministry of Home Affairs, Central Industrial Security Force, State Government of Orissa, etc. Secretary(Mines) took several meetings for review/augmentation of security in NALCO and even visited the site of the attack to have a first view of the existing ground realities. A slew of measures have been initiated subsequently by the Company for augmentation of security and most of them have been completed on fast track for preventing such type of incidents in future."

Chapter 4

Planning

4.1 Corporate Plan and Long-term Policy

4.1.1 NALCO has a defined growth plan with set time frames. As per the Corporate Plan, a total of Rs. 57,900 crores is proposed to be invested by 2020 in different ongoing projects, proposed 3rd phase brown field expansion and various growth plans in India and abroad.

4.1.2 The 3rd phase expansion is planned from 2010-11 and is expected to be completed by 2014-15 at an estimated investment of Rs. 6980 crores.

- A 0.5 MTPA Smelter and 1250 mw coal based Captive Power Plant in two phases in Indonesia at an estimated investment of Rs. 16500 crores in JV mode. The project is expected to start in 2010-11 and both phases are to be completed by 2016-17.
- A 0.31 MTPA Smelter Plant and a 750 Mw gas based Captive Power Plant is proposed to be set up in Iran in JV mode at an estimated investment of Rs. 9100 crores for the project. Expected completion for both phases is 2016-17.
- A 0.5 MTPA ton smelter and 1260 MW coal based Captive Power Plant in two phases are envisaged at Brajarajnagar in Jharsuguda, Orissa at an investment of Rs 16345 crores. The project is scheduled to start in 2011-12 and both phases are scheduled to be completed by 2017-18.
- A Mines and Alumina Refinery Project of 1.4 MTPA capacity at an estimated investment of Rs. 5600 crores is planned in Vishakapatnam district in Andhra Pradesh based on bauxite blocks of Gudem and KR Konda. The project is scheduled to start in 2010-11 and is scheduled to be completed by 2013-14.
- It is also proposed to form a JV with Hindustan Copper Ltd. (HCL) to set up a 1.5 MTPA copper mining and beneficiation plant at Khetri, Rajasthan at an estimated investment of Rs. 500 crores. Expected completion of the project is 2013-14.
- An IPP of 1000 MW capacity is scheduled from 2012-13 and is planned to be completed by 2015-16 at a total projected cost of Rs. 5000 crores.
- The turnover of the company is projected to reach Rs. 25,000 crores by 2020. The aluminium metal production with the projected expansions will be 1.7 MTPA and alumina production by the same period will reach to a level of 4.375 MTPA.

4.2 Expansion of capacity and Technology upgrade

4.2.1 Asked to furnish details regarding their expansion plans, the company in their reply stated:-

"The Company was formed on 7th January 1981 in the Public Sector following a major decision of Govt. of India to exploit a part of the large deposits of Bauxite discovered in the East Coast. Aluminium Pechiney of France, a world leader in the field, provided

the technology and basic engineering for Bauxite Mine, Alumina Refinery and Smelter. Foundation stone was laid by late Smt. Indira Gandhi, the then prime minister of our country in the presence of the then President of France.

Initial capacity:

The multi-unit, multi locational company originally consisted of a 2.4 million tonne bauxite mine, 800,000 tonne Alumina Refinery, 230,000-tonne Smelter and a Captive Power plant of 720 MW.

1st phase expansion

Since 1997 the Company has undertaken phased expansion of production capacity at an investment of Rs.4200 crores. Accordingly, the Bauxite mine capacity has been raised to 4.8 million tones since December 1999, Alumina Refinery capacity to 1.575 million tones since Dec'2001, Power Plant capacity augmented to 960 Mw in Feb'04 and Smelter capacity has been raised to 345,000 tonnes in Oct'04. The Company augmented the capacity expansion at a saving of approximately Rs .610 crores from the approved project cost which is a rarity in project management at PSEs

2nd phase expansion

The 2nd phase expansion of capacity encompassing all the production segments was approved by Govt. in October 2004 at a project outlay of Rs. 4091.51 crores (at July, 2003 price level) to be completed in 50 months. The project cost has been revised to Rs. 4402 crore (at November, 2008 price level). With this capacity of Bauxite Mine, Refinery, Smelter and Captive Power Plant will increase to 6.3 million tons,2.1 million tons,0.46 million tons and 1200 MW from present 4.8 million tons,1.575 million tons,0.345 million tons and 960 MW respectively.

Against the completion schedule of Dec'08 for all segments, the project has been partly commissioned as under:

- 50% of Smelter capacity has been commissioned by March, 2009. As of Aug'09, 190 pots out of total 240 pots have been commissioned and balance facility likely to be commissioned by December, 2009.
- 50% of CPP capacity has been commissioned by Aug'09 with synchronization of 1 unit of 120 MW with grid. The other unit is likely to be commissioned by December, 2009.
- Major works of Mines & Refinery Complex are in advanced stage of construction.
- The overall progress as of Aug'09 is as under:

(in %)

SL. NO	PROJECT SEGMENT	OVERALL PHYSICAL PROGRESS
1.	Mines & Alumina	93.3
2.	Smelter	97.8
3.	СРР	94.8

Further, Upgradation of Mines & Refinery at a project cost of Rs.409 crore has started since Oct'08. After completion, the Mines capacity will increase to 68.25 lakh MT from 63 lakh MT and Refinery capacity will be 22.75 lakh MT from 21 lakh MT.

For brownfield 3rd phase expansion, several works like preparation of DPR for CPP completed and lab scale study for Refinery for technology selection and technology selection for Smelter are underway.

4.2.2 On the issue of technology upgradation in relation to their expansion plans, the company submitted:-

"In 1981 Nalco had adopted the then latest technology in Alumina-aluminium from M/s Aluminium Pechiney (AP) of France i.e. AP-18 technology.

For the 1st phase capacity expansion of Smelter from 2.30 lakh MT to 3.45 lakh MT capacity, the company had adopted the same robust and proven technology with some modifications, thereby improving the productivity.

Over the years, the same is being upgraded due to continued technical assistance (CTA) with the technology supplier. While implementing the 2nd Phase brown field capacity expansion, after thorough deliberations, NALCO adopted "Improvement Proposal" from M/s Aluminium Pechiney, the technical collaborator. This proposal envisages improved equipment/process for the Alumina Refinery and Smelter. Further while procuring various equipments in general, NALCO has adopted strategy to bring in equipments based on the latest technology in the respective field.

The adoption of same proven and updated technology for 2nd phase expansion had envisaged a saving of Rs 200 crore in capital cost on account of new technology. In addition, the AP 18 technology has been considered in the Detailed Project Report (DPR) due to the following reasons:

- Existing pot lines are operating satisfactorily using the AP 18 technology.
- As part of Phase-1 expansion complete carbon area except Rodding Shop where certain balancing equipment shall be added and installation of new Baking Furnace with two fires have been envisaged to cater the requirement of Potline-4 expansion (Phase-2).

Since Carbon Area have already been expanded for accommodating Phase-II expansion except above, going for new technology means the investment already made will be of no use.

- Transfer and absorption of AP Technology in the Indian operating conditions is already proven at Angul Smelter. Any change in Technology i.e AP 30 at this stage of expansion may imbalance working conditions and manpower training and acquaintances.
- Inter-changeability of output from associated facilities like pot room Annexe, Anode Paste Plant, Anode Baking Furnace, Anode Rodding Shop to Pot Line 4 from Pot Line 1,2 & 3 vice versa is easy and smooth.
- Inter-changeability of stem bracket assembly, Cathode bar, handling equipment, PTA if necessary.

- Existing Transfer Gantry Cathode Crane can be utilized for new Pot line and vice-versa.
- Central passage and end passage will be utilized since building length etc. will remain same.
- Inventory of spare equipment and spare parts will be minimized.
- Manpower and training needs will be curtailed to a great extent.
- Interchangeability of manpower will not pose a problem.
- Deployment of AP-Foreign experts will be minimized.

Improvement proposals undertaken at Smelter plant are noted here under:

- i. Adoption of latest 'Alpsys' Pot regulation system for Pot Lines.
- ii. Switching over to Semi-Graphite form Anthracite was done from 1995 onwards and trial with Graphitized cathodes from Semi-Graphite pot lining, side walls to SiC, modifications in Alf3 hopper and pot super structures has been carried out.
- iii. Installation of Fume Treatment Centre in Bake ovens.
- iv. Integrated Alumina unloading and mixing system in Carbon Area.
- v. Revamping/Upgrading of Casting Station in Rodding shop Nitrogen Plant in Cast House
- vii. Replacement of Vibro-Compacting Unit in Green anode plant

Meanwhile, the company has chalked out plans to upgrade the technology in terms of current carrying capacity from present 185Ka to 220 Ka in a phased manner, as has been adopted by several other aluminium industries abroad.

However, for the proposed future 'green field' expansions, the company has plans to adopt latest technology (350Ka and above) and the pre-feasibility report is under preparation through in-house efforts."

4.2.3 Asked to elaborate on the benefits of being granted Navratna status in their programme of expansion, the company in reply stated:-

"Due to enhanced power with Navratna status, the company has taken the following for incurring capital expenditure on new projects, modernization, purchase of equipment, etc.

2nd phase of expansion – The Govt. of India approved the 2nd phase of expansion of the Company's integrated Aluminium Complex at an estimated capital cost of Rs 4,091.51 crore on 26.10.2004, to be completed in 50 months from the date of approval. The ongoing expansion will augment the annual capacity of Bauxite Mines to 63 lakh tonne from 48 lakh tonne, Alumina Refinery to 21 lakh tonne from 15.75 lakh tonne, Smelter to 4.6 lakh tonne from 3.45 lakh tonne and power generation to 1200 MW from 960MW.

The Board approved the revised cost of Rs. 4402 crore on November, 2008 price level in 232nd Board Meeting held in January, 2009."

4.3 Diversification of Activities

4.3.1 On the issue of diversification of activities and products, the company in their reply submitted as follows:-

"The new Vision Statement of the Company states NALCO to be a reputed global Company in the Metals and Energy sectors. In pursuit of this vision statement, NALCO proposes to diversify into power business and also look for business opportunities in other non ferrous metals as copper, zinc, nickel, platinum, titanium and gold.

With regards to downstream manufacturing, NALCO proposes to set up an Aluminium Alloy manufacturing plant to produce low end, medium end and high end aluminium alloy using scrap route as production of aluminium from scrap is significantly less energy intensive. It also proposes to utilize any surplus extrusion facility available in the country to produce aluminium extrusion products."

4.3.2 Asked to comment on the above issue, the Ministry of Mines stated:-

"As a result of constant advice from the Ministry and efforts made by the Government Nominee Directors, NALCO has prepared a vision and a plan to diversify into power and non-ferrous metal sectors after taking into account the strengths of the company and considering the market opportunities. The said plan has been approved the Board of NALCO. It is expected that the experience gained by the company over more than two decades in mining and mineral processing and in power generation could be harnessed to enter new areas. The diversified sectors are expected to provide support to stability of operations as against exposure to a single commodity which is in turn subject to high degree of volatility in its prices. The Ministry supports these initiatives of the Company, to diversify its activities into power and non ferrous sectors."

4.3.3 Asked to comment on NALCO's new vision of diversifying its activities into power sector and non-ferrous metals, the Ministry in their reply stated:-

"As a result of constant advice from the Ministry and efforts made by the Government Nominee Directors, NALCO has prepared a vision and a plan to diversify into power and non-ferrous metal sectors after taking into account the strengths of the company and considering the market opportunities. The said plan has been approved the Board of NALCO. It is expected that the experience gained by the company over more than two decades in mining and mineral processing and in power generation could be harnessed to enter new areas. The diversified sectors are expected to provide support to stability of operations as against exposure to a single commodity which is in turn subject to high degree of volatility in its prices. The Ministry supports these initiatives of the Company, to diversify its activities into power and non ferrous sectors. 4.3.4 During the evidence of the representatives of the Ministry of Mines, referring to the diversification initiatives at NALCO, the representative of the Ministry submitted:-

"...NALCO is also contemplating tie up with the Uranium Power Corporation. This could be a very good potential. We recently signed an MoU with the Government of Namibia. I took a delegation with NALCO and others to Namibia. Namibia is one of the world's biggest producers of uranium. We visited uranium mines there...... Chile is world's biggest producer of copper and some of the largest deposits of uranium are in Namibia. The Uranium Power Corporation need to have the mining capacity so we feel that NALCO's mining capability and NALCO's huge power requirement can be met. A tie up with the Uranium Power Corporation could take us to a future where coal is not the key issue and mining and uranium together contribute to better mix in the NALCO's future plan. This is, of course, in future arena which we have not mentioned but we are taking it in that direction."

4.3.5 Further commenting on the diversification plans of the company, the Secretary Mines stated the following:-

"....We are trying to go in for speciality alumina which is zeolite which is a new product which, I believe, can replace harmful elements of detergents and all. We are planning to go in for rolled products and aluminium alloys which will be the future in terms of aluminium and copper, aluminium and titanium and high purity aluminium. All this is very well said in this document. I am asking them to give me a time frame for this document and actually evaluate them in terms of their performance for each item under all these items that they are saying that they will do under this document because as of now they keep showing us the document so now we are asking them to show the products behind the document. I can assure and all the Members of the Committee that your concerns are taken in the best of spirits and we would like NALCO to re-emerge as the number one in aluminium, if not globally at least within the country."

4.4 Forward/Backward Integration

4.4.1 Asked to comment on the company's plans to set up downstream manufacturing units for their primary product, the company in their reply stated:-

"Company has plans for forward-integration in downstream Aluminium sector in a limited manner. Company has recently signed an MoU with Orissa Industrial Infrastructure Development Corporation (IDCO) for establishment of an Aluminium Park at Angul to facilitate downstream units based on Aluminium metal produced in the Smelter Plant. The Aluminium Park would house industries to produce aluminium extrusion, cable, slug etc. Company has commissioned a consultant to prepare a Detailed Feasibility Report (DFR) to set up an Aluminium Alloy Ingot Plant using aluminium scrap. It also proposes to utilise any surplus extrusion facility available in the country to produce extruded products after carrying out market study to ascertain demand.

Company proposes to set up a 1 LTPA Specialty Alumina Project in JV mode to produce value added product. The finalization of JV partner for the project is under process."

4.4.2 On the issue of backward integration, the company commented:-

"The Company has already invited expression of interest for setting up of backward integration projects for critical raw materials like Caustic Soda and CT Pitch in Joint Venture with reputed and expert firm. If the Paradeep Oil Refinery is established by IOC, there is scope for setting up Caustic Soda plant, so that chlorine, the by-product produced while producing caustic soda, can be economically utilized. Otherwise the Caustic Soda project would not be technically viable.

The finalization of JV partner for CT Pitch project is under process.

Further, in the proposed Aluminium Park mentioned in Question-7 above, medium and small industries manufacturing Calcined Petroleum Coke, Coal Tar Pitch, Aluminium fluoride, etc. raw materials required for Smelter Plant, will be encouraged."

4.4.3 Asked to comment on whether the Ministry have considered a policy-level intervention to guide Aluminium industry in general and NALCO in particular towards forward integration of activities to stimulate peripheral growth and increase the domestic demand for aluminium products, the Ministry of Mines in their reply submitted;

"There are four producers of primary Aluminium metal in India. Two of them have achieved forward integration by setting up value added downstream facilities for rolled products. NALCO remains by and large a primary metal producer, with a downstream facility of rolled products. As already stated in the reply to the preceding question, the Ministry of Mines is setting up a Centre for Techno-Economic Mineral Policy Options (C-TEMPO) comprising representatives of all major sectoral stakeholders to evolve policy options. It will address the technology and management gaps for the non-ferrous and ferrous minerals, undertake international research and suggest policy level intervention to guide and stimulate the growth of mineral sector including aluminium."

4.4.4 Asked to comment on the desirability of NALCO promoting downstream businesses around its smelter plants to boost peripheral development on the one hand and to facilitate better value realization for its products when the LME prices are unfavorable for large quantity exports, the Ministry in their reply stated:-

"NALCO is basically engaged in production of primary aluminium metal. It has some downstream business such as rolled products unit(RPU). The Company has recently signed an MoU with Orissa Industrial Infrastructure Development Corporation (IDCO) for establishment of an aluminum park in Angul to facilitate downstream units based on aluminium metal produced in the smelter plant. The aluminium park would house industries to produce aluminium extrusion, cable, slug, etc. Company has commissioned a consultant to prepare a Detailed Feasibility Report (DFR) to set up an aluminium alloy ingot plant using aluminium scrap. It also proposes to utilise any surplus extrusion facility available in the country to produce extruded products after carrying out market study to ascertain demand. Company also proposes to set up a 1 lakh TPA specialty alumina project in JV mode to produce value added product. The finalization of JV partner for the project is under process.

The Ministry of Mines supports the initiative taken by the Company for better value realization. The price realization of the Company is not affected by promoting the downstream industries in its neighbourhood. The prices of products whether sold in export market in bulk or in domestic market or in small quantities to downstream units in periphery area, are largely range bound. Without losing any financial benefit from the normal operations, development of such downstream industries is likely to be of strategic benefit to the Company which will be perceived as a partner or a catalyst in development of periphery areas."

4.4.5 Speaking on the question of diversification during the evidence, the Ministry's representative commented on the forward integration plans for NALCO as follows.

"We have prepared a Vision Document for NALCO. This is for 2010 to 2020. In that our focus is on value addition. We are trying to go in for speciality alumina which is geolite which is a new product which, I believe, can replace harmful elements of detergents and all. We are planning to go in for rolled products and aluminium alloys which will be the future in terms of aluminium and copper, aluminium and titanium and high purity aluminium. All this is very well said in this document. I am asking them to give me a time frame for this document and actually evaluate them in terms of their performance for each item under all these items that they are saying that they will do under this document because as of now they keep showing us the document so now we are asking them to show the products behind the document. I can assure and all the Members of the Committee that your concerns are taken in the best of spirits and we would like NALCO to re-emerge as the number one in aluminium, if not globally at least within the country."

4.5 Expansion abroad

4.5.1 Asked to comment on whether NALCO has future plans to venture overseas, the company in their reply stated:-

"Yes. NALCO has plans to establish Aluminium smelter where cheap source of energy is available. In this regard NALCO is presently pursuing to set up Smelter Plant along with Captive Power Plant in Indonesia and Iran.

Indonesia: NALCO proposes to set up a 0.5 MTPA Smelter Plant and a 1250 Mw coal based Captive Power Plant in JV mode at an estimated investment of US \$ 3.9 billion. The feasibility report has been prepared thorough an external consultant.

Iran: NALCO proposes to set up 0.31 MTPA Smelter Plant and a 750 MW gas based Captive Power Plant in JV mode with a local Iranian partner at an estimated investment of US \$ 1.93 billion. The feasibility report has been prepared. Due diligence of the JV partner has been conducted." 4.5.2 Asked to furnish an economic and strategic rationale for expansion abroad (Iran and Indonesia) while lagging behind in the domestic scene, the company in their reply stated:-

"Aluminium production is an energy intensive process. Power constitutes a considerable percentage of cost of production. Availability of cheap energy is the primary reason for planning to set up Smelter plants in both Indonesia and Iran. Indonesia has reserve of good quality of thermal coal. Govt. of Indonesia has been supportive of NALCO's plan for the project. The other issues, like land and environment clearances etc. quite favourable. The economic attractiveness apart, setting up such plants provide a strategic preference for obtaining mineral rights in the host country.

Similarly, Iran has abundant reserve of natural gas. Present tariff of natural gas for industrial consumer is app. US \$ 0.5 per MMBTU.

NALCO also has plans to set up a 0.5 MTPA Smelter and 1260 Mw coal Captive Power Plant at Brajarajnagar in Jharsuguda district, Orissa. Company has prepared Pre-Feasibility Report (PFR) for the project through consultant. Application has been submitted in Ministry of Coal for long term coal linkage for the Captive Power Plant. State Govt. has also given approval for the project with certain conditions with respect to environmental consideration and availability of water. State Pollution Control Board is conducting a study on the basis of which State Govt. is likely to sanction the project location. NALCO has also given its in-principle consent to the State Govt. to participate in construction of any water storage project that would be needed to meet its demand for non-monsoon period. Company will take up further project activities as soon as State Govt. approves the location."

4.5.3 Explaining further, the Director (Finance), NALCO, during evidence before the Committee stated the following:-

"... About the Indonesia and Iran plants, just to give a background, to convert alumina into aluminum metal, what is required is huge electricity only. Rather, the cost of electricity is more than any other input cost. So, electricity is a kind of raw material for aluminum metal. Since all the three producers are meeting the full domestic requirement, we are exporting. We produce more metal and when we export more, all other additional items will be exported. That means we are exporting electricity out of India. So, question before with the government was whether we use electricity to produce aluminum and metal then export outside India or we use that electricity for other industrial and agricultural purposes. We are still going ahead with Jharsuguda Plant. Now the question if energy is available elsewhere cheaper than India, this Jharsuguda plant will be coming and still, we will be left with surplus of Alumina which will be continued to be exported. So, instead of exporting alumina as it is, the plan was that wherever the energy is cheaper that in India, why not we generate electricity there with coal or gas convert it into metal and then export from there? That is the rationale behind going to Indonesia or Iran. In Iran, gas is cheaper and in Indonesia coal is cheaper. This is the reason. ..."

4.5.4 Asked to furnish in detail the nature and scale of Company's investment/ activities in Iran and Indonesia, the company submitted:-

"The nature and scale of Company's investment/ activities in Iran and Indonesia are as below:

- A. Smelter & gas based Power Plant in Iran: Capacity: Smelter- 0.31 MTPA and CPP- 750 Mw in two phases
 - Estimated investment: Rs. 9100 crores
 - Location: Kerman Province
 - Expected completion for both phases: 2016-17
- B. Smelter & coal based Power Plant in Indonesia: Capacity: Smelter- 0.5 MTPA and CPP- 1250 Mw in two phases
 - Estimated investment: Rs. 16500 crores
 - Location: South Sumatera / East Kalimantan
 - Expected completion for both phases: 2016-17."

4.5.5 In a domestic scenario where NALCO is fast slipping to the third position in terms of growth and market performances, the Company has ambitious plans to venture overseas, especially in Iran and Indonesia. Asked to comment on the steps taken by the Ministry to ensure that the Company's overseas plans do not affect their domestic performance, which already pales out in comparison to the competition, the ministry in reply stated:-

"The production of aluminium metal by the primary producers during the period April-September, 2009 is as below: Unit: Tonnes

Name of the Company	Existing capacity smelter	Cumulative production up to September, 2009.
HINDALCO Industries	5,00,000	2,75,051
National Aluminium Company Limited	4,35,000	2,07,793
Bharat Aluminium Company Limited	2,45,000#	1,35,285
Vedanta Aluminium Ltd.	2,50,000	1,14,853

BALCO has closed its old smelter of 1,00,000 Tonnes per annum capacity.

As is apparent from the above table, presently, NALCO is at No. 2 position in the production of aluminium in the country. Since domestic demand of aluminium metal

is less than its production, the decision to export, is a conscious business decision taken by the Company's management. The Company is about to complete its second phase expansion project which would augment its capacities of mines from 48 lakh tonnes per annum (TPA) to 63 lakh TPA, alumina refinery from 15.75 lakh TPA to 21 lakh TPA, aluminium smelter from 3.45 lakh TPA to 4.6 lakh TPA and captive power plant from 960 MW to 1200 MW. The Ministry has been impressing upon NALCO to take up growth projects through brownfield or Greenfield expansions. The Company is exploring possibilities to further augment its various capacities in both overseas and domestic sectors subject to viability of the project. The rationale of setting up plants abroad is that power is available in some countries at cheaper rates as compared to within the country. The sites under consideration for setting up aluminium smelter along with captive power plant in abroad are Indonesia and Iran while in the domestic arena, Western Orissa is being considered as a probable site. The Ministry does not apprehend that overseas plans of the Company would adversely affect its domestic performance."

4.5.6 Special Secretary, Ministry of Mines in this regard stated the following:-

".... On the issue of why NALCO is looking for smelters outside the country, several Members had this question, the world over alumina refineries are generally set up wherever the mine is because bauxite is a bulky material and transportation cost is quite high. Therefore, the refining is done wherever the mine is located. But alumina is itself a saleable product. Alumina is a much refined product. The international practice generally is that the smelter is almost always sighted where power cost is the cheapest because actually power contributes almost 60 per cent of the value addition from alumina refinery to smelter. Therefore, in a domestic scenario everyone is equally placed where everyone accesses high power and sells in the domestic market and relative advantage is not there. If domestic market demand is met and we are primarily exporting, if our power cost is not competitive and it is contributing 60 per cent of value addition, our aluminium will be priced out of the market and, therefore, we will not be able to sell. That is why NALCO is looking to produce aluminium where the power is the cheapest.

There is no doubt if we can produce power in the country cheaper that is the best option. That is because then the value addition takes place within the country and you get competitive aluminium. There are many constraints because of which today power cost in the country is relatively high. There are so many factors within NALCO's domain that cannot even be addressed like issues relating to land acquisition, forest compensation, cost of production, quality of the coal, the nature of the boilers that can take this coal. So, within its own limitations NALCO is trying to address the issue of coal and run its smelters.

But it does see that in the long run, there must be an alternate because if we expand our refinery and produce more alumina, that itself is a saleable product, adding to NALCO's profit. But we may not be able to match the alumina production capacity, in terms of smelter capacity. Therefore, in addition to the existing smelters in the country, we need to develop smelter capacity particularly for export of aluminium. That is the reason why we are doing this."

Part B

Observations and Recommendations of the Committee

National Aluminium Company Limited (NALCO) had been the primary player in the country's Aluminium sector till about half a decade ago. The Company today continues to generate profits and had in April 2008 been conferred the status of a Navratna Central PSU by the Government of India in recognition of its progressive performance in terms of growth and profit generation over the preceding years. However, in the emergent market environment of cut-throat competition engendered by privatization and liberalization, the parameters for measuring performance had undergone a paradigm shift, where in the rates of growth of a Company and its profits count for more than its absolute growth and profit figures. While it can be argued that the rate of growth depends on the size of the base, and that old players have a bigger base that negatively impacts their growth percentiles, the alarm bells should begin to ring for the old players when even the absolute figures of growth and profit begins to show them lagging behind.

NALCO had everything in their favour, with their allotted captive coal mines, dedicated bauxite mines, et al. Despite all these, it still slipped behind in competition. The Company making profits notwithstanding, the Committee feel that in the competitive and potential terms a situation of alarm has set in for NALCO. The Committee wish to reiterate here that its remit requires it to examine all such factors which are hindering a PSU from performing to its fullest potential and suggest ways and means to ensure that a PSU performs to its optimum.

It is in this context and against such a backdrop that the Committee had decided to examine the National Aluminium Company Limited with a view to understand the factors responsible for its continuing slide (into third place now) on most performance parameters among the domestic aluminium companies of which there are but just three major players. The Committee desire that a process should be set in motion for exploring ways and means to restore NALCO to the pride of place as far as the domestic aluminium sector is concerned, and help it to become a leading international Company. While a whole lot of issues concerning the Company and various aspects of its functioning were thoroughly examined, the Committee shall focus their observations and recommendations only on such of the issues and aspects that in the opinion of the Committee are vital to facilitate the much needed gear-shift in the Company.

Organizational Leadership

For any PSU, a clear cut organizational leadership is a sine qua non. The Committee observe that NALCO during the past four years had been without a fulltime Managing Director. The Committee are distraught to note that the delay in appointment of a full-time CMD, as informed by the Secretary Mines during the deposition, was due to a frivolous Vigilance Case against the selected candidate who was ultimately found to be innocent. The Committee also note that high level appointments in most PSUs are often held to ransom by such vigilance cases against aspirants, most of which curiously surface when the process of selection for appointments are in motion. As it emerges, no vigilance enquiry is due or even contemplated till an officer reaches up to the post of CMD. There are two aspects to such a scenario. If something is amiss with regard to a particular officer, why is it that vigilance enquiry is done only when the issue of his promotion to the post of CMD comes up, or is it the case that till such time the particular officer gets away with irregularities? On the other hand a bona fide officer can fall prey to a motivated enquiry. There do appear to be such cases/ instances, as the Secretary Mines conceded during the deposition. The Committee, therefore, feel that the process of short listing prospective candidates for the post of a CMD, including vigilance clearance, should be completed well before retirement of incumbent CMDs.

The Committee feel that in the selection of CMD, NALCO, the focus should have been merit and talent irrespective of the candidate being in-house or external. The Committee are also constrained to observe that the prolonged uncertainty that prevailed over the appointment of regular CMD in NALCO was bound to impact the performance of the Company.

The Committee therefore recommend that the Ministry of Mines should take steps to ensure that the absence of a full-time CMD, jeopardizing the organization to a possible state of disarray and adhocism, does not recur in future. The Committee desire that the Ministry should take concrete steps to work out a future strategy which rules out/minimize such situations.

Checking frivolous and motivated investigations

The Committee further recommend that the Ministry should take up the issue of frivolous vigilance cases particularly against aspirants for top jobs in PSUs at appropriate inter-ministerial fora and push for a viable mechanism to eliminate the element of vested interests stalling the process of selection of CMDs. In case there are serious complaints with substantial evidence, the investigations should be fasttracked so that the process of selection is not delayed.

Selection process of CMD

With regard to the recent filling up of the post of CMD in NALCO, the Committee observe that the officer who was at the second place in the panel was allowed to take over as CMD in violation of all established norms, the validity of the panel in which he was placed second having lapsed by the time the incumbent was to retire. The Committee find that the justification given by the Ministry of the need to allow the person who had held additional charge of CMD for the past four years to retire as CMD is irrelevant. The Committee suspect that certain circumstances were willfully created to facilitate elevation of the officer who was second in the panel to take over as CMD. Needless supervising as evident herein points to attempts at short circuiting the recruitment process.

The Committee take note of the Ministry's clarification that the final call was taken by PESB and the Cabinet Committee. The Committee feel that in real terms, the crucial factor in such cases is the recommendation made by the Ministry to CCA, and the Ministry cannot conveniently take refuge in the endorsements given on the matter by the PESB and the CCA. It appears that the full facts have either not been projected or glossed over while making requisite recommendations to the PESB and eventually to the Cabinet Committee on Appointments. The Committee feel that the Ministry cannot be allowed to find a convenient scapegoat in the PESB and CCA nor can they be allowed to get away with their inaccurate briefing of the PESB and the CCA. The Committee therefore express grave concern over the irregular appointment of two candidates from the same panel as CMDs in succession, disregarding the fact that the validity of the panel had already lapsed, and apprehend that it could set an unhealthy precedent liable to be misused in future.

Considering the gross irregularity and the possibility of such a precedent being misused by vested interests in future, the Committee recommend that the circumstances leading to the picking of two CMDs from the same panel may be thoroughly scrutinized by an appropriate authority with a view to fix accountability and to ensure that the potentially hazardous precedent being set in this case is revoked.

Forward and Backward integration

A futuristic and forward looking vision is a sine qua non for any company/PSU to be competitive. One of the crucial indicators the existence of such a vision, the committee feel, is in the integration of activities, both forward and backward. For instance, upstream units manufacturing caustic soda can be set up instead of the company buying it from other producers. Such backward integration could very well save some costs for the company besides generating a market for caustic soda.

Similarly, the company can explore the possibility of setting up downstream manufacturing units producing a host of value added products from its billets, i.e., primary aluminium. Such units would create an alternative market for the billets/ingots produced by the company and could save the company from high costs of holding stocks or dumping them at throw away prices when the LME prices are down. Money saved through backward integration and on the other hand revenue generated through forward integration, would boost the economies of NALCO. HINDALCO is a case in point.

The Committee are of the considered view that the Company could also work out better beneficial use of ash which is produced as a result of production of alumina. Besides achieving forward integration, this would also result in environmental benefits. On the other hand forward integration would also lead to peripheral development, which in turn would boost the goodwill for NALCO.

The Committee regret to note that NALCO had lagged behind private players in both areas of forward and backward integration of business. The Committee therefore recommend that NALCO should expedite their plans for integration of business activities, both backward and forward, and go into setting up both upstream and downstream manufacturing units around their refineries and smelters to generate local employment, contribute to periphery development, create a cycle of demand and supply for their products and stimulate domestic consumption of aluminium.

Inputs management

The Committee observe that NALCO's performance in inputs management warrants some serious review. The primary inputs being bauxite and coal for power, the immense delay in the commencement of mining bauxite from Pottangi Mines and the protracted process hindering the company from mining coal from its allotted Utkal-E Block, the Committee feel, are completely unacceptable. The Committee note that these delays are due to various factors involving different agencies, e.g., the Departments of Environment and Forest of the State and the Center for environmental clearance, the State Government for granting mining leases, water tax, etc, and the local population for settling rehabilitation and resettlement issues. The Committee are left to ponder whether such outrageous delays are the norm with Public enterprises or despite their being public enterprises. In the opinion of the Committee, the Ministry of Mines should have made more concerted efforts with the concerned agencies to minimize delays in both the projects.

The Committee while recommend the delay in commencement of mining of both Bauxite and Coal, recommend that the government should consider evolving a mechanism to issue single window clearances to allottee companies of captive/leased Mines in future to eliminate the huge time and cost escalations engendered by such delays.

Alternate power source

The Committee appreciate the initiatives NALCO has taken to go into mining uranium in joint venture with the Uranium Corporation of India. The Committee are apprised that efforts are on to gain access to rich uranium and copper reserves abroad.

In view of the usefulness of Uranium as an alternative source of power to coal, and given the grim coal situation in the near future, the Committee recommend that the company should earnestly pursue its uranium projects. The Committee further recommend that the Government should render all possible support to facilitate NALCO in this regard.

Diversification

The Committee note that NALCO is in the process of redefining the scope of its activities vide its Corporate Plan 2009-2020 to go beyond Aluminium into other sectors like non-ferrous metals and power generation. The Committee also note that the Company's strengths in engineering and mining can gainfully be put to additional utility through diversification of activity into related fields/sectors like non-ferrous metals and power generatient the rationale behind these initiatives, which combines the objective of growth with those of optimum utilization of resources and competencies gained.

The Committee therefore recommend that the company should proceed with their diversification plans, albeit after careful planning and thorough analysis. The Committee also recommend that the Government should facilitate the growth plans of the Company by providing enhanced support and effective liaison between different ministries concerned on their behalf.
Capacity Expansion

The Committee note that while NALCO continues to deliver profits, its comparative performance vis-à-vis the private competitors raises some amount of concern. The Committee also note with deep concern that the relegation of the Company, once the leader in the Aluminium sector, to third place in the domestic market was triggered by its failure to add adequate capacity in time to meet the strong private competition.

The Committee however feel that the lack of adequate capacity is reflective of a larger malaise of complacency, both of the management and the Ministry. The Committee would like to caution that one cannot afford to be complacent merely by the fact that one is making profit. The Committee wish to emphasise that NALCO needs to reclaim its position of market leadership in the Aluminium production industry.

At this juncture we would like to ponder over the present scenario and reflect as to what ails NALCO. A dispassionate assessment reveals that the obvious and the likely factors are lack of vision in certain core areas; full time CMD post being vacant for a considerable time; NALCO's failing on the front of forward and backward integration, etc. have led to thee slipping of NALCO to the third position. On a positive note the Committee feel that once the malaise is diagnosed, recovery, if suitable timely measures are taken, cannot be far behind.

The Committee are happy to note that huge expansion projects are addressed at redressing the capacity constraint faced by the Company. The Committee recommend that management should set up a concurrent monitoring unit for its ongoing expansion work to ensure the most efficient and timely completion of its 3rd Phase Expansion project.

Technology Upgrade

The Committee note that NALCO had acquired their smelting technology in 1981, which till then was the latest. But by 1985, improved and better technology became available.

The Committee note that no perceptible efforts have been made to upgrade NALCO's smelting technology, whereas its competitor HINDALCO went ahead to acquire the latest smelters. The Committee also learn that HINDALCO could adopt the latest smelting technology earlier because their plants reached the end of the lifecycle of installed technology earlier. As far as NALCO is concerned, the explanation put forth is that the company had reached the end of technology lifecycle only now and that they are now planning to adopt the latest smelting technology in their Green-field expansion projects.

The Committee are concerned that NALCO could not fully absorb the latest advances in technology due to the fact that it is not economically prudent to re-invest in technology acquisition while the installed technology is yet to run its full life-cycle. However, the Committee are skeptical of NALCO's explanation that it lagged behind in adopting latest technology since the already installed technology is yet to run its full life cycle. Such a perception, the Committee feel, reflects a laidback and status-quoist attitude of the management in the matter of urgent need for continuously updating technology in a competitive scenario. The Committee are of the opinion that this technological lag substantially contributed to the Company sliding to 3rd place domestically.

The Committee therefore appreciate and commend the Company's plan to acquire latest technology for its Greenfield expansion projects. The Committee also recommend that the management should take all necessary steps to ensure that no undue disadvantage is borne by the company for want of the best and latest technology.

Benchmarking of performance

The Committee regret to note that international benchmarking of units' performances in the Company had only been carried out recently, that too, upon the insistence of the Ministry. The Committee feel that mere generation of profits should never have been allowed to bring in any sense of complacency into the Company. In this regard, the Committee note that the Company had recently obtained the Brook Hunt Report, a report by a leading International consultancy Group, which conducts an independent benchmarking of performances of Aluminium Companies worldwide on all relevant parameters, and have studied its findings. The Committee are apprised of the findings that showed NALCO's labour and repair costs as high in comparison to other companies around the world. In response to queries, NALCO informed that while measuring manpower productivity, only regular workers are taken into account. This is absolutely wrong since a suitable number of contract workers are also being engaged in NALCO in various operations which are having direct bearing on and contribution to NALCO's production performance. While benchmarking manpower productivity of labour cost, the contract workers must also be taken into account to get the correct reflection.

The Committee recommend that the Company should chalk out definitive action plans to bring about more efficiency in the processes where they are found lagging behind the best performers in the world.

Research and Development performance

The Committee, while appreciating the many projects and achievements in Research and Development in NALCO could not help but observe that the R&D expenditure in the Company has been fluctuating at a measly 0.11 to 0.08 per cent of its turnover. Considering the infinite possibilities of effecting economies and achieving advancements through R&D, the Committee recommend that more emphasis be laid on R&D sector in the future, and especially into indigenization of advanced and critical technology.

Promotion Policy

Manpower is an integral part of any PSU. A motivated, efficient and effective manpower would go a long way in the overall progress of a PSU. One of the driving/motivating factor for any employee is timely and deserving promotions. Any discrepancies or irregularities therein would not only have huge demoralizing effects on personnel, the same would also tend to shake the very edifice of the organization.

It has come to the notice of the Committee that there had been an instance where a junior General Manager level ranked official was placed at a higher position superseding the in-house seniors including senior General Managers and Executive Directors. The Ministry themselves have conceded this fact and have assured the Committee about taking remedial measures. Such instances, the Committee feel, would have a demoralizing effect over the personnel of the Company.

Infact, it is incumbent upon the Ministry to not only take notice of such instances, but also to redress these problems. There is a need for taking steps to ensure a just, fair and transparent Departmental Promotion Policy, and the Ministry have a paramount responsibility in this regard.

In the context of manpower management, the Committee also note that some areas had also been outsourced causing resentment among the labour force of NALCO.

The Committee express their disdain over the instances of junior level officers being allowed to supersede in-house senior officers of the Company despite claims to have in place a fair Departmental Promotions Policy for appointments and promotions below the Board Level. Considering the immense demoralizing effect such instances of impropriety could have over employees of the Company, the Committee recommend that stringent measures should be taken to check the recurrence of such malpractices in future and accountability of those responsible for effecting such irregularities should be fixed.

The Committee while recommending that the Ministry should evolve a mechanism for regular review of the Departmental Promotions Policies of

Undertakings under its administrative supervision to ensure adherence to established guidelines express its strong resentment at such instances of favoritism shown in violation of all norms of propriety.

Unwarranted Security Expenditure

The Committee take note of the incident of naxal attack in April, 2009 aimed at a depot containing detonators and slurry. In this context, the Committee further note that the type of explosives stored at NALCO's mining sites are in the form of slurry, which requires detonators to explode, and is practically inoperable as an explosive without the detonator device. The Committee also note that more than 15 crore have been spent/earmarked by NALCO for securing the slurry and detonators. It appears to the Committee that the target of the naxals seems to be detonators and not the slurry. Therefore, for securing the detonators, only a limited area was required to be protected. The Committee feel that incurring huge expenditure to the tune of 15 crore in the name of protecting slurry seems to be unwarranted.

The Committee are skeptical of the huge security arrangements that have been made, or are being planned, in response to the incident, in view especially of the fact that fool-proof security cover is necessary only around the magazine area, and not around entire plants. While appreciating the Ministry's intervention to have the outdated Explosives Act amended to facilitate better security arrangements, the Committee opine that unduly superfluous security arrangements are nothing but uncalled for burdens on the public Exchequer. The Committee therefore recommend that the Ministry should ensure that the company takes optimal security measures without incurring any expenditure wastefully.

Periphery Development

The Committee appreciate the Ministry's emphasis on periphery development, which is not only vital for developing the local economy but also strengthens the security around NALCO's plants by earning the local peoples' sympathy. The Committee strongly feel that NALCO has not built up adequate good rapport with the local people around their plants. The Committee however take note of NALCO's recent plans and initiatives to set up some upstream as well as downstream manufacturing units around its smelter plants. Integration of business activities, besides being commercially beneficial has the potential to substantially add to periphery development and improvement of local economy. This could generate goodwill of the local population for the Company, which in turn can also indirectly enhance the security of the Company's plants by way of security sensitive information received from the locals.

The Committee, therefore, recommend that the Company should make more efforts on the front of periphery development besides expediting the execution of its ongoing periphery development plans and projects.

Planning and Vision Document

As the saying goes, a good plan today is better than a perfect plan tomorrow. Besides, it always pays to plan. The Committee are baffled to note that NALCO had no concrete Corporate Plan prior to its elevation as a Navratna. This reflects absolute lack of professionalism in management. The Committee feel that a Company should always have a futuristic and forward looking vision. The Committee note with relief that NALCO has now come up with a Vision & Corporate Plan 2010-2020 to guide its future growth.

The Committee recommend that the NALCO management and the Ministry of Mines should together set up an effective monitoring body which can ensure the proper implementation of the Vision & Corporate Plan 2010-2020 of the company.

National Policy on Aluminium

The Committee note that there is no National Aluminium Policy in place to steer the course of the aluminium industry in the country. The Committee further note that Ministry of Mines have taken initiatives in setting up a Centre for Techno-Economic Mineral Policy Options (C-TEMPO), which will involve all major sectoral stakeholders in evolving policy options.

The Committee recommend that the (C-TEMPO) should be made fully functional at the earliest and should be adequately strengthened to churn out viable policy options for the country so far as the minerals sector is concerned, including aluminum.

Expansion Abroad

In the context of planning expansion abroad, the Committee noted that NALCO is proposing to set up projects in Indonesia, Iran etc. The Committee also note that one of the proposals behind setting up the projects pertains to the aspect of low cost power availability there. The Committee have also noted the Ministry's clarification that those proposed units would produce only that much quantity of Alumina which is required/or proposed to be exported. While appreciating this position, a point which needs to be stressed is that by setting up units abroad some people who would have gained employment in the country would be deprived of employment opportunities.

The Committee wish to stress in this context that in this country we have to pause and ponder not once, but a million times, before we start thinking about depriving / demoralizing our local work force.

The Committee therefore recommend that while the company should go ahead with their plans to expand abroad and continue to look for opportunities to capitalize on availability of cheap input costs like power and raw materials, they should ensure that domestic growth is not neglected by sustained efforts to generate more employment in the domestic market.

Market analysis

The Committee wanted to know whether NALCO has engaged/or plans to engage specialist market analysts to help it schedule its production of aluminium and alumina based on the likely trends of fluctuations of the London Metal exchange. The committee note that though the company has not felt the need to appoint consultants to study LME fluctuations, they have appointed a consultant, Metal Bulletin Research of U.K to do a market study and suggest appropriate strategies for sale of aluminium metal.

In this regard, the Committee appreciate the steps taken by the company to evolve better market strategies for its exports by engaging a consultant and recommend that the findings of the consultant should be analyzed in the context of NALCO's reality and appropriately made use of. The Committee further recommend that the company should seriously consider either employing in-house experts or engaging expert firms to help them understand the LME fluctuations better so that no losses accrue to the company on account of holding stocks or for having to dump their products at throw away prices when the LME prices are low.

New Delhi: 9th March, 2010 18 Phalguna, 1931 (Saka) SHRI V. KISHORE CHANDRA S. DEO Chairman, Committee on Public Undertakings

Training availed by the Mining Engineers for the year 2006-07, 2007-08 & 2008-09

Year	Mandays	Persons Covered	Programme Name
(1)	(2)	(3)	(4)
2006-07	1319	584	ERP ROLE & IMPORTANCE OF BUILT SYSTEM ENERGY CONSERVATION PROMME CHANGE MANAGEMENT PROGRAMME RAMCO COMPUTER PACKAGE WASTE MANAGEMENT FIRE FIGHTING TRAINING FIRST AID TRAINING TRANSMISSION TRAINING EMS TRAINING WORKER DEVELOPMENT PROGRAMME REFRESHER TRAINING PROGRAMME WELDING ELECTRODES OF ESAB INDIA LTD. KOMATSU WHEEL LOADER VIGILANCE AWARENESS TQM TRAINING QC TRAINING HINDI AWARENESS OHSAS TRAINING 210 M BEML DUMPER TRAINING SURPAC VISION TRAINING M/S. CDSS, PUNE
2007-08	1524	419	CERTIFICATE COURSE IN INDIAN HEALTH WATER AUDIT OPERATION & MAINTENANCE OF DCS SYSTEM BUILDING ORGANIZATION EXCELLENCE CONCERTE MIX CAST HOUSE TECHNOLOGY DCS/FLUID COUPLING/INVENTORY MANAGEMENT ELECTROSTATIC PRECIPITATORS O&M OF DCS SYSTEM/EFFECTIVE LEADERSHIP AC MAINTENANCE/TPM EDUCATION SYSTEMATIC PROBLEM SOLVING/ OVERAGED TRANSFORMER EMPOWERING TRADE UNION TRADE RADIATION SAFETY/ACADA IMPROVEMENT INITIATIVES FINANCE MANAGEMENT SCADA TOTAL PRODUCTIVE MANAGEMENT POTRER SYSTEM NETWORKING RESERVATION POLICY UPGRADATION OF KNOWLEDGE & SKILL AUDITING ROSTER

			GODREG FORKILIFT TRUCKS INDUSTRIAL HYDRALIEKS EFFECTIVENESS AT SURVEYORS IT GAIDELINES DRILLING & BLASTING SLURNG PUMPS OHSAS SPREAD SHUTS DISASTOR MANAGEMENT WOTER HARVESTLY REFRACTING ERGG IT SECURITY GUIDELINE RADOR TRANSMITTER RTI ACT MANAGING WORK EFFECTIVENESS WAGE & SALARY BENEFITS TQM FACILITATOR COURSE E-PROCUREMENT KOMATSEL LOADERS NIPM CONFERENCE CONVOCATION KOMATSU LOADERS INTER PERSONAL RELATION KAIZEN NATIONAL CONVENTION BULL DOZER OFFICIAL LANGUAGE IMPLEMENTATION MAINTENANCE OF COMASTSU DOZER NANO SCINAC SAFETY AUDIT CHEMCON-2007 INDUSTRIAL HYDRAULICS ARC WELDING ADVANCE WELDING PRODUCTIVITY HYDRAULICS RAJBHASA PRASHIKSHAN SHIBIR CLAIM MANAGEMENT WATER HARVESTING LOTUS NOTES HRM CONFERENCE WOMEN MEET CHEMICAL ANALYSIS O&M OF DIESEL ENGINE O&M OF FORK LIFT DOMESTIC
			8 ¹¹ TPM NATIONAL CONFERENCE OCCUPATIONAL HEALTH PRACTICES
2008-09	2246	494	OFFICIAL LANAGUAGE IMPLEMENTATION
			RISK ASSESSMENT

			STEAM TECHNOLOGY
			BOILER ENGINEERING
			FEF = 08
			CONSTRUCTION MANAGEMENT
			INDUSTRIAL VISIT
			TPM FACILITATOR
			ACCIDENTAL AWARENESS
			FINANCIAL MANAGEMENT
			IMPLEMENTATION OF PRESIDENTAL DIRECTIVES
			CALIBRATION
			ENERGY AUDIT
			PLC
			B.L.O.B.E.
			5 ¹⁷ ANNUAL CONFERENCE
			ADVANCED CERAMIC PROCESSING &
			CHARACTERISATION
			REPAIR & REHABILITATION OF CONCRET
			THERMAL POWER STATION OPERATION
			SPAREPART MANAGEMENT
			TAXATION
			ROAD DESIGN
			STEAM TURBINE OPERATION
			MAINTENANCE OF NICAD BATTERIES
			LABORATORY PRACTICE
			HSTGPS
			PREVENTIVE VIGILANCE
			STRESS MANAGEMENT
			RESERVATION POLICY
			FOREIGN TRAINING
			WORK STUDY
			NDWSA
			WORLD MINING CONGRESS
			EFFICIENT GOVERNANCE
			ICQCC/2008(FOREIGN)
			TOXICOLOGY
			STATIC EXECUTION SYSTEM
			INDUSTRIAL RELATION
			OFFICIAL LANGUAGE MANAGEMENT
			UPDATES INDUSTRAIL OCCUPATIONAL HEALTH &
L	1		

		ENVIRONMENTAL HEALTH
		PRACTICAL VIBRATION ANALYSIS
		NCQC-2008
		POWER PLANT WATER CHEMISTRY
		NINTH TPM FACILITATOR
		GLOBAL MINING SUMMIT
		CHANGING CONTOURS OF HR
		13 [™] NCSIR
		IMPROVING EFFECTIVENESS OF SECRETARIES
		AND SUPPORT STAFF
		SERVICE TAX VAT. TDS & AFBT
		RETRO FITTING OF BUILDING
		68 TH ANNUAL CONFERENCE
		VI INTERNATIONAL CONFERENCE ON
		MECHANNOCHEMISTRY AND MECHANICAL
		ALLOYING
		SAFE MINING METHOD DESIGN AND TECHNOLOGY
		TRENDS ON TECHNOLOGY OPEN CAST MINING
		BEARING MAINTENANCE
		SOFTWARE ION CHOROMATOGRAPHY
		BLOOD BANKING FOR BLOOD SAFFTY
		POWER SCENARIO IN ORISSA BY 2020
		STEAM TURBINE GOVERNING SYSTEM
		PDCA 2009 CONFERENCE
		FINANCE FOR NON-FINANCE
		LEAD AUDITORS
		INDUCTION TRAINING PROGRAMME
		FACILITATORS FOR QUALITY CIRCLE
		RIGHT TO INFORMATION ACT
		CONTRACT MANAGEMENT
		SUPERVISORY DEVELOPMENT
		LEGAL EMPOWERMENT FOR LINE MANAGER
		SOCIAL ACCOUNTABILITY - 8000
		WEP
	1	

Annexure-II

	Bauxite Mines League ranked on Cash Cost (C1) (\$/t)													
Scenario	o – Q4-200	9									· /			
Rank	Compa ny	Product ion (kt/a)	% low er	Dies el (\$/t)	Resid ual fuel (\$/t)	Labo ur (\$/t)	Consum able (\$/t)	R&M materi als (\$/t)	Servic es/ other (\$/t)	Bauxi te levy (\$/t)	Royalti es & taxes (\$/t)	Ca sh cos t (C1) (\$/t)	Dep r. (\$/t)	Full operati ng cost (C2) (\$/t)
1	Japan Alumin a	1190	0.0	0.6	0.0	1.1	0.8	1.5	0.8	0.0	0.0	4.8	0.5	5.3
2	SOJIT Z	476	0.9	0.6	0.0	1.1	0.8	1.5	0.8	0.0	0.0	4.8	0.5	5.3
3	BHP Billiton	12968	1.2	1.3	0.2	1.3	0.9	1.5	0.9	0.0	0.1	6.2	1.3	7.5
4	NALC O	4600	10. 7	1.2	0.0	1.2	0.7	1.6	0.5	0.0	1.2	6.4	1.5	7.8
5	Alumin a Limited	16226	14. 1	1.3	0.3	1.9	1.0	1.3	1.1	0.0	0.0	6.8	2.1	8.9
6	Alcoa	26177	26. 0	1.4	0.3	1.8	1.0	1.3	1.1	0.0	0.1	7.0	2.2	9.2
9	UC Rusal	6247	59. 1	0.7	0.0	4.2	1.1	1.8	1.1	0.8	0.1	9.6	1.5	11.1
10	Rio Tinto	26915	63. 7	0.9	1.0	3.3	0.9	1.3	0.8	0.0	1.7	9.9	3.0	12.9
12	Chalco	7197	83. 7	0.6	0.0	2.0	1.9	3.2	4.3	0.0	0.0	12. 0	3.7	15.7
Total/w td. Avg.	13618 5			1.2	0.6	2.8	1.1	1.7	1.3	0.0	0.5	9.2	2.3	11.5

ALUMINIUM MAJORS: BROOKE HUNT REPORT

Alumir	Alumina Refineries League ranked on Cash Cost (C1) (\$/t)												
Scenario -	Scenario – Q4-2009												
Rank	Company	Productio n (kt/a)	% lowe r	Average delivere d alumina cost	Other raw material s cost (\$/t)	Total energ y cost (\$/t)	Labou r cost (\$/t)	Total othe r cost s	Cas h cost (C1) (\$/t)	Depr (\$/t)	Full operatin g cost (C2) (\$/t)	Conversio n cost (\$/t)	
1	ENDC	06.4	0.0	(\$/t)	247	190	69	(\$/t)	1017	175	1102	706	
2	Kazakhmy	27.6	0.0	311	347	180	68	111	1017	175	1192	706	
7	BHP Billiton	1230.1	1.5	431	168	311	66	128	1103	84	1188	672	
15	NALCO	422.0	9.3	335	193	389	100	165	1182	104	1286	847	
16	Vedanta	230.0	10.5	395	190	465	47	89	1187	146	1333	792	
27	BALCO	284.0	27.0	495	201	479	57	84	1317	92	1409	822	
32	HINDALC O	634.5	39.6	448	205	493	88	121	1356	84	1440	908	
49	INDAL	4.5	60.3	477	262	636	71	127	1573	77	1650	1096	
Total/wtd . Avg.		36613.5		514	197	581	108	141	1542	92	1634	1027	

Aluminium Smelters League ranked on Cash Cost (C1) (\$/t) Scenario – Q4-2009

Rank	Company	Productio	%	Bauxit	Freig	Causti	Total	Labo	Tota	Cas	Depr	Full	Conversi
		n (kt/a)	lowe	e (\$/t)	ht	c/ lime/	energ	ur	1	h		operatin	on cost
			r		(\$/t)	ash	y (\$/t)	(\$/t)	othe	cost	(\$/t)	g cost	(\$/t)
						(\$/t)			r	(C1)		(C2)	
									cost	(\$/t)		(\$/t)	
									S				
									(\$/t)				
1	Japan	335.7	0.0	18	0	32	19	28	39	136	20	156	118
	Alumina												
2	SOJITZ	134.3	0.4	18	0	32	19	28	39	136	20	156	118
3	NALCO	1682.0	0.6	21	0	41	49	14	22	146	15	161	125
8	Vedanta	687.3	10.9	45	12	35	53	13	19	176	23	199	119
35	HINDALC	1314.1	64.5	23	22	46	74	24	26	215	20	235	171
	0												
36	INDAL	21.9	66.3	29	9	34	91	25	28	216	22	238	178
45	MALCO	13.6	94.4	22	19	42	72	50	42	247	20	267	207
53	Sterlite	8.2	99.8	62	12	63	67	68	40	313	21	333	238
Total/wt		74888.0		39	17	35	55	24	32	202	23	224	146
d. Avg.													

ALUMINA LEAGUE – BASED ON 2009 Q3 RESULT											
Company	Production	Cash cost		Labour cost		Repair &		Cash conversion			
	(kt/a)					maint	enance	(cost		
						C	ost				
		US \$	Rank	US \$	Rank	US \$	Rank	US \$	Rank		
Japan Alumina	336	136	1	28	41	39	43	118	8		
SOJITZ	134	136	2	28	42	39	44	118	9		
NALCO	1845	145	3	14	14	22	9	124	14		
Vedanta Resources	816	179	10	12	11	19	8	120	10		
Hindalco	1425	214	31	22	28	26	13	168	41		
INDAL	22	216	36	25	32	28	20	178	44		
MALCO	15	249	45	49	50	42	51	206	51		
Sterlite Industries	14	299	52	53	51	41	49	223	52		
Total/ Weighted Average (Total	75566	200		23		32		144			
54 Companies)											

ALUMINA LEAGUE – BASED ON 2009 Q3 RESULT												
Company	Production	Cash	cost	Labou	ır cost	Rep	air &	Cash conversion				
	(kt/a)					maintenance			cost			
						C	ost					
		US \$	Rank	US \$	Rank	US \$	Rank	US \$	Rank			
Japan Alumina	336	136	1	28	39	39	43	118	8			
SOJITZ	134	136	2	28	40	39	44	118	9			
NALCO	1682	146	3	14	16	22	9	125	14			
Vedanta Resources	687	176	8	13	13	19	7	119	10			
Hindalco	1314	215	35	24	32	26	16	171	40			
INDAL	22	216	36	25	33	28	22	178	43			
MALCO	14	247	45	50	50	42	50	207	50			
Sterlite Industries	8	313	53	68	52	40	47	238	52			
Total/ Weighted Average	74888	202		24		32		146				
(Total 54 Companies)												

ALUMINA SMELTER LEAGUE – BASED ON 2009 Q3 RESULT										
Company	Production	Cash cost Labour cost			Rep	air &	Cash			
	(kt/a)					mainte	enance	conversion		
						CC	ost	CC	ost	
		US \$	Rank	US \$	Rank	US \$	Rank	US \$	Rank	
Abu Dhabi Water Authority	142	1110	1	86	51	76	3	581	1	
Oman Oil Company	142	1110	2	86	52	76	4	581	2	
BHP Billiton	1230	1123	3	62	41	118	34	643	3	
NALCO	424	1144	4	79	48	167	72	806	19	
Vedanta Resources	250	1192	11	36	37	85	13	755	15	
BALCO	289	1309	19	57	39	88	19	843	24	
HINDALCO	643	1401	37	91	57	129	43	931	44	
INDAL	4.4	1437	39	74	44	129	44	1061	70	
Total/ Weighted Average (Total	36479	1465		106		146		943		
98 Companies)										

ALUMINA SMELTER LEAGUE RANKED BASED ON 2009 Q4 RESULT											
Company	Production	Cash	cost	Labou	ır cost	Rep	air &	Ca	ish		
	(kt/a)				maintenance		conversion				
						CC	ost	CC	ost		
		US \$	Rank	US \$	Rank	US \$	Rank	US \$	Rank		
ENRC	96	1017	1	68	45	111	36	706	10		
Kazakhmys	28	1017	2	68	46	111	37	706	11		
Abu Dhabi Water Authority	139	1079	3	76	52	65	1	559	1		
Oman Oil Company	139	1079	4	76	53	65	2	559	2		
BHP Billiton	1230	1103	7	66	44	128	52	672	7		
NALCO	422	1182	15	100	60	165	75	847	25		
Vedanta Resources	230	1187	16	47	41	89	26	792	20		
BALCO	284	1317	27	57	43	84	22	822	21		
HINDALCO	635	1356	32	88	54	121	43	908	32		
INDAL	4.5	1573	49	71	49	127	51	1096	50		
Total/ Weighted Average (Total	36614	1542		108		141		1027			
98 Companies)											

PRIMARY PRODUCERS

PRODUCTION

COMPANY	2005-06	2006-07	2007-08	2008-09	2009-10
HINDALCO	438536	450725	484645	530743	540000
Growth %		2.8	7.5	9.5	1.7
VEDANTA	210702	352772	396551	457420	630000
Growth %		67.4	12.4	15.3	37.7
NALCO	358954	358735	359213	361261	435000
Growth %		-0.01	0.13	0.6	20.4
TOTAL	1008192	1162232	1240409	1349424	1605000
Growth %		15.28	6.73	8.79	18.9

Research and Development Activities, Outcome and Expenditure at NALCO Ltd

Specific areas in which R&D activities carried out by the Company are given below:

(A) In-house R&D Activities :

(a) Alumina Refinery, Damanjodi

- Extraction of Alumina from Settler Underflow Mud.
- Revival of De-fluoridation Plat of Smelter Plant, Angul.
- Alumina dissolution from Partially Lateritised Khondalite.

(b) Smelter Plant, Angul

- Characterization of Baked Anode for Process Monitoring.
- Determination of Cell Factor for Prediction of Net Carbon Consumption.
- Performance Monitoring of Pots Lined with Partially Damaged Cathode Blocks.
- Development of Indigenous Tri-metallic Anode Clads.

B. Collaborative R&D Activities in Progress with various Research Institutes in the Country and Abroad.

- ➔ Basic Studies on Precipitation of Boehmite (Alumina Monohydrate) in Collaboration with Regional Research Laboratory (RRL), Bhubaneswar.
- ➔ Studies on Mechanochemical Activation of Bauxite to improve the performance of Bayer Process for Alumina Production and minimize Environmental impact of Red Mud in Collaboration with National Metallurgical Laboratory (NML), Jamshedpur.
- ➔ Production of Value Added Materials from Partially Lateritised Khondalite (PLK) of NALCO Mines in Collaboration with Regional Research Laboratory (RRL),Bhubaneswar.
- Development of Integrated Technology for Processing East Coast Bauxite for production of Alumina in Collaboration with Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC), Nagpur [Standing Scientific Advisory Group (SSAG) Project, Ministry of Mines].
- Study on Impurity Build-up during Bauxite Process and its effect on Bayer liquor Chemistry in Collaboration with Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC), Nagpur [Standing Scientific Advisory Group (SSAG) Project, Ministry of Mines].

- ➔ Ultrasonic Treatment of Spent Pot Lining in Collaboration with Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC), Nagpur [Standing Scientific Advisory Group (SSAG) Project, Ministry of Mines].
- ➔ Evaluation of Grain Refining Efficiency of commercially available grain refiner alloys in Collaboration with Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC), [Standing Scientific Advisory Group (SSAG) Project, Ministry of Mines].
- ➔ Development of Effective Technology for Extraction of Alumina from NALCO's Partially Lateritised Khondalites (PLK) with Moscow Institute of Steel and Alloys (MISA), Moscow, Russia/ Romelt SAIL India Ltd. (RSIL), New Delhi.
- ➔ Development of a Viable Process Flow sheet to Recover Titanium and Iron from the Plant Sand of NALCO's Alumina Refinery, Damanjodi in Collaboration with RRL, Bhubaneswar.
- ➔ Recovery of Gallium Metal from Spent Liquor of Alumina Refinery, Damanjodi in Collaboration with Nippon Light Metal/JFE Shoji Trade Corporation, Japan & Sabsons International Pvt. Ltd., Chennai.
- ➔ Safe Disposal of Waste Emulsion Oil generated at Cast House of Smelter Plant, Angul in Collaboration with RRL, Bhubaneswar.
- ➡ Establishing technical suitability of utilizing refractory portion of Spent Pot Lining Materials (SPL) in manufacture of Ordinary Portland Cement (OPC) in Collaboration with National Council for Cement and Building Materials (NCB), Ballabgarh, Haryana.

Future Plan of Action :

- Setting up of Corporate R&D, Engineering & Technology Development Centre at Bhubaneswar.
- Development of NALCO's own technology through Process & Product development, Waste utilization, Energy conservation, Indigenization of equipment, Import substitution and Diversification for production of different value added items etc.
- Domestic & Global Collaborations with reputed R&D Institutions, Industries and Academia for Technical Cooperation.

New Projects :

- Investigation and Utilization of Spent Pot lining Materials (SPL) of Smelter Plant, Angul as a Co-Fuel at CPP, Angul in collaboration with Central Fuel Research Institute (CFRI), Dhanbad.
- Fundamental studies on precipitation process of Alumina Hydrate with JNARDDC, Nagpur.
- Setting up Prototype Romelt Furnace for Pilot Scale Treatment of Red Mud in collaboration with MISA, Moscow/RSIL, New Delhi.

- Recovery of Scandium from NALCO Red Mud in collaboration with MISA, Moscow/RSIL, New Delhi.
- Technology for preparation of Master Alloys in collaboration with MISA, Moscow/RSIL, New Delhi.
- Electrochemical refining of Aluminium in collaboration with MISA, Moscow/RSIL, New Delhi.
- Development of Process for Extraction of Vanadium Sludge from Green Liquor at NALCO in collaboration with JNARDDC, Nagpur.
- Preparation and Certification of Reference Material for Selected Ores and Other Materials in collaboration with JNARDDC, Nagpur.
- Reduction of Bubble Voltage Drop with Slotted Anodes in Aluminium Electrolytic Pots of NALCO's Smelter Plant, Angul in collaboration with JNARDDC, Nagpur.
- Development of a Probe for Liquidus Temperature Determination of Electrolysis Bath of NALCO's Smelter Plant, Angul in collaboration with JNARDDC, Nagpur.
- Electrical and Thermal Study of Aluminium Electrolytic Cells for Performance Evaluation at NALCO' Smelter Plant, Angul in collaboration with JNARDDC, Nagpur.
- Infrared Thermography Studies at Aluminium Smelter and Power Plant, NALCO, Angul in collaboration with JNARDDC, Nagpur.
- Conversion of Spent Pot Lining Material (Refractory Portion) Generated in Aluminium Industry into Glass Ceramic Product in collaboration with JNARDDC, Nagpur.
- Infrared Thermography Studies at Alumina Plant, NALCO, Damanjodi in collaboration with JNARDDC, Nagpur.
- Preparation of low ferric alum from aluminium dross of NALCO's Smelter Plant, Angul. Set up of pilot plant for low ferric alum production in collaboration with JNARDDC, Nagpur.
- Preparation of Reference Materials for Anode Raw Materials and Bath in collaboration with JNARDDC, Nagpur.

Output & Outcome Assessment of R&D Activities :

(A) (i) Benefits derived as a result of the above R&D :

- Tri-metallic Anode Clads procured from three parties are undergoing life cycle assessment by actual use in pot lines. Extensive plant trial has been completed on indigenous tri-metallic anode clads procured from Gulf Oil and the report will be ready by mid May, 2006.
- Regular characterization of Anode quality has facilitated improvement in quality of baked anodes.
- A process for production of crystalline Boehmite (Al₂O₃.H₂O) has been developed by precipitating from super saturated sodium aluminate liquor under atmospheric pressure conditions and at a temperature as low as 50°C. Based on the process know-how so developed, a Patent Application has been filed in India jointly in the names of NALCO & RRL, Bhubaneswar.
- Utilizing State-of-the-Art Technology for extraction of Alumina from PLK, chemical & mineralogical characterization of 3 samples of NALCO's PLK has been successfully completed.

Pilot Scale Demonstration Studies for Extraction of Gallium from NALCO's Spent liquor has been successfully completed at Nippon Light Metal (NLM)'s Shimizu Works, Japan in Collaboration with NLM and JFEST Shoji Trading Corporation (JFEST) from 19th to 29th June, 2006 and 628 gms of Gallium Metal was produced and Record Notes of Activities have been signed. "Detailed Pilot Scale Study Report" will be submitted by NLM and JFEST to NALCO by end of July, 2006.

(ii) Government of India Recognition to NALCO's In-house R&D Centres :

Department of Scientific & Industrial Research (DSIR), Ministry of Science & Technology, Government of India have recognized NALCO's In-House R&D Centres located at Mines & Refinery Complex, Damanjodi and Smelter & Power Complex, Angul for Industrial Testing and Academic Research. All NALCO Laboratories are recognized as "export self certification set-up".

(B) Technology Absorption, Adaptation Innovation activities undertaken by the company :

Measures taken by the Company in its different units concerning technology absorption, adaptation & innovations and benefits derived thereof are summarized below :

SI	Modifications Undertaken	Benefits derived
No.		
1.	Replacement of additional four cooling tower fans of SPP by FRP fans, thus achieving substantial reduction in power saving	Power consumption in conventional Aluminum bladed fan:- 41.24KW Power consumption in FRP bladed fan:- 22.35KW
	CT3 fan-1,2,3(average)	Net saving of power:-18.89 KW per fan
2.	Reduction In TG trip outs: - Taking timely corrective action in case of any process abnormalities. Suitable modification in conventional protection system with new microprocessor based PC connectivity system in TG-3 has avoided the	Number of TG trips has reduced to 46nos, the lowest ever since inception.

a) M&R Complex, Damanjodi :

	spurious trip outs.	
	Necessary modification was carried out in all three TGs to avoid tripping of TG in case of transient drop in extraction\exhaust pressure due to sudden drawal of steam or any Mill tripping	
3	Application of FRP on the junction boxes and cable tray: - Various junction boxes and cable trays in caustic dilution tank of DMP were getting corroded frequently due to chemical fumes in the area generated during regeneration. Necessary modification were carried out by replacing these conventional junction boxes and cable trays of MS make with FRP coating at site	The corrosion due to chemical fumes was avoided and life has improved.
4	Provision of manual steam inerting system in #3 Mill-1 The CO ₂ system provided earlier was not functioning since long and the required spares for this system was not available. Suitable modification was carried out by providing the steam inert system in place of CO ₂	This has resulted in establishing safety of the Mill in case of fire.
5	Provision of Moisture separator in the instrument air header of Old Boilers. Moisture separators with auto drain facility were provided in the common instrument air header in Old Boilers (Boiler-1,2 &3), which drains out the accumulated moisture trapped in the separator at a regular interval thus eliminating the mal-operation of control valves and other critical appliances	Achieving trouble free and stability in Boiler operation. The same type of modification was carried out in DMP in last year, which resulted in a trouble free operation of control valves.
6	Modification of 110 volt interrogation voltage-	Suitable modification was carried out by switching the

During transient voltage dip, the	source of interrogation voltage
interrogation voltage i.e.110 volt A.C.	from 110 volt AC to 110 volt
was getting affected. This was causing	DC which was more stable and
malfunction of some interlocks /	remain unaffected during
protections of LT motors leading to	transient power system
tripping of running HT drives and	disturbance and voltage dip.
closure of some important gates	
ultimately leading to tripping of Boiler.	

b) Smelter Plant, Angul :

SI.	Details of Modifications	Benefits thereof
No		
-		
1	Characterisation of Baked Anode and	There is substantial
	process monitoring and improvements	Improvement in Anode quality
	In Green Anode manufacture and Baking operation is being carried out	of Electrolytic pots
	regularly.	
2	The Anode Bench scale plant for	This will help in fundamental
	detailed study on the influence of raw	understanding of the Anode
	the Anode quality have been	statistical analysis and allow
	commissioned and the basic studies are	logical improvements in Raw
	in progress.	Material specification and
		process parameters.
3	Performance monitoring of pots lined	-Financial saving appx Rs.1.3
	are continuing. These nots have	
	completed pot life varving from 2233 to	-Similar attempt can be made
	2436 days against reference life of 2500	in future when damage is
	days.	marginal and insurance claim is
		not accepted.
4	The life cycle assessment of	Procurement of indigenous
	indigenously developed Trimetallic	Trimetallic Anode clads at
	Anode clads for one supplier has been	lower cost but having good
	completed while the same for second	performance comparable to
	supplier is in progress. Based on mid	imported Anodes. Being a
	lienn assessment indigenous	regular consumable item

	procurement from both suppliers has commenced. Preliminary trials for the third supplier is in progress.	financial saving over the years will be substantial.
5	Mathematical models for 220 KA pot cell design, Assymetric Anode design for higher KA operation, pots with SiC side lining, thermo structural transient model for cathode sealing etc. completed. After modeling studies on increased stub hole depth and slotted anodes, these two energy saving projects have been taken up for implementation.	The models developed will be useful while going for high Amperage operation. The two Energy saving projects on successful completion will lead to sving in milli volt which can be utilized for increasing amperage.
6	Development and validation of two types of Ledge measurement tools have been completed. Prediction of side lining and cathode bottom condition for both abnormal and normal pots in different age groups are being carried out, on random basis, for preventive and corrective actions.	The new tools allow Ledge measurement to be done in pot for the first time at NALCO, and that too quickly and more accurately. This will help in preventing unexpected pot leakage leading to stoppage/reduction in Line Amperage.
7	For the first time, trials have been taken up for indigenous reprocessing of Tepid ramming paste with expired self life i.e. paste considered unusable till now. Three pots lined with reprocessed paste are operating satisfactorily since last six months.	On success, this offers an alternative for reuse of paste even if self life is expired due to difference in pot failures expected and actual. This in future will help in developing indigenous paste.
8	Laboratory and large scale studies on dissolution of sludge (accumulated at the bottom of storage tank) collected from LDO storage tank using fuel additive completed with satisfactory results. Procurement action for addition in the storage tank using fuel additive completed with satisfactory results. Procurement action for addition in the storage tank itself is in progress.	 -Avoid mechanical cleaning of sludge. -Avoid problems associated with disposal of sludge removed from tank. -Recovery of Energy associated with sludge.

9	Trials	for	pro	ducti	on	of	high	Supply of high phosphorous pig
	phospho	rous	Pig	Iron	in	Smelt	ter for	Iron is erratic since there is only
	cathode	sea	ling,	by	ble	nding	ferro-	one supplier. The uncertainty
	phospho	rous	with	low	ma	ngane	se pig	on supply has been over come
	Iron was	succ	essfu	ıl.				since Ferro phosphorous and
								low Mn pig iron is readily
								available.

c) Captive Power Plant, Angul :

SI. No.	Details of Modifications	Benefits thereof
1	To enhance availability of oil guns to 100%, hot testing of the guns was done every week resulting in consumption of oil. Now, the logic is modified for dry oil gun testing.	90.66 KL of furnace oil – Energy saving per year.
2	Arrangement for firing HFO has been set right at AB oil elevation in place of LDO in Unit#6, #7 & #8.	Saving of LDO which is around Rs.8000/KL earlier than HFO. 60.00 KL of LDO – Energy saving per year.
3	Six nos. of existing cooling tower fan blades have been replaced with energy efficient FRP fan blades in unit#2.	Savings in power of 18.75 KW per fan has been achieved. 112.5 KW – Energy saving per year.
4	Optimization of running of compressors has been done by interconnecting the header of old units with that of new expansion units.	Running of compressor reduced from 9 Nos. to 6 Nos. Energy saving : 132 KW x 3 = 396 KW per annum.
5	Overhauling of 2 Nos. of BFP cartridge has resulted in power saving in the tune of 182.6 KW in BFP-5A and 138.46 KW in	Energy saving : 321 KW per annum.

	BFP-3A. There are two BFP in each unit. One BFP runs alternately every week.	
6	Modification done in RC feeder circuit and GT standby earth fault circuit of unit#7 & #8.	Resulted in zero trip out of the unit on this account.

(C) Patent Applications filed by NALCO :

A list of Patent Applications filed by NALCO's R&D and status thereon is given below :

During Last 3 Years for Various Research & Development Projects.

- ➔ Basic Studies on Precipitation of Boehmite (Alumina Monohydrate) in Collaboration with RRL, Bhubaneswar.
- ➔ Studies on Mechanochemical Activation of Bauxite to improve the performance of Bayer Process for Alumina Production and minimize Environmental impact of Red Mud in Collaboration with NML, Jamshedpur.
- ➔ Production of Value Added Materials from Partially Lateritised Khondalite (PLK) of NALCO Mines in Collaboration with RRL,Bhubaneswar.
- Development of Integrated Technology for Processing East Coast Bauxite for production of Alumina in Collaboration with JNARDDC, Nagpur (SSAG Project, Ministry of Mines).
- Study on Impurity Build-up during Bauxite Process and its effect on Bayer liquor Chemistry in Collaboration with JNARDDC, Nagpur (SSAG Project, Ministry of Mines).
- Ultrasonic Treatment of Spent Pot Lining in Collaboration with JNARDDC, Nagpur (SSAG Project, Ministry of Mines).
- Evaluation of Grain Refining Efficiency of commercially available grain refiner alloys in Collaboration with JNARDDC, Nagpur (SSAG Project, Ministry of Mines).
- Development of Effective Technology for Extraction of Alumina from NALCO's Partially Lateritised Khondalites (PLK) with MISA, Moscow, Russia/ RSIL, New Delhi.
- Development of a Viable Process Flow sheet to Recover Titanium and Iron from the Plant Sand of NALCO's Alumina Refinery, Damanjodi in Collaboration with RRL, Bhubaneswar.

- Recovery of Gallium Metal from Spent Liquor of Alumina Refinery, Damanjodi in Collaboration with Nippon Light Metal/JFE Shoji Trade Corporation, Japan & Sabsons International Pvt. Ltd., Chennai.
- ➔ Safe Disposal of Waste Emulsion Oil generated at Cast House of Smelter Plant, Angul in Collaboration with RRL, Bhubaneswar.
- Establishing technical suitability of utilizing refractory portion of Spent Pot Lining Materials (SPL) in manufacture of Ordinary Portland Cement (OPC) in Collaboration with National Council for Cement and Building Materials (NCB), Ballabgarh, Haryana.
- ➔ Studies on Extraction of Alumina from Last Washer Mud of NALCO's Alumina Plant in Collaboration with JNARDDC, Nagpur.
- Studies on Modeling of Alumina Precipitation Circuit in Collaboration with EIL, New Delhi.
- Designing Higher DC Kamps Hall-Heroult Cell through Mathematical Modeling and validating those models in ANSYS in Collaboration with ANSYS Software Pvt. Ltd., Bangalore/GENISIM Inc. Canada.
- Contract with M/s Thyazpromexport, Moscow, Russia for Testing of Samples of Process Liquid and other Process Materials of M&R Complex, Damanjodi for Gallium.

Annual E	xpenditure	in R&D	in terms	of percenta	ge of total	expenditure :
				· · · · · · · · · · · · · · · · · · ·		

		(Rs. In lakhs)		
	2005-06	2004-05	2003-04	
Capital	280.11	7.97	0.51	
Recurring	95.72	427.98	198.59	
Total	375.83	435.95	199.10	_
Total R&D expenditure				
as % of total turnover	0.08		0.11	0.06
	Capital Recurring Total Total R&D expenditure as % of total turnover	2005-06Capital280.11Recurring95.72Total375.83Total R&D expenditure375.83	2005-06 2004-05 Capital 280.11 7.97 Recurring 95.72 427.98 Total 375.83 435.95 Total R&D expenditure 0.08	2005-06 2004-05 2003-04 Capital 280.11 7.97 0.51 Recurring 95.72 427.98 198.59 Total 375.83 435.95 199.10 Total R&D expenditure 0.08 0.11

Economies of Scale Impacted by R&D Outputs :

(i) Setting up of Detergent Grade Zeolite-A Plant (10,000 TPA) directly in the loop of NALCO's Alumina Refinery, Damanjodi :

After successful laboratory & pilot plant scale trials a 10,000 TPA Detergent Grade Zeolite-A Plant has been set up by NALCO directly in the loop of its Alumina Refinery, Damanjodi based on the indigenous technology jointly developed by NALCO and Central Salt & Marine Chemicals Research Institute (CSMCRI), Bhavnagar, Gujarat at an investment of Rs.25.00 crores. Engineers India Limited (EIL) undertook design & engineering activities of the Zeolite-A plant for economies of scale operation. The plant is running successfully and the product Zeolite-A is being sold to prospective Detergent Manufacturers. The Process know-how so developed, has been patented in India and other countries of the world.

(ii) Setting up of a 600 TPA Special Grade Alumina & Hydrate Pilot Plant at M&R Complex, Damanjodi :

Based on the research outcome, a 600 TPA Special Grade Alumina & Hydrate Pilot Plant has been set up at M&R Complex, Damanjodi at an investment of Rs.3.3 crores for catering to the requirements of Ceramic & Refractory Manufacturers and others. Rs.1.00 crore was obtained from Department of Scientific and Industrial Research (DSIR), Ministry of Science & Technology, Government of India as grant-in-aid for the Pilot Plant.

Both the above Projects use Process Intermediates to produce high value added products. This has added to the overall Revenue generation for Alumina Plant and generates a positive impact on its "Scale of Economy"

Grievances Redressal Mechanisms in NALCO

With a view to keep its Human Resources contended and promote harmonious employeremployee relation, the Company has formatted formal grievance procedures for quick redressal of employees' grievances. The formal grievance procedure presently in operation in the Company is given below:

Grievance Procedure for Executives

Objectives :

- a) To provide a formal channel for redressal of grievances of individual executives in their employment relationship.
- b) To take all possible steps for redressal of grievances.
- c) To review and recommend action for minimizing such grievances in future.

Scope :

Executive employees in pay scales upto and including Rs.36,600-3%-62,000/- (E-4 Grade) can invoke this procedure for redressal of their grievances. The procedure will cover all matters of employment relationship except the following:

- General issues involving scale of pay, allowances, fringe benefits, etc.;
- Disciplinary action taken under Conduct, Discipline and Appeal Rules of the Company;
- Cases relating to vigilance and security;
- Discharge or termination of services as per terms of employment contract;
- Promotion policies of the Company.

Executive employees in the pay scale of Rs.43,200-3%-66,000/-(E-5 Grade) and above will seek redressal of their grievances directly from heads of projects.

Procedure:

- i) The aggrieved executive may take up his grievance orally with the Head of the Department. The Head of the Department concerned may consult HRD/Finance Department and other agencies as required and take steps for redressal of the grievance expeditiously.
- ii) If the aggrieved executive is not satisfied with the reply of the Head of the Department, he may submit his grievance formally to the General Manager/Head of the Unit in writing giving all relevant details of his grievance within 30 days from the occurrence of the cause of the grievance.
- iii) All the grievances of individual executives will be registered in a register to be maintained in the office of General Manager/Head of the Unit. After examination and consideration, the decision of the General Manager/Head of the Unit will be communicated to the aggrieved executive within a fortnight. The General Manager/Head of the Unit may give a personal hearing to the executive before disposing of the grievance.

- iv) On receipt of the reply from the General Manager /Head of the Unit, if the aggrieved employee is still not satisfied, he may make an appeal to the Chairman-cum-Managing Director giving all details of his grievance in writing.
- v) The decision of the Chairman-cum-Managing Director will be communicated to the aggrieved executive within 30 days and will be final in the matter.
- vi) The decision on the grievance will be implemented expeditiously.

Grievance Procedure For Non-Executives

Objective:

With the object of providing workmen of the Company, a readily accessible machinery for prompt redressal of their day-to-day grievances, the management lays down the procedure and the machinery therefor, as specified herein:

Scope :

Individual grievances involving matters like the following may be taken up under this procedure:

- Physical working conditions and welfare amenities,
- Allotment of quarters,
- Attendance,
- Payment of wages, allowances, overtime, increments, arrears, etc.
- Recoveries from wages,
- Medical facilities,
- Seniority,
- Transfer,
- Leave,
- Promotion and acting in higher position.

Matters relating to collective bargaining/ disputes (involving groups), such as pay scales, allowances, bonus, hours of work and common benefits, etc. and also cases relating to disciplinary matters will be outside the purview of this grievance procedure.

In case of any grievance arising out of discharge or dismissal of workmen, this procedure shall not apply.

Procedure:

An aggrieved employee may in the first instance meet his immediate superior officer and present his grievance orally to him. The immediate superior officer may consult other connected agencies required for the redressal of the grievance and try to settle it within 3 days.

Stage I

- i) In case, however, the employee is not satisfied, he/she may seek redressal formally through grievance procedure at stage-I for which he/she has to fill in Form-I giving details of his/her grievance, within 60 days from the occurrence of cause of the grievance to his/her Head of Department. On receipt of the grievance Stage-I, the Head of Department concerned will arrange to register in a register to be maintained in his office and take necessary steps for redressal of the grievance. In the process, he may consult the HRD/Finance Department and other connected agencies as required.
- ii) The Head of the Department may also give a personal hearing to the employee and collect additional information, if any, required for redressal of the grievance.
- iii) The Head of the Department will arrange for a formal reply to the employee concerned within 7 (seven) days of receipt of the grievance under intimation to the Dy.Manager(HRD)/ Manager(HRD) concerned.

Stage II:

- i) In case the employee is still not satisfied with the reply received from the Head of the Department or he/she does not receive any reply within the stipulated period, he/she may take recourse to the grievance Stage-II by submitting Form-II to the Secretary, Grievance Committee, as notified in his/her unit, within 7 days from receipt of reply to stage-I or 15 days from the date of submission of Grievance Stage-I.
- ii) The Secretary, Grievance Committee shall register the grievance on behalf of the Grievance Committee and give an acknowledgment of the same to the aggrieved employee. He may collect relevant facts, and rules and guidelines on the subject of grievance from all sources concerned and prepare a detailed note for examination by the Grievance Committee consisting of the Chairman, two representatives of management and two representatives from the employees.
- iii) The employee concerned may be heard in person by the Grievance Committee if he/she likes. He/she may be allowed to be assisted by a coemployee of his/her Department/Unit before the Committee, if he/she so desires.
- iv) The Grievance Committee may seek assistance of the Head of the Department concerned and/or any other agency considered necessary for redressal of the grievance.
- v) The decision of the Grievance Committee will be communicated to the aggrieved employee within 30 days of receipt of the grievance. In case of any delay in communicating the decision within the prescribed limit, the reason thereof shall be recorded in writing and the aggrieved employee shall be communicated of the delay.

- vi) If it is not possible for the Grievance Committee to arrive at a unanimous decision, the committee will make a reference of the grievance with record notes of the discussions/views, duly signed by the members of the committee, to the General Manager/Head of the Unit, who will decide the issue and send back his decision to the Secretary, Grievance Committee. The Secretary of the Grievance Committee will bring it to the notice of other members of the Committee and take steps for its implementation.
- vii) The decision of the Grievance Committee communicated to the aggrieved employee will be final subject to Stage III Appeal.

Stage III - Appeal:

The aggrieved employee may prefer an appeal to the General Manager/Head of the Unit against the decision of the Grievance Committee within a period of 7 days from the date of receipt of the reply of the Grievance committee. The General Manager/Head of the Unit may consult the Corporate HRD/Finance Department, where necessary, and also give a personal hearing to the appellant before giving a decision.

The decision of the General Manager/Head of the Unit, which will be final, will be communicated to the employee within one month from the date of receipt of the appeal.

Constitution of Grievance Committee:

The constitution of the committee will be as under:

- i) Chairman
- ii) Two representatives of management, and
- iii) Two representatives of the employees.

The Chairman will be nominated by the management.

An officer of HRD Department nominated by the management will be the Secretary of the Committee. It will be his responsibility to arrange for the meetings of the Grievance Committee, keep the necessary records and take action on the decisions of the Committee.

Representative of Workmen:

If there is a recognized union, it will intimate two names and alternate names in order of priority for representation in the committee. The management will select the required number from amongst the names recommended by the recognized union.

If there is no recognized union, two of the more representative registered trade union, functioning in the establishment according to their membership in the establishment, shall be asked by the management to intimate two names each along with alternate names in order of priority for representation in the committee. The management shall

select the recommended names in such manner that each of the above mentioned two unions has at least one representative each on the committee.

In case of doubt as to which are the two more representative registered unions the matter may be decided in consultation with the conciliation officer.

The life of the Committee shall be one year, the existing members, however, continue to function on the Committee till the reconstitution of the fresh committee.

Meetings:

The Grievance Committee shall meet once in every fortnight or earlier, if necessary.

One member representing the management and one member representing the workmen besides the Chairman shall constitute the quorum for a meeting of the Committee.

Miscellaneous:

If the grievance arises out of an order given by the management/ superior officer, such order shall be complied with before the workman concerned invokes the procedure laid down herein. If, however, there is a time lag between the issue of an order and its compliance, the grievance procedure may be invoked that the order nevertheless must be complied with, within the due date.

The aggrieved employee or any union on his behalf will not move for conciliation, adjudication or move any other Government machinery for intervention in the matter where an employee has taken up a grievance for redressal under this procedure until he has exhausted all the steps prescribed.

The aggrieved employee or his co-employee working within the organisation will be allowed to leave the Department by their superior on receipt of a call during the working hours if they are satisfied that the employees are required in connection with the proceedings of the Grievance Machinery. The time spent by the employee in this connection shall be treated as on duty.

No workman shall be harassed or victimized for having preferred a grievance to be processed under this procedure. Any complaint from a workman regarding harassment or victimization may be made directly to the Sr. Manager(HRD).

Decision on the grievance dealt with under this procedure will be in accordance with the existing policy, rules, regulations and procedures of the Company.

It would be the endeavor of the management to ensure speedy implementation of the decision of the Grievance Committee and the General Manager of the Unit.

Interpretations/Amendments:

In the event of any doubt/dispute in regard to the interpretation of any of the aforesaid provisions, the decision of the Chairman-cum-Managing Director will be final and binding on all concerned. The Chairman-cum-Managing Director shall be empowered to amend/supplement/substitute this procedure and to issue any administrative instructions in pursuance thereof.

Unit	Received	Disposed off	Pending
Smelter	Nil	Nil	Nil
CPP	Nil	Nil	Nil
M&R			Nil
Corporate & Other Regional Offices, Port Facility.	Nil	Nil	Nil
TOTAL	Nil	Nil	Nil

Status of Complaints received and redressed in the past two years period

Public Grievance Redressal System :

Apart from formal grievance procedures, Grievance Cell in the organisation for dealing with Public Grievance is functioning effectively since March 1985 for redressal of public grievance promptly, objectively and in a fair and just manner. In the production units/ corporate office, a grievance register is maintained. All the designated Public Grievance Officers observe every Wednesday as meeting day and ensure availability in the respective offices between 2.30 pm and 5.30 pm for smooth handling of grievance of the aggrieved citizen. A locked compliant box is placed at the reception for the convenience of complainants. A suitable page on the working of public grievance redressal machinery has been incorporated in the Nalco's website for general awareness. Time limit for disposal of public grievances within 3 months has been fixed and suitable instructions have been issued to all concerned to strictly adhere to the same. Grievance prone areas and the evaluation of the functioning of grievance redressal system are reviewed by the Chairman-cum- Managing Director on quarterly basis. The status of year-wise break up of public grievances is as follows;

Year	No of Public Grievances Received	No of Public Grievances disposed of	Pending
2007-2008	14	13	01
2008-2009	03	04(01 case of 07- 08)	Nil
MINUTES OF THE 3rd SITTING OF THE COMMITTEE ON PUBLIC UNDERTAKINGS (2009-10) HELD ON 10TH SEPTEMBER 2009

The Committee sat from 1100 hrs to 1325 hrs.

PRESENT

Chairman

Shri V. Kishore Chandra S. Deo

Members, Lok Sabha

- 2 Shri K.C. Singh 'Baba'
- 3 Shri Ramesh Bais
- 4 Shri Hemanand Biswal
- 5 Shri Sukhdev Singh Libra
- 6 Dr. Charan Das Mahant
- 7 Shri Baijayant Panda
- 8 Shri Nama Nageswara Rao
- 9 Chaudhary Lal Singh
- 10 Shri Ganesh Singh
- 11 Shri N. Dharam Singh
- 12 Shri Bhisma Shankar alias Kushal Tiwari

Members, Rajya Sabha

- 13 Shri Birendra Prasad Baishya
- 14 Shri Bharatkumar Raut
- 15 Ms. Mabel Rebello
- 16 Dr. T. Subbarami Reddy
- 17 Shri Tapan Kumar Sen

Secretariat

- 1. Shri J.P. Sharma Joint Secretary
- 2. Shri Ravindra Garimella
- 3. Shri Ajay Kumar
- 4. Shri Paolienlal Haokip

Joint Secretary Additional Director Additional Director Under Secretary

Representatives of NALCO

Shri C.R. Pradhan
Shri K.K. Mallick
Shri B.L. Bagra
Shri Joy Varghese
Director (P&A)

2. At the outset, the Chairman welcomed the representatives of National Aluminium Company Limited (NALCO) and also drew their attention to provisions of Rule 275 of the Rules of Procedure and Conduct of Business in Lok Sabha relating to evidence before the Parliamentary Committees. Then, the representatives of NALCO made a brief power point presentation on the subject. Thereafter, the Members raised queries on various aspects pertaining to the subject and the explanations/clarifications on the same were given by the representatives of NALCO. Information on some of the points raised by the Committee was not readily available with the representatives of NALCO. The Committee directed them to furnish the same to the Secretariat at the earliest possible.

3. The Chairman then thanked the representatives of NALCO for providing all the information on the subject matter as desired by the Committee.

- 4. Verbatim record of evidence was kept.
- 5. (The witnesses then withdrew).
- 6. The Committee then adjourned.

MINUTES OF THE 14th SITTING OF THE COMMITTEE ON PUBLIC UNDERTAKINGS (2009-10) HELD ON 12th FEBRUARY 2010

The Committee sat from 1130 hrs to 1300 hrs.

PRESENT

Chairman

Shri V. Kishore Chandra S. Deo

Members, Lok Sabha

- 2 Shri Sukhdev Singh Libra
- 3 Shri Nama Nageswara Rao
- 4 Shri Bhisma Shankar alias Kushal Tiwari

Members, Rajya Sabha

- 5 Shri Bharatkumar Raut
- 6 Ms. Mabel Rebello
- 7 Shri Tapan Kumar Sen

Secretariat

1.	Shri J.P. Sharma	Joint Secretary
2.	Shri Rajeev Sharma	Director
3.	Shri Ravinder Garimella	Additional Director

- 4. Shri Ajay Kumar Garg Additional Dir
- 5. Shri Paolienlal Haokip

Director Additional Director Additional Director Under Secretary

Officials of Ministry of Mines

1.	Ms. Santha Sheela Nair	Secretary
2.	Shri S. Vijay Kumar	Special Secretary
3.	Shri Sundeep Kumar Nayak	Joint Secretary
4.	Shri A.K. Bhandari	Advisor (C-TEMPO)

2. At the outset, the Chairman welcomed the representatives of Ministry of Mines and drew their attention to direction 58 of the Directions by the Speaker relating to evidence before the Parliamentary Committees. Then, the Members raised queries on various aspects pertaining to the comprehensive examination of National Aluminium Company Limited (NALCO) and the representatives of Ministry gave explanations/ clarifications on most of the points raised. Information on some of the points raised by the Committee was not readily available with the representatives of the Ministry. They were therefore asked to furnish the same to the Committee Secretariat within a week's time.

3. At the end, the Chairman thanked the representatives of the Ministry for providing useful information on the subject matter as desired by the Committee.

4. Verbatim record of proceedings has been separately maintained.

5. The witnesses then withdrew.

MINUTES OF THE 16th SITTING OF THE COMMITTEE ON PUBLIC UNDERTAKINGS (2009-10) HELD ON 9th MARCH 2010

The Committee sat from 1500 hrs to 1515 hrs.

PRESENT

Chairman

Shri V. Kishore Chandra S. Deo

Members, Lok Sabha

- 2 Shri Hemanand Biswal
- 3 Shri Anant Kumar Hegde
- Shri Sukhdev Singh Libra 4
- Dr. Charan Das Mahant 5
- Shri L. Rajagopal 6
- Shri Nama Nageswara Rao 7
- Shri Ganesh Singh 8
- Shri Rajiv Ranjan Singh alias Lalan Singh 9
- Shri Bhisma Shankar alias Kushal Tiwari 10

Members, Rajya Sabha

- 11 Shri Bharatkumar Raut
- 12 Shri Vijay Kumar Rupani
- Shri Tapan Kumar Sen 13

Secretariat

- 1. Shri J.P. Sharma
- 2. Shri Rajeev Sharma
- 3. Shri Ajay Kumar Garg
- Additional Director 4. Shri Paolienlal Haokip Under Secretary

2. The Committee considered the draft Reports on the following subjects and adopted them with some minor modifications: -

Joint Secretary

Director

- (i). XXXXX XXXXX XXXXX
- National Aluminium Company Limited (NALCO). (ii).
- 3. The Committee then authorized the Chairman to finalize the Reports for presentation.
- The Committee then adjourned. 4.