

# 20th Annual Report 2000-2001

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*To achieve growth in business with  
global competitive edge providing  
satisfaction to the customers,  
employees, shareholders and  
community at large.*

## *Mission*

*in Aluminium Sector*

*To be a company of  
global repute*

## *Vision*

# National Aluminium Company Limited

## BOARD OF DIRECTORS

### CHAIRMAN-CUM-MANAGING DIRECTOR

Shri S. C. Tripathi (w.e.f. 31.08.2001 A.N.)

Shri P. Parvathisem (upto 31.08.2001 A.N.)

### DIRECTORS

Shri S. P. Gupta

Shri C. Venkataramana

Shri S. B. Nayak

Shri S. K. Banerjee

Shri P. Mohapatra

Shri S. N. Malik

### CHIEF VIGILANCE OFFICER

Shri S. K. Mishra

### EXECUTIVE DIRECTORS

Dr. R. C. Mohanty

Maj. A. Chowdhury

Shri S. K. Misra

Shri M. S. Parija

Shri N. K. Jain

Shri S. D. Chouharia

Shri K. K. Mallick

Shri C. R. Pradhan

### COMPANY SECRETARY

Shri K. N. Ravindra

### BANKERS

State Bank of India

## REGISTERED & CORPORATE OFFICE

NALCO BHAWAN,

Plot No. - P/1, Nayapalli,

Bhubaneswar - 751 013 (Orissa)

Tel : 301988-99

Fax : 0674-300470/300580/300677/300740

Website : www.nalcoindia.com

## STATUTORY AUDITORS

Tej Raj & Pal

Chartered Accountants

1, Kalpana Square

Bhubaneswar - 751 014.

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## The Year at a glance - 2000-2001

### PHYSICAL

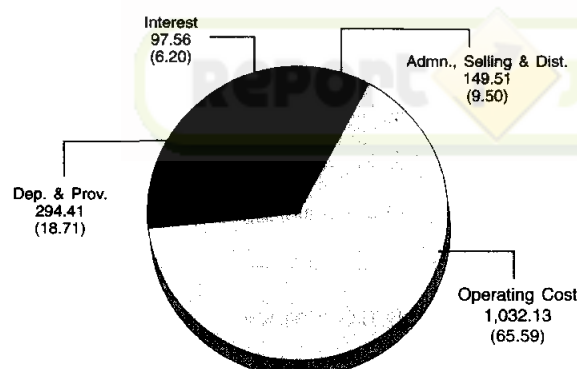
	Units	2000-2001	1999-2000
Bauxite mining	MT	<b>28,34,189</b>	28,22,464
Alumina production	MT	<b>9,39,000</b>	8,86,000
Aluminium production	MT	<b>2,30,516</b>	2,12,663
Power	MU	<b>3,833</b>	3,985

### FINANCIAL

	2000-2001	1999-2000
Export Turnover (Rs. in crore)	<b>1,314.20</b>	1,031.64
Gross Sales (Rs. in crore)	<b>2,408.60</b>	2,142.32
Profit Before Tax (Rs. in crore)	<b>843.37</b>	681.00
Profit After Tax (Rs. in crore)	<b>655.83</b>	511.53
Earning Per Share (in Rs.)	<b>10.18</b>	7.94
Book Value Per Share (in Rs.)	<b>55.44</b>	49.67

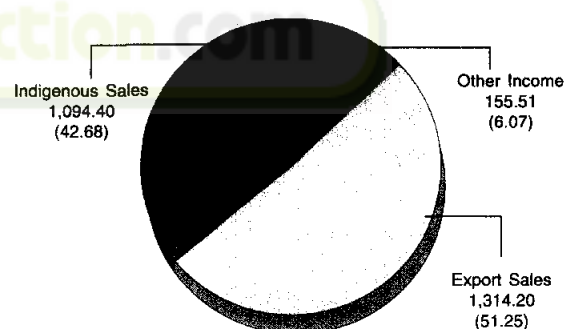
#### Break-up of Total Cost

Rs. in Cr. (%)

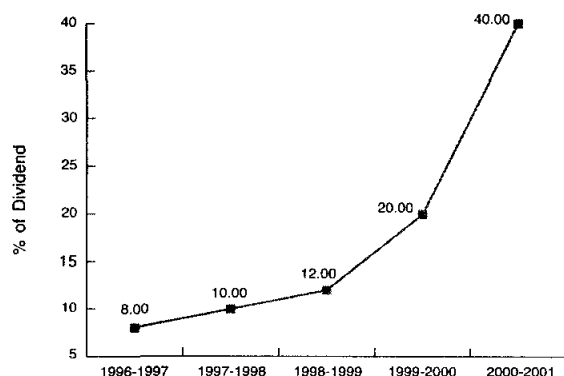


#### Break-up of Earnings

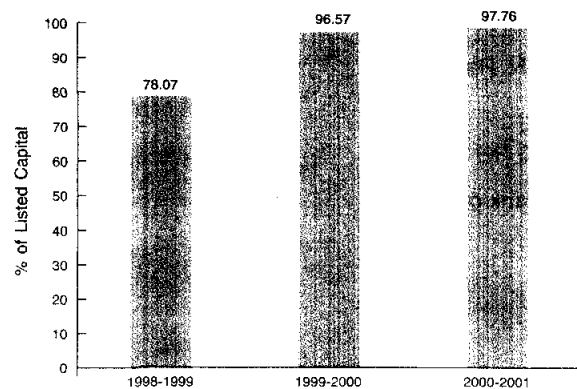
Rs. in Cr. (%)



#### Dividend Payment



#### Dematerialisation of listed Shares



(Dematerialisation of shares started on 09.07.1998)

## 5 years performance at a glance - Physical

Sl. No.	Particulars	Units	2000-01	1999-2000	1998-99	1997-98	1996-97
1.	<b>Production :</b>						
	Bauxite	MT	2,834,189	2,822,464	2,806,288	2,661,557	2,558,002
	Alumina	MT	939,000	886,000	894,500	883,300	840,062
	Aluminium	MT	230,516	212,663	146,206	200,162	203,823
	Power (net)	MU	3,833	3,985	3,588	3,902	4,187
2.	<b>Export Sales :</b>						
	Alumina/Hydrate	MT	495,723	479,620	610,940	479,801	465,139
	Aluminium	MT	118,868	95,185	39,865	55,475	60,357
3.	<b>Domestic Sales :</b>						
	Alumina/Hydrate	MT	4,124	8,027	6,151	5,119	6,898
	Aluminium	MT	114,082	120,171	98,573	140,660	145,521
	Power	MU	225	595	920	658	903

## 5 years performance at a glance - Financial

(Rs. in crore)

Sl. No.	Particulars	2000-01	1999-2000	1998-99	1997-98	1996-97
A.	<b>Income Statement :</b>					
1.	Exports	1,314.20	1,031.64	632.17	679.48	637.86
2.	Domestic Sales	1,094.40	1,110.68	874.48	1,174.06	1,131.00
3.	Gross Sales (1+2)	2,408.60	2,142.32	1,506.65	1,853.54	1,768.86
4.	Less : Excise Duty	147.13	155.00	109.04	148.11	140.20
5.	Net Sales (3-4)	2,261.47	1,987.32	1,397.61	1,705.43	1,628.66
6.	Other Income :					
7.	Operating	126.09	93.62	82.20	10.24	14.68
8.	Non-operating	29.42	31.28	88.57	90.93	45.63
9.	Operating expenses	1,181.64	1,048.14	908.97	870.99	865.07
10.	Operating Profit (5+7-9)	1,205.92	1,032.80	570.84	844.68	778.27
11.	Interest & Financing charges	97.56	63.43	38.06	36.92	9.08
12.	Gross Margin (10+8-11)	1,137.78	1,000.65	621.35	898.69	814.82
13.	Depreciation and Amortisation	295.02	283.00	283.10	272.30	259.41
14.	Provisions	(0.61)	36.65	1.03	0.96	(0.50)
15.	Profit before Tax (PBT) (12-13-14)	843.37	681.00	337.22	625.43	555.91
16.	Provision for Tax	187.54	169.47	88.97	78.46	64.15
17.	Net Profit (PAT) (15-16)	655.83	511.53	248.25	546.97	491.76
18.	Extraordinary Income	Nil	Nil	Nil	Nil	Nil
19.	Net Profit after Extraordinary Income (17+18)	655.83	511.53	248.25	546.97	491.76
B.	<b>Balance Sheet :</b>					
20.	Equity Capital	644.31	644.31	644.31	1,288.62	1,288.62
21.	Reserves & Surplus	2,928.06	2,556.19	2,191.17	2,088.50	1,681.91
22.	Networth (20+21)	3,572.37	3,200.50	2,835.48	3,377.12	2,970.53
23.	Loans Outstanding	643.54	663.54	643.58	594.10	580.00
24.	Net Fixed Assets	2,137.31	2,251.99	2,379.45	2,545.35	2,730.55
25.	Net Current Assets	243.23	517.99	635.01	1,192.65	689.53
26.	Capital Employed (24+25)	2,380.54	2,769.98	3,014.46	3,738.00	3,420.08
C.	<b>Ratios :</b>					
27.	Operating Profit Margin (OPM) (%) (10/5*100)	53.32	51.97	40.84	49.53	47.79
28.	Net Profit Margin (%) (17/5*100)	29.00	25.74	17.76	32.07	30.19
29.	Return on Capital Employed (ROCE) (%) (17/26*100)	27.55	18.47	8.24	14.63	14.38
30.	Return on Networth (RONW) (%) (17/22*100)	18.36	15.98	8.76	16.20	16.55
31.	Debt Equity (%) (23/22*100)	18.01	20.73	22.70	17.59	19.53
D.	<b>Others :</b>					
32.	Book value per share of Rs. 10 each (in Rs.)	55.44	49.67	44.01	26.21	23.05
33.	Earnings per share (in Rs.)	10.18	7.94	3.85	4.24	3.82
34.	Dividend declared (%)	40.00	20.00	12.00	10.00	8.00

Note : Paid-up Equity Capital was reduced by 50% by conversion into Debentures at face value w.e.f. 26.03.1999.

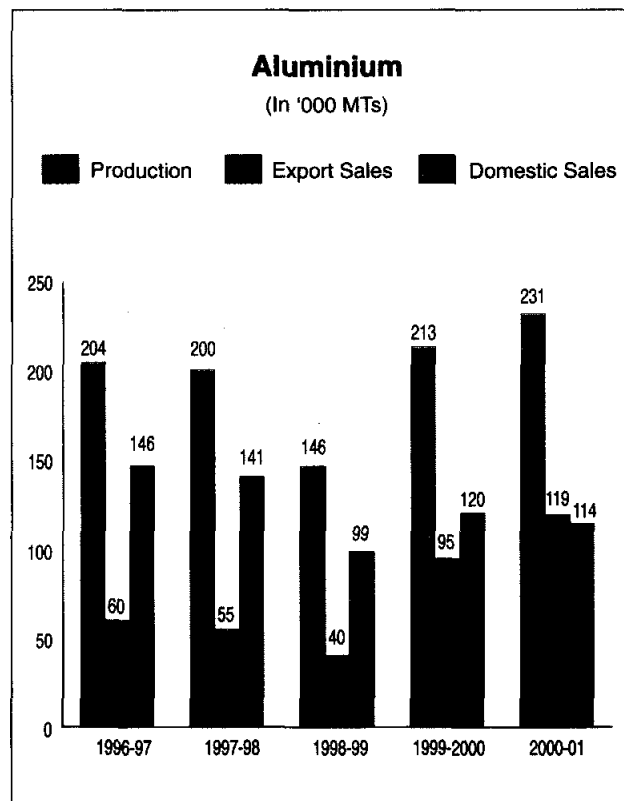
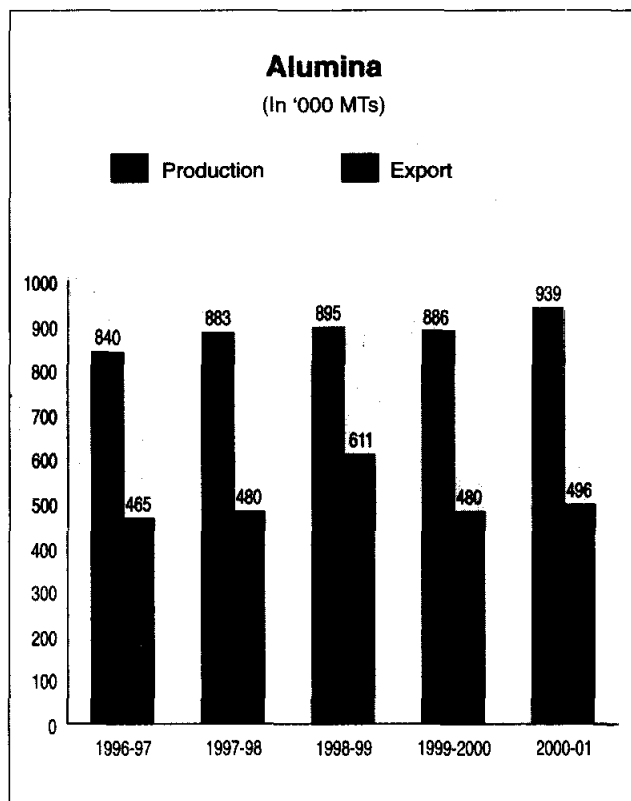
## Reconciliation of Published Quarterly (Unaudited) Financial Results and Annual (Audited) Financial Results for the Year 2000-2001

(Rs. in crore)

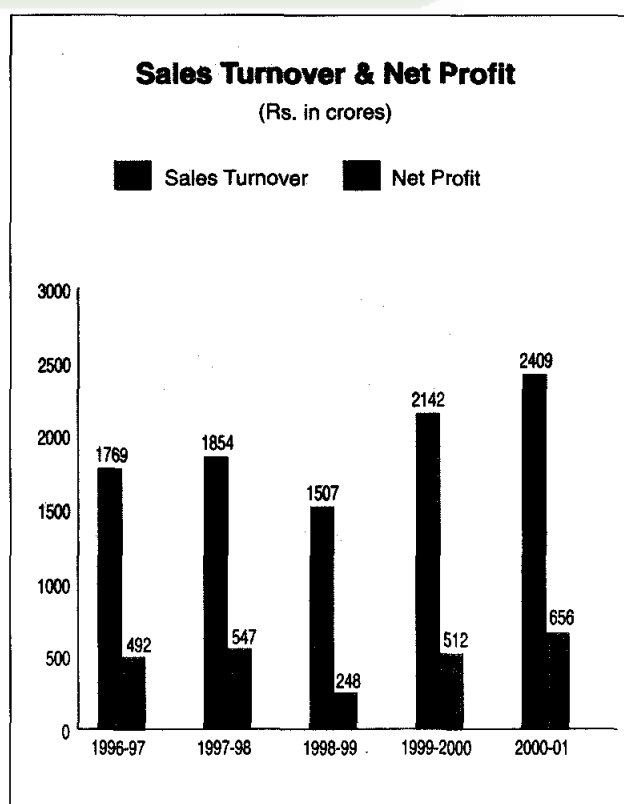
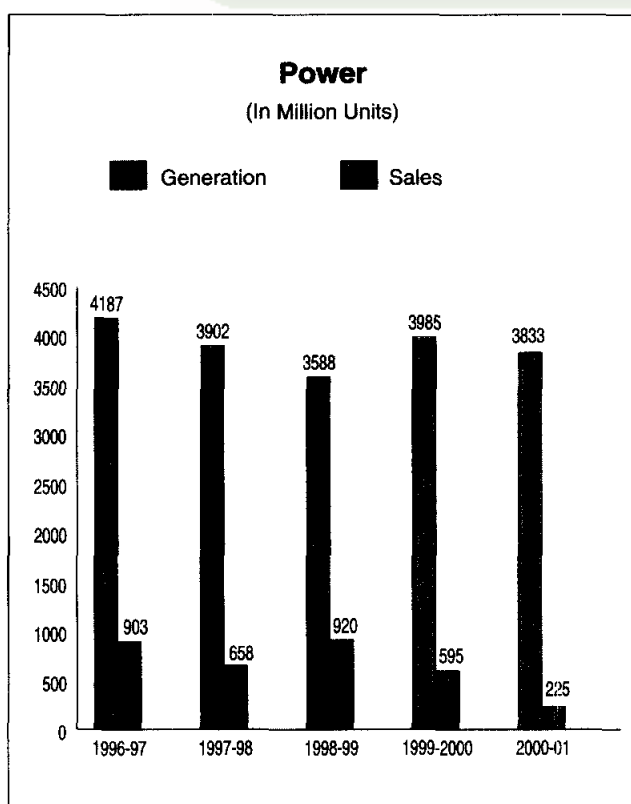
Sl. No.	Particulars	1st Quarter (Unaudited)	2nd Quarter (Unaudited)	3rd Quarter (Unaudited)	4th Quarter (Unaudited)	Total of four quarters	Variances	Full Year (Audited)
1	2	3	4	5	6	7	8	9
1.	Sales Turnover	506.89	619.29	606.93	672.93	2,406.04	2.56	2,408.60
2.	Other Income	32.25	39.67	45.46	39.50	156.88	3.10	159.98
3.	Total Expenditure	269.18	329.10	313.03	419.43	1,330.74	2.50	1,333.24
4.	Interest and Financing charges	25.10	23.84	24.26	24.10	97.30	0.26	97.56
5.	Gross Profit after interest (but before Depreciation & Taxation)	244.86	306.02	315.10	268.90	1,134.88	2.90	1,137.78
6.	Depreciation & Provisions	73.20	71.40	71.94	77.31	293.85	0.56	294.41
7.	Profit before taxation (PBT)	171.66	234.62	243.16	191.59	841.03	2.34	843.37
8.	Provision for Taxation	43.82	59.62	51.15	32.88	187.47	0.07	187.54
9.	Net Profit (PAT)	127.84	175.00	192.01	158.71	653.56	2.27	655.83
10.	Paid up Equity Share Capital	644.31	644.31	644.31	644.31	644.31		644.31
11.	Reserves excluding Revaluation Reserves					3,209.79*		2,928.06
12.	Basic and diluted Earnings per share (Rs.) (Not annualised)	1.98	2.72	2.98	2.46	10.14		10.18
13.	Book value per share					59.82*		55.44
14.	Aggregate of non-promoter shareholding :							
	Number of shares					82,809,993		82,809,993
	Percentage of shareholding					12.85		12.85

Note : 1. \*Subject to adjustment of dividend and tax thereon for 2000-01.

2. Items have been regrouped as per format prescribed in the listing agreement with Stock Exchanges.



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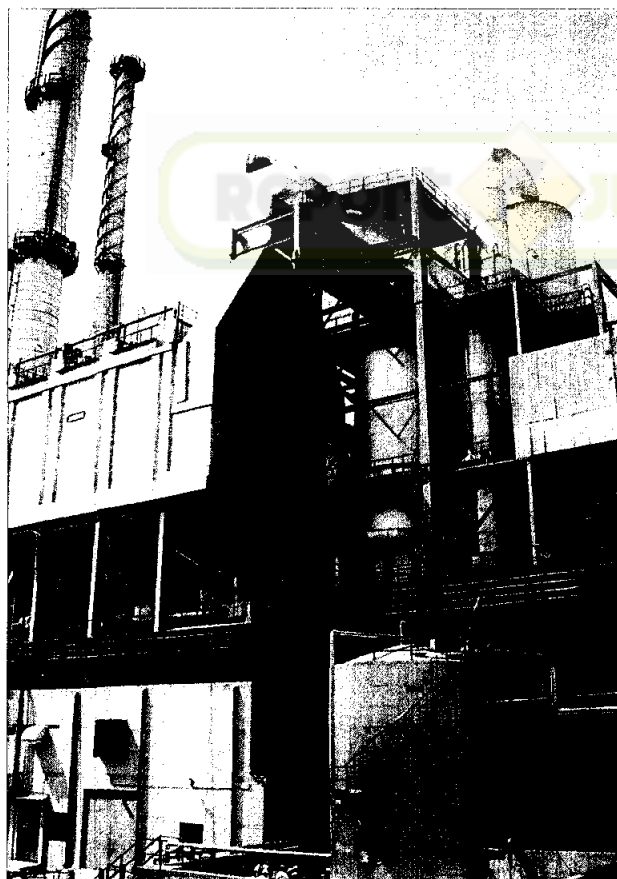


## Expansion Programmes

### EXPANSION OF M&R COMPLEX

Government of India had approved the proposal for expansion of the Bauxite Mines and Alumina Refinery vide letter dated 18th December, 1996. The salient features of the expansion are :-

	Bauxite Mines	Alumina Refinery
Capacity		
– Existing	24,00,000 TPY	8,00,000 TPY
– After expansion	48,00,000 TPY	15,75,000 TPY
Project cost	Rs. 120.59 crore	Rs. 1544.01 crore
Project Duration (From the date of Government Approval)	36 months	51 months
Project Completion Schedule	December, 1999	March, 2001



*New Calciner for Refinery*

The expansion of Alumina Refinery has been planned to be completed in two phases i.e. Debottlenecking (from 8 Lakh TPY to 10.50 Lakh TPY) and Third Stream (from 10.50 Lakh TPY to 15.75 Lakh TPY). The third stream will be a replica of one of the debottlenecked streams.



*Reclaimer for bauxite transportation*

Reputed Consultants have been appointed for carrying out Detailed Engineering, Tendering & Procurement Services and Construction Management for the various project segments. The names of the consultant and their area of work are as follows :-

Project Segment	Consultant
Mines and Refinery	M/s. Engineers India Ltd., New Delhi
Steam Generation Plant, Township, Railway Facility, Port Facilities at Vizag.	M/s. MECON, Ranchi

The atmospheric pressure digestion technology of AP used in the existing plant is being adopted for the Expansion. The following improvements developed by AP have been incorporated in the existing process :-

- Installation of Interstage cooler at the Precipitation area,
- Installation of Pre-desilication system (desilication before digestion),
- Use of synthetic flocculant in the Settling area,
- Installation of Oxalate Removal System,
- Installation of Hydrate Classification Cyclone,
- Installation of Spent Liquor and Stabilization Liquor classification cyclones,
- Separate feeding of individual Security filters,
- Installation of Automatic on-line RP measurement system,
- Installation of Mud level control system in the settlers.

#### Improvements Incorporated by NALCO

- Distributed Control System (DCS)
- Increase in Capacity of existing Calciner
- Improvement in Evaporators



- Hi-rate Thickener (HRT)
- Thickened Tailing & Disposal System (TTD)
- Frequency drives for Pumps
- Electrical Control System (ECS)

The major technological advantages from the Debottlenecking Project will be as follows:

- Introduction of Predesilication Unit (new unit) will increase liquor stability, thereby increasing liquor productivity and removing silica impurity from aluminate liquor.
- Introduction of Interstage Cooler unit (new item) will help in increasing liquor productivity and decrease in soda content in the product.
- Improvement in caustic soda consumption because of implementation of HRT and TTD system.
- Implementation of various improvements will result in reduced steam consumption.
- Further the implementation of HRT and TTD system for red mud disposal will result in a more environmentally friendly disposal of this waste. This will also lessen the chance of any accident as the Dam height need not be increased any further.
- The implementation of Distributed Control System (DCS) will enable centralised control of the plant parameters for better efficiency and effective control as against the conventional analogue control system. This will also have the additional features of building up of database, trending, graphical representation and automatic log sheet generation etc. with a facility of connecting the system with MIS.

Basic Engineering package for the above improvements was made by AP and all the same were received by NALCO by March, 98.

The expansion of Bauxite Mines has already been completed with the no load run of the primary crusher on 29.12.1999.

The bauxite charging to the first debottlenecked stream was achieved in May, 2000 and the same for the 2nd stream was done in June, 2000.

NALCO has already started reaping the benefits from debottlenecking.

The implementation of Third Stream of Alumina Refinery will be mechanically completed in September, 2001 and the commissioning activities for various units will start from October, 2001.

All the packages of the expansion of Material Handling Facilities at NALCO's port facilities at Vizag Port are at advanced stage of completion. These packages include the construction of a new silo, new power distribution system, new blower house for alumina handling and a new wagon unloading pit. The no load run of Alumina Handling Package has been conducted during August, 2001.



*Port Facility expansion*

The procurement for the total project was done in three separate routes as stated below:-

- Turnkey packages,
- Equipment procurement with and without erection,
- Contracts for Civil, Structural, Tankage and erection work.

The turnkey packaging philosophy was considered for packages where the system involved various small equipments along with some process technology. As the guarantee for process lies with the main supplier the entire work is given to that supplier on turnkey basis including related civil work. Such packages are Claciner, Evaporator, Alumina Handling System, etc. In these cases the foreign party was the principal bidder responsible for supply of main equipment and all guarantees. Indian party took care of Indian supply, erection and commissioning including civil and structural work.

Order for supply of equipment was done in cases where the vendor has to supply a single equipment and not a system. In cases where the supply of equipment involved specialised erection practices, the same were executed on divisible contract basis for cost saving by way of works contract tax.

The job for civil, structural, tankage and erection of smaller mechanical/electrical/instrumentation equipments were handled through various contracts. These jobs were awarded to reputed agencies through standard tendering practices.

It is heartening to know that your Company has managed to fund the total expenditure of Rs.1193.07 crore incurred till August, 2001 for this expansion proposal from internal resource only. It is also expected that this expansion project is going to be financed completely from internal resources only. It is projected that there will be a saving of about Rs. 200 crore in the expansion proposal from the approved cost of Rs. 1665 crore.

20<sup>th</sup> Annual Report 2000-2001**EXPANSION OF S&P COMPLEX**

Government of India approved expansion of Aluminium Smelter and CPP at Angul during February, 1998. The salient features of the expansion are:

	Smelter	CPP
Capacity		
- Existing	2,30,000 TPY	6 X120 MW
- After expansion	3,45,000 TPY	7 X120 MW
Project cost	Rs.1641.98 crore	Rs.420.00 crore
Project Duration (From the date of Government Approval)	51 months	51 months
Project Completion Schedule	May, 2002	May, 2002

Reputed Consultants have been appointed for carrying out Detailed Engineering, Tendering & Procurement Services and Construction Management for the various project segments. The names of the consultants and their area of work are as follows :-

Project Segment	Consultant
Smelter	M/s. Engineers India Ltd., New Delhi
Captive Power Plant	M/s. M.N.Dastur & Co., Chennai
Township	M/s. NIDC, New Delhi
Railway Facility	M/s. MECON, Ranchi

**Smelter**

An amendment to the Technical Collaboration Agreement has been signed with AP on 27.04.98 for transfer of Basic Engineering for the implementation of the improvements in the smelting process.

The existing Pot Design is being adopted for the expansion of Smelter, however the amperage has been increased from the present 180 KA to 185 KA for increased productivity and current efficiency. Further, the following improvements developed by Aluminium Pechiney in the Carbon area, process control etc. have been incorporated:-

- New design for Pot Superstructure with fixed alumina hoppers, integrated Aluminium Fluoride hopper and replaceable Crust breaker and alumina feeding devices,
- Tapping of metal in big ladles from the pots.
- New design for Anode Paste Plant,
- New design for Anode Baking Furnace,
- New Pot Process Control System.
- New Bake oven fire regulation system,
- New Rodding Shop



New Pot line 'E' with some new pots

The advantages of the above improvements are as under :-

- 1) New Superstructure design facilitates ease of maintenance and has integrated Aluminium Fluoride hopper to ensure better control of bath chemistry.
- 2) New ladle design will reduce heat loss and reduce handling cost.
- 3) The new design in Anode Paste Plant will ensure uniform physical quality for the green anodes in terms of density. The new design also simplifies the grinding circuit and introduces liquid pitch dosing system with static metering for better accuracy and maintainability of equipments. Buss Mixer & ERICH cooler are the added equipment for improvement in green anode quality.
- 4) New design for Anode Baking Furnace covers pits, flue walls and head walls along with fire exhaust ramps and main ring collector. This will ensure better efficiency for the baking process by way of reduction in oil consumption. The new design also improves faster loading and unloading. This design also enables for production of more no. of anodes with less sections as compared to existing design as it allows use of 8 Pits/sections.
- 5) New Process Controller for Pots will help in maintaining the Pot parameters at the optimal level and will minimise the Anode effects in Pots. This improvement also provides simpler pot cabinet, reliable man-machine interface along with hot redundancy. This new controller improves regulation of alumina feeding and anode beam adjustment and Aluminium Fluoride control. The new generation computers are being deployed with new philosophy of control.

The present overall progress till August, 2001 for Smelter Expansion is 69.80%

Ordering of all the major items/packages has been completed. Cost wise the percentage of equipment for which order has been placed works out to about 98% of the approved cost. The balance items are also being progressively ordered.