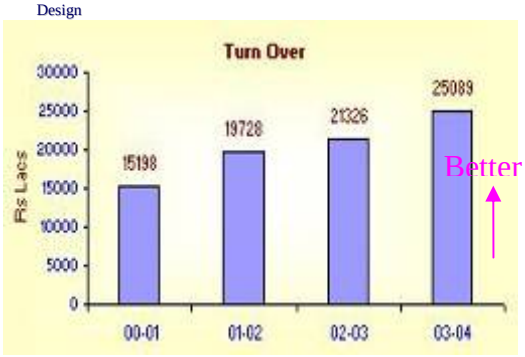
A. ORGANISATIONAL ENVIRONMENT

1. ABOUT UNIT – PRODUCT / SERVICES

The cement Business of Grasim Industries Limited has an installed capacity of over 14 Million TPA.



Grasim Industries Limited, Cement division – South, Latest jewel in the crown of Aditya Birla group commissioned in April 2000, with a capacity of 2400 Tons per day. By Optimization and De-Bottlenecking we are able to produce 3000 TPD as on date. It is the most modern state of the art cement plant, incorporating latest technological features, most of which is implemented for first time in India.

The unit is certified for

- *ISO-9001,*
- *ISO-14001*
- *OHSAS 18001*

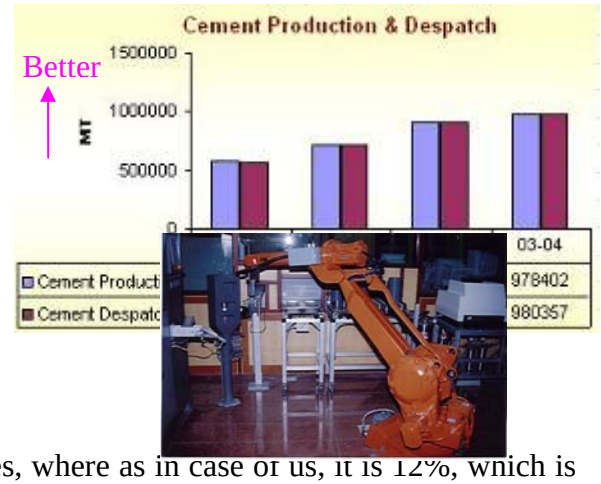
Expecting SA 8000 by Dec'04

The following brands are manufactures at our unit:

Rajashree Cement – 43 Grade OPC
Birla Super Cement – 53 Grade OPC
Birla Plus – Blended Cement (PPC)
Birla Coastal – Sulphate Resistant Cement(SRC)

To meet the growing customer's expectations and demand, the Ready Mix Concrete plants were commissioned at strategic locations in Chennai & Bangalore.

Leveraging the strong equity and goodwill of the house mark, the company brands are synonymous with the name of Aditya Birla Group i.e. national Brands such as Birla Super, Birla Plus.



For better business & customer focus, the cement business is structured into Manufacturing and Marketing as Separate Divisions reporting to the cement Business Head.

2. DELIVERY MECHANISM

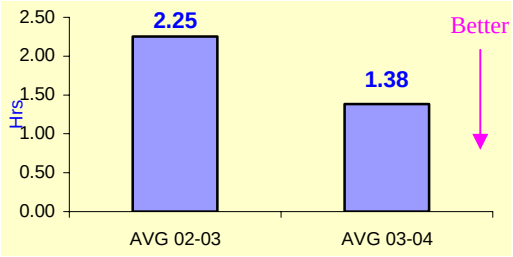
Normally logistics cost constitutes 25% of total cost of sales, where as in case of us, it is 12%, which is in account of our customer base in the range of 300 Km and better logistics efficiency.

SAP is implemented in all the depots and connected to central server to facilitate online placement of orders and monitoring the dispatch position. With SAP as a tool, a systematic process of demand projection and timely communication was established which in turn enables the unit to maintain consistently a high delivery performance in terms of timely supply of the right quality and quantity of cement at the right place.

To focus primarily on the requirements of potential customers, Key customer cell has been established.

In order to meet the customer requirements in time, we have a special focus on Truck turn around time thereby establishing our self as first choice of customers and transporters as well. We are benchmark in terms of Internal Truck Turn around Time.

Truck turn around Time



3. ORGANISATIONAL CULTURE

Our Vision

To be a market leader & benchmark in cement industry with clear focus on value creation for all stakeholder.

We firmly believe in values like **Respect for the individual, Integrity, Speed, Simplicity, Seamless ness, Self-Assuredness, and a 100 per cent commitment are all values we value.**

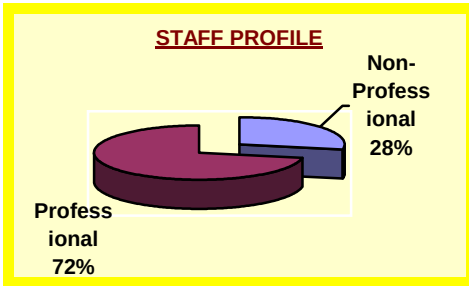
The unit has got different policies.

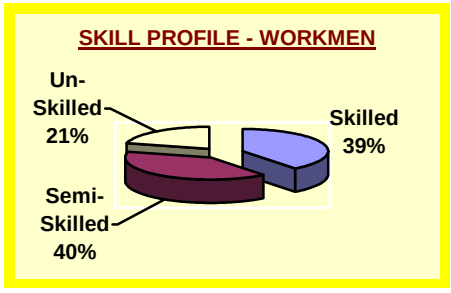
Grasim – South consists of highly competent, qualified and experienced personnel with lean organization structure.

4. EMPLOYEE PROFILE

Our unit is in alignment with the thinking of our chairman "If our businesses are sustainable through constantly challenging times, it is because of our high-performing, motivated workforce". In line with that, our unit with workforce of 146 Staff & 91 Workmen is among the benchmark industry in terms of manpower productivity.

Contract employee are optimally used for general menial works like house keeping, cement loading, security services etc with a total strength of 155.





BARGAINING UNITS

Congenial industrial relations is maintained in the unit with no industrial unrest since inception by way of regular interaction and openness which reflects the commitment and positive approach of our two organized bargaining units viz ; Patali Thozhil Sagam affiliated to PMK and Desia Thozhilar union affiliated to INTUC.

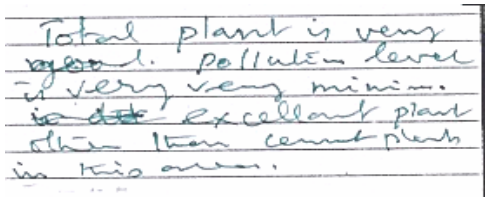
SPECIAL HEALTH & SAFETY REQUIREMENTS

Visualizing the future environmental legislations, the Cleaner technology has been absorbed at the initial stage itself with technological measures to avoid the dust emission at the source itself.

EMISSION LEVEL

RAW MILL ESP	= 50 mgm/NM3
COOLER ESP	= 100 mgm/NM3
COAL MILL ESP	= 60 mgm/NM3
CEMENT MILL Bag Filter	= 50 mgm/NM3

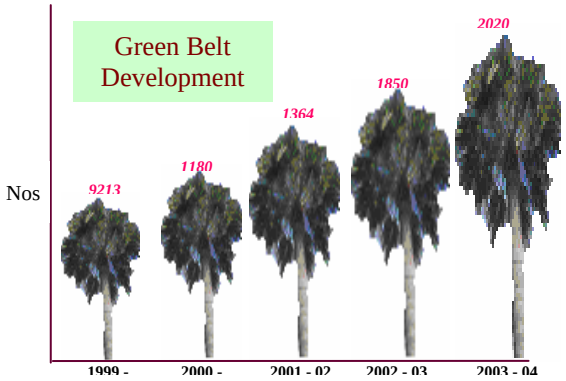
As against statutory limit of 250



S.BALAJI, JOINT CHIEF ENVIRONMENTAL ENGINEER. T.N.P.C.B., TRICHY

Due care is given in identifying, assessing nad controlling occupational health by administering periodical health check for all employees including Audiometric tests for Mines works etc.

In order to ensure safe working, Personnel Protective equipments (PPE) are provided to all employees. The PPE includes Shoes, Helmet, Face Shield, Ear Muff / Plug, Respirator, Goggles, Gloves, Apron, Safety belt, etc. as per the requirement of Job.



With the objective of zero accident and to inculcate safe work culture, regular class room and on the job safety training are organised, which include:

- Industrial Safety Training – Monthly
- First Aid Training – Twice in a year
- Fire fighting triaining – Twice in a year

5. MAJOR TECHNOLOGIES, EQUIPMENT AND FACILITIES

This millennium plant commissioned with state of art technology has many features, which have been implemented for first time in India. The major equipment have been sourced from world leaders in Cement plant machinery manufacturers namely:

- Kiln: Fuller, USA
- Vertical Roller Mills: Loesche, Germany
- Cement Mill: KHD, Germany
- Control & Automation Packages: ABB, Switzerland

Some of the exceptional controls and automation system in the plant are as under:

- **AUTOLAB** - for the first time in India
- **RAW MIX PACKAGE (RMP)**
- **LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS)**
- **KNOWLEDGE MANAGER** - for the first time in India
- **LINKMAN**
- **PLANT AUTOMATION PACKAGE**

6. REGULATORY ENVIRONMENT

Our unit is located in a notified backward area and is governed by relevant Industrial Acts for mining, water pollution, safety etc. The company is committed to conduct its operations safely protecting the environment and health of its employees and surrounding community and by complying with all applicable statutory requirements.

We have excellent regulating and controlling systems like:-

- Safety System – Regular Identification and Rectification of unsafe acts and conditions.
- ISO-9001:2000 Quality Management System
- ISO 14001 Environmental Management System,
- OHSAS-18001
- World Class Manufacturing (WCM) Practices

Expected SA 8000 Certification by Dec'04

The Awards were presented to us by Hon'ble Minister for Labour, Shri. A. Anwar Raja, in a function held on 31st March 2003 at Chennai. The Hon'ble Minister for Law, Shri. T. Jayakumar was also present during the function. Mr. P.S. Mazumdar, Vice President (Technical), Shri. K. Jafar Ali, G.M (HR&Admn.), Shri. R. Chandrasekar, Dy. Mgr. (Safety) and trade union representatives Shri. M. Maruthamuthu and Shri. R. Gunasekaran received the awards in the gala function

Safety Week Celebrations – Annual Event to create awareness
Activities include: Safety Play, Song, Essay, Slogan, etc

Dy Chief Inspector of Factories Address during Safety Week

B. ORGANISATIONAL RELATIONSHIPS

1. ORGANISATION STRUCTURE & GOVERNANCE SYSTEM

We have a flat organization structure, with responsibilities and accountabilities well defined for each position across the organization. Manpower planning exercise was carried out objectively with the assistance of a professional external agency that ensures the organization to be right sized. In order to ensure role clarity with delegation & authority, levels have been identified and demarcated in the existing structure, with only six levels from the top management to the grass root level workmen. Added to it the delegation manual is made available to all HODs to empower them to execute authority on work front.

UNIT HEAD – FUNCTIONAL HEAD – DEPARTMENT HEAD – SECTION HEAD – SUPPORT STAFF – WORKMEN

Job / Work design originates from the "Key Objectives" set for the unit. To ensure high performance, Key Performance Area's (KRA) and targets for next year are set for all department staff and management staff in line with the individual's job description during the annual performance review cycle and drives the workforce to achieve the objectives of the unit.

The organisation Chart is enclosed.

2. KEY CUSTOMERS, GROUP AND MARKET SEGMENTS

To cater to all the customers in a more efficient manner the company has segmented the market under two major heads i.e. Trade and Non-Trade Segment.

Trade Segment essentially means the sale on the retail counter which follows the pattern of sales from the company to dealer, dealer to retailer and then finally retailer to end user.

Non-Trade segment essentially means sale to a party directly. **Key Customer Cell** is devoted to key customers, which includes big contractors, institutions and builders, keep tracks of their projects and their requirements.

The unit caters to the market of Tamil Nadu and Kerala.

3. SUPPLIERS

Suppliers of product related bought out items play a vital role in the value creation process. We believe that, only if the product related bought out items are of consistent quality and delivered at our plant as and when required, we will be able to supply consistent quality product to our customers in time. Accordingly, all such suppliers have been classified as critical suppliers. The items covered include like fuels, packing bags, additives, refractory, laboratory chemicals and critical spares of the plant. The key expectations from our suppliers are as under:

1) Consistent quality.
2) Timely delivery.
3) Quick response time.

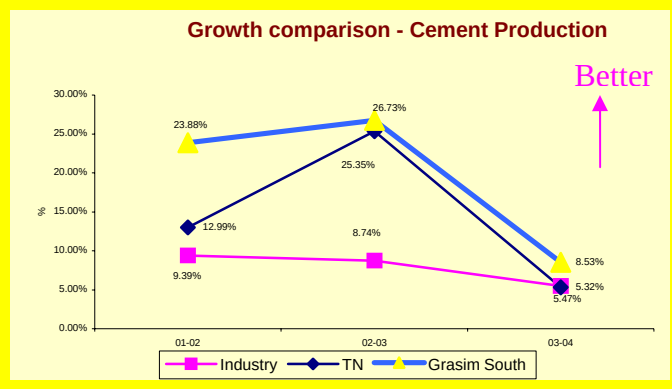
The vendor rating system has been developed, keeping these three factors in mind.

4. KEY SUPPLIERS PARTNERING RELATIONSHIPS

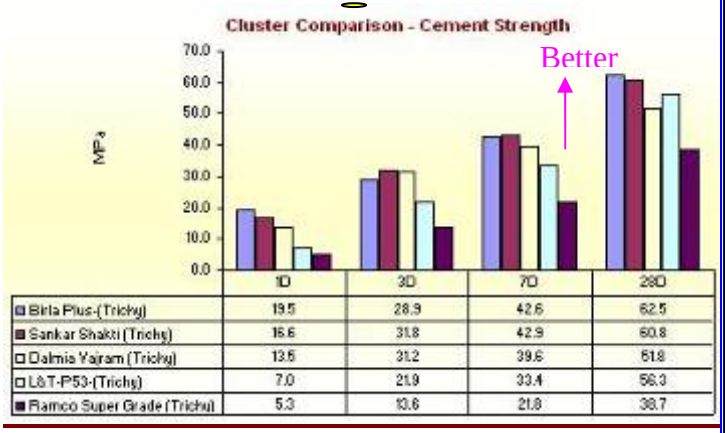
For most of our critical inputs, we have entered into long-term contracts with vendors, who have been developed by us over a period of time. For example, in case of transportation of furnace oil, we have had a single vendor since the time of commissioning of the plant. Based on the transporter's performance, we have also assisted them in entering into business of transportation of fly ash, which they have been doing satisfactorily. Further, quarterly structured feedback is given to critical vendors on their performance. In order to strengthen the partnering relationship with vendors, apart from regular interactions with vendors on various issues, we conduct vendor meet at our site.

C. COMPETITIVE ENVIRONMENT – GRASIM SOUTH PERFORMING ABOVE INDUSTRY AVERAGE

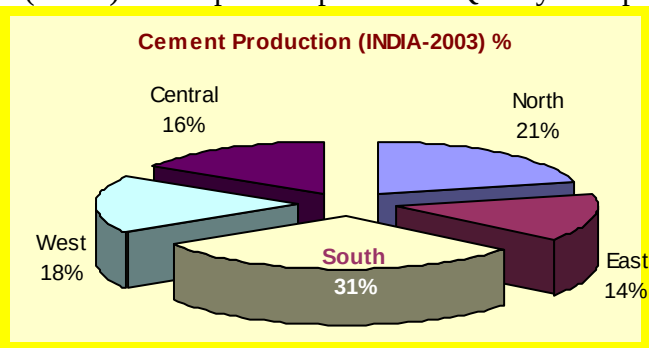
1. SIZE & GROWTH OF MARKET / INDUSTRY

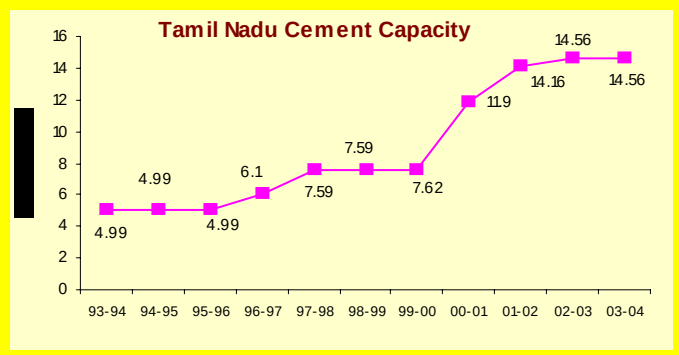


We are the Quality leader

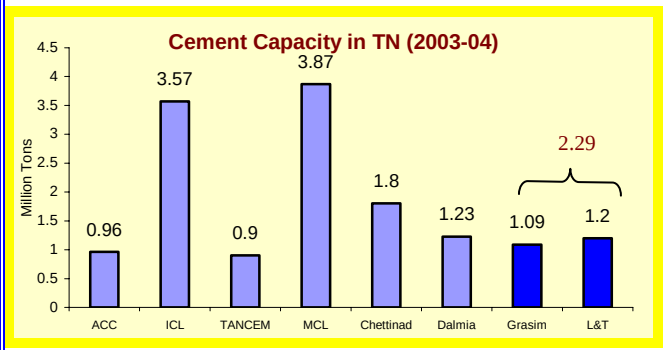


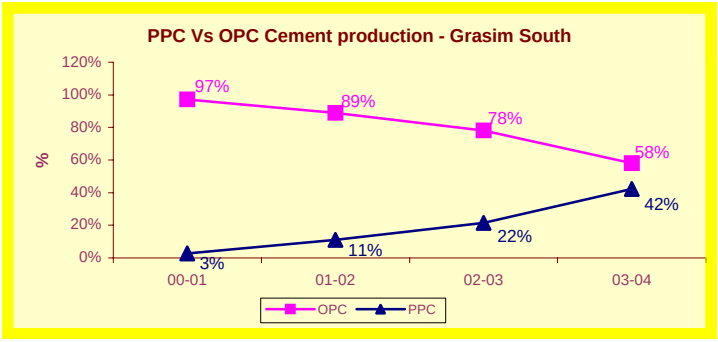
Grasim South has always performed better than the industry average and Tamil Nadu average (as above). This could be achieved only due to superior product quality delivered by Grasim Cement (South) at competitive price. The Quality Comparison of Strength with that of competitors is as above.





South is very competitive market, as 31% of total cement production of India is done in South. Cement Capacity in Tamil nadu has doubled in the last three years. This has created a surplus scenario and hence a tough competition.





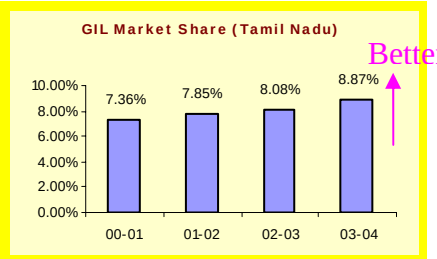
In view of better realisation, future lies in the production of Blended (PPC or other) Cement. Though we have an edge over the competitors in the market for Birla Super – OPC Cement, we are able to increase the share of PPC Cement (Birla Plus).

2. COMPETITIVE POSITION

Competitive positions of major players are classified into two groups i.e.

i. Players with capacity above 1.3 million tons per annum like MCL, ICL and Chettinad
ii. Players with Capacity below 1.3 million tons per annum like Grasim, L&T, Dalmia, ACC and State owned TANCEM.

Amongst the major we have shown growth despite market size being static in last two years.



3. PRINCIPLE FACTORS DETERMINING SUCCESS

Principle factors that determine success in market include:

- **Cost:** Cement is a price sensitive market. In order to maintain the edge over competitors, pricing policy have to be designed as per the market forces. The only cost, which is in our control, is the production cost – where in energy constitutes more than 50 % of the total cost. This project is aimed at reduction in fuel cost.
- **Capacity:** Market share is in direct correlation to capacity to produce. Our consistency in growth in volume and in market share shows the confidence for us to sell the quantities produced. With the use of Alternate fuels in phased manner, the Productivity is maintained.
- **Service Standards:** Since product differentiation is very low in the industry, service level enhancement at channel levels and experiential marketing i.e. making the overall experience good at customer level builds up distinct competitive advantage.
- **Product Quality:** - We are the Market Leader: The Non-Trade sector of the customer, covering builders and contractors are now aware of the quality characteristics of cement and even insists on the testing cement through external Labs, periodically. We are able to cater to their requirements and enjoy the premium over the same. All the R&D Efforts have proved that the use of Alternate fuels has no impact on Quality of Product, with some changes in raw mix design.

To illustrate above, our marketing efforts are totally based on relationship marketing, controlled logistics for channel partners, free mobile lab facilities and customer service centers for customer experience.

With major portion of cement usage is in the hands of untrained manpower, guidelines and training at all levels are essential for efficient use of world-class cement. Our Technical Assistance & Services to Customers (TASC) department through its wide network of qualified and experienced Civil Engineers help customers in producing the best concrete and mortar at site.

4. KEY CHANGES TAKING PLACE THAT AFFECT COMPETITIVE POSITION

Key changes taking place, which will affect our competitive position includes:

- Capacity Enhancement of Competitors – Will put pressure in our home market
- Weakening of Major players exposes us to a threat by takeover bids of MNC's.
- Portent for an entry of an "outsider" (unknown element).

Keeping this in view, our actions are centered on:

- Enhancing the production capacity.

- Reducing cost of production
- Acquisition of Cement Business of L&T – CEMCO
- Enhancing the Share of Blended Cement (PPC)

5. SOURCES OF COMPARATIVE & COMPETITIVE DATA

Grasim is a prominent player in Cement industry and after taking L&T cement business in the Fold, Grasim becomes no. 1 in cement business in the country. The data availability among the Units itself is a key source of comparison. Each unit of Grasim is interacting and exchanging the data on cost parameters, initiatives, process and other key managerial issues. There are various forums at business level such as KIP meeting at CMO level and other workshops and seminars taking place from time to time to share information.

The unit is also interacting with cluster units through DICGMAT which is body constituted by cluster units for sharing of information, new development in cement industry and issues of common interest.

The Unit is also the member of various professional bodies such as Cement Manufacturers' Association (CMA), which publisher the journal on monthly basis and circulates to all member units. CMA Journal have all the data on the Cement & Clinker – Capacity / Production / dispatch / Export/ etc.

The comparative data on Quality parameters is available to us through Central R&D for Cement set up at Corporate Level. Central R&D Independently collects the sample from market for competitors and ours. The comparative report, after analysis of sample is made available to all group units.

D. STRATEGIC CHALLENGES

o KEY BUSINESS CHALLENGES

- Enhancement of market Share of blended cement
- Reduction of Raw Materials Cost
- To be benchmarked in terms of Quality and Cost
- Enhancement of production Capacity
- Reduction of Limestone cost through Shorter road from mines
- Purchase of additional limestone mines lease.

o OPERATIONAL CHALLENGES

- Identification and Procurement of Waste products as fuel with long term tie up.
- Reduction in Power consumption
- Reduction in Fuel consumption
- Consistency in quality with varying fuels and material
- Usage of Alternate Fuels in Power Plant
- To establish various systems and practices as per WCM Standards.

o HUMAN RESOURCE CHALLENGES

- Handling of Pressure Groups in local area.
- Utilizing of low skilled mini plant workmen
- Capability Building and Talent retention

E. PERFORMANCE IMPROVEMENT SYSTEM

➢ ORGANISATIONAL FOCUS ON PERFORMANCE IMPROVEMENT

Cross functional teams are developed in WCM activities as well as various other committees are working for major cost driver such as alternate fuel, energy conservation committee etc. The Unit is capturing all the focused issue in the master action plan (MAP), which is reviewed continuously for focus and measuring the performance in various areas. Departmental meeting on daily basis, reviews the performance of department. Technical co-ordination meeting, daily at scheduled time and venue, headed by Tech. Functional Head reviews the plant performance on daily basis.

MPR (Monthly Progress Review) meeting is conducted on monthly basis with HODs, FHs and UH for reviewing the deviation report in respect of plant and financial performance and also key issues and structured plan is part of the discussions on continuous basis in this meeting.

➢ ORGANISATIONAL LEARNING AND SHARING

Apart from the above, Communication meeting is held every month for sharing the information to employees including workmen in which zonal teams present their performance and activities. The presentations also include the Kaizens, Waste eliminated, One point Lessons, etc. Senior executives are also sharing the information, developmental activities, achievement and other issues of common interest to all the employees and motivate the team members for superior performance.

ENVIRONMENT & SAFETY

The Unique features of our Unit towards Safety, Health & Environment are:

ISO 9001
ISO 14001
OSHAS 18001
SA 8000 (Under progress and will be obtained within a couple of months)
Corporate Safety Environment Cell, Mumbai : Safety Audit and Feedback.
National Safety Council, TN Chapter, Chennai Safety Audit and Compliance
Inter Unit safety Audit amongst all Cement Plant of Aditya Birla Group once in Six months.
Learning for Safety & Environment through Exchange of report amongst all the plants so as to take proactive action for zero accidents.

Environment Initiatives:

Plant with latest environment protection systems like ESP's, Bag Filters and Dust Collectors
Concrete roads throughout the plant to prevent fugitive emission.
Construction of drains & ponds for storm water management.
Construction of dyke wall for all oil storage tanks
Rain water harvesting for replenishing the water table.
To consume water, reversible osmosis plant is installed in Thermal Power Plant and recycled water is used for horticulture.
Mines water is pumped to villages for irrigation purpose.
Green belt development in the plant and colony.

Membership with safety promotional institutions:

a) NSC membership
b) LPA membership

. Safety Awards won by organization : -

a) National Safety Council (Tamilnadu Chapter)
b) Other State Level Awards

i) State Safety Awards for the year 2000 & 1999 for our Unit II, we won three numbers of first prize and two numbers of second prize given by Govt. of Tamilnadu at a function held on 31.03.03 at Chennai by Hon'ble Minister for Labour.
ii) Trichy Zone Class A Mines Inspection face working condition of face machinery conventional method of mining. Won first prize in the year 2002. Award issued by Director General of Mines Safety, Southern region, Govt. of India.
iii) Workers participation in Safety Management II Prize in the year 2002.
iv) Personnel protective equipment III prize in the year 2002.
v) Zonal & State Level Mines Safety Week Celebrations 2003 - won seven awards.
vi) Won *CII* commendation award in SHE PERFORMANCE 2003

PROJECT DETAILS 2003-04

1.Installation of Star delta convertor for 311BC2 Belt Conveyor :

As the inclined belt conveyors are designed to meet the starting torque with materials during restarting, the higher capacity motor was installed but during normal condition the running load of the motors will be less.

We have studied the load pattern of the 311BC2 (LS Reclaimer belt conveyor) and installed the "Energy saving star delta converter starter" .

The function of the energy saving star delta converter starter is 'whenever any decrease in the load, the motor will be switched over to energy saving mode (star) and if any increase in load it will automatically change over to normal running mode i.e. DOL mode'.

Saving:

51000 units/annum

Rs 1.8 lac./ annum

2.Removal of Raw mill Venturi

Before:

For measuring fan flow venturimeter is provided at the fan outlet for getting the differential pressure, due to the pressure drop excess power is drawn by the Fan motor.

After:

Now Venturimeter was removed and a pressure transmitter is provided at the fan inlet and the program was developed for calculating the fan flow by using Motor Power, RPM & Pressure.

Savings:

192000 Units per annum

Rs. 6.7 lac Rs./annum

3.Optimization of LS Reclaimer power :

Before:

LS Reclaimer Travel speed will be set by manually and needs continuous monitoring and speed adjustment due to changes in the Limestone profile, also sometimes results in Scrapper motor overload tripping

After:

Speed of the Reclaimer travel is controlled automatically by monitoring scrapper motor current with the help of current transducer. Results in increase in TPH and does not needs any monitoring

Savings:

18000 units per annum.

0.60 lac Rs.

4.Modification of coal mill Hot gas inlet duct

Before:

The hot gas duct from hot ESP outlet to coal mill inlet has three bends.The pressure drop due to these bends accounts to 15 MMWG. Power loss was there due to this pressure drop.

After:

Duct was modified to reduce the pressure drop.

Saving:

35,280 units per annum
Rs. 1.23 Lacs per annum

5.Coal Mill Bin capacity Enhancement:

Action:

Coal Mill fine coal bin capacity enhanced from 60T to 100 T

Advantages:

Coal Mill stoppage reduced.
Coal Transport Belt Start stop reduced.
Coal Mill & Transport belts idle running reduced .

Saving:

1,80,000 units per annum
Rs. 6.30 Lacs per annum

6.Coal Mill Classifier pulley & Nozzle ring Modification:

Action:

Coal Mill classifier drive pulley has been modified. Analyzed the exact angle requirement of the nozzle ring angle and changed from 38 deg to 50 deg angle.

Advantages:

3 TPH feed rate of the Coal mill has increased with the same power.

Saving:

1,00,800 units per annum.
Rs. 3.53 Lacs per annum.

7.Optimization of Lime stone transport group belts:

Action:

Identified the idle running of the Lime stone transport belt conveyors and optimized the time intervals of belt conveyors during start stops. Also an reverse interlocking system made to reduce the idle running hours.

Advantages:

Idle running of belts reduced

Saving:

15,000 units per annum
Rs. 0.52 Lacs per annum

8.Installation of Vortex or Aerovane for PH Cyclone:

Action:

Installed Vortex (or) Aero vane system for the Pre-Heater cyclone in the Kiln section

Advantages:

Achieved Power saving of 20 units per hour

Saving:

1,44,000 units per annum

Rs. 5.04 Lacs per annum

9.Increasing of Kiln rpm:

Action:

By changing the internal parts of the Kiln Main drive gearbox, kiln rpm has been increased from 3.5 rpm to 5.2 rpm.

Advantages:

Increase in 4 TPH Production rate

Investement:

Rs. 5.0 Lacs for the gear box modification

Saving:

Decrease in Specific power

5,76,000 Units per annum

Rs. 20,16,000 per annum

10. LS reclaimer Travel Speed Auto control with Srapper Load.

Before:

Reclaimer needed frequent monitoring to set travel speed based on the scrapper load during starting ending and middle of the pile. There was frequent overloading and tripping of the scrapper chain. There was underloading of scrapper chain drive and hence it was running at less TPH. This ultimately affected the life of the machine.

After:

Speed of the Reclaimer travel is controlled automatically by monitoring scrapper motor current with the help of current transducer. Results in increase in TPH and does not needs any monitoring

Savings:

143000 lacs/annum

Rs 3.9 Lacs/annum

11. Rerouting the Fine Coal transport from cyclone discharge to fine coal bins

Before Modification 5 nos screw Conveyors were existing.

After Modification Circuit has been designed with 2 nos screw conveyors .

Savings:
89000 units/annum
Cost Rs 2.4 Lacs/annum

12. Idle Running Reduction -LS Reclaimer Running time Optimized, Interlock Modification Done

Before:
Reclaimer needed frequent monitoring to set travel speed based on the scrapper load during starting ending and middle of the pile. When there was no load, at that time also reclaimer was running.

After:
Speed of the Reclaimer travel is controlled automatically by monitoring scrapper motor current with the help of current transducer. When no load situation arises, the reclaimer stops automatically.

13. Interlock for Raw Material feed belt Conveyors running hours reduction

Before:
When LS hopper is full, reclaimer stops and all the belts are running idle. Group stop was there and not individual stop.

After:
Timing Interlock was given for all the feeding belts. Whenever LS hopper was full, individually belts stops after being emptied out.

Saving:
35000 units / annum
Rs 100000 / annum

14. New Cooling Tower for Raw mill and Coal Mill

Before:
For Cooling the Gear Boxes of Raw Mill & Coal Mill, Water is circulated from the spray pond, which was pumped, to the overhead tank and to the gearbox by gravity. Moreover the cooling was not sufficient to maintain the temperature in the gear box. The rating of Motor for pumping the water is high and it was continuously running.

After:
Cooling tower installed for cooling the gear boxes with a pump of small rated motor. Now the cooling is also more efficient and able to control the temperature within limits.

Savings:
86000 units / annum
Rs. 2.4 lacs/annum

15. New cooling tower for cement mill

Before:
For Cooling the Gear Boxes of Roller Press & Cement Mill, Water is circulated from the spray pond, which was pumped, to the overhead tank and to the gearbox by gravity. Moreover the cooling was not sufficient to maintain the temperature in the gear box. The rating of Motor for pumping the water is high and it was continuously running.
After:
Cooling tower installed for cooling the gear boxes with a pump of small rated motor. Now the cooling is also more efficient and able to control the temperature within limits.

Savings:
435000 units / annum
Rs. 10 lacs/annum

16. Mill Body reduction, High Efficiency Classifier & Nozzle angle Changing

The operating Parameters are studied and the following modifications have been done to enhance the Raw mill productivity

1.Nozzle Ring Modification

Advantages:

a) High vertical Velocity

b) Low recirculation

c) Reduction in retardation Time from Nozzle to Classifier.

2.Armour ring Modification

a) The airflow from inlet is guided by 10 degree, resulting reduced recirculation of material on the Table.

3.Installation of air Blaster at Triple feed gate to avoid coating formation in chute.

4.Provision of Hot air line at chute bottom surface to avoid choking of material.

5.Reduction in Classifier body area for increasing the inlet velocity.

a) Increase in Velocity resulting in reduced recirculation in the Mill.

6.Classifier Speed increased from 1480 rpm to 1510 rpm.

7.Reduction of Classifier rotor area.

Investment: 29.6 Lacs

Benefits:

1.TPH increased from 188 Tons to 215 Tons

2.Specific Power consumption reduced from 21.9 to 21.16 Kwh/TOC

3.Residue Reduced from 4% to 2%

4.Savings per annum Rs 43.1 Lacs

17. Derating Of Transformer in Mines from 500 KVA to 250 KVA to reduce Transformer Losses.

The transformer used for the power supply of mines is 500 KVA. After detailed study, it was concluded that 250 KVA transformer is sufficient. Hence the transformer is derated to 250 KVA. Hence the losses in the transformer was reduced.

Saving : 22000 units/annum
Rs. 80000 / annum

18.VFD installed for Bag Filter Fan 531FN2

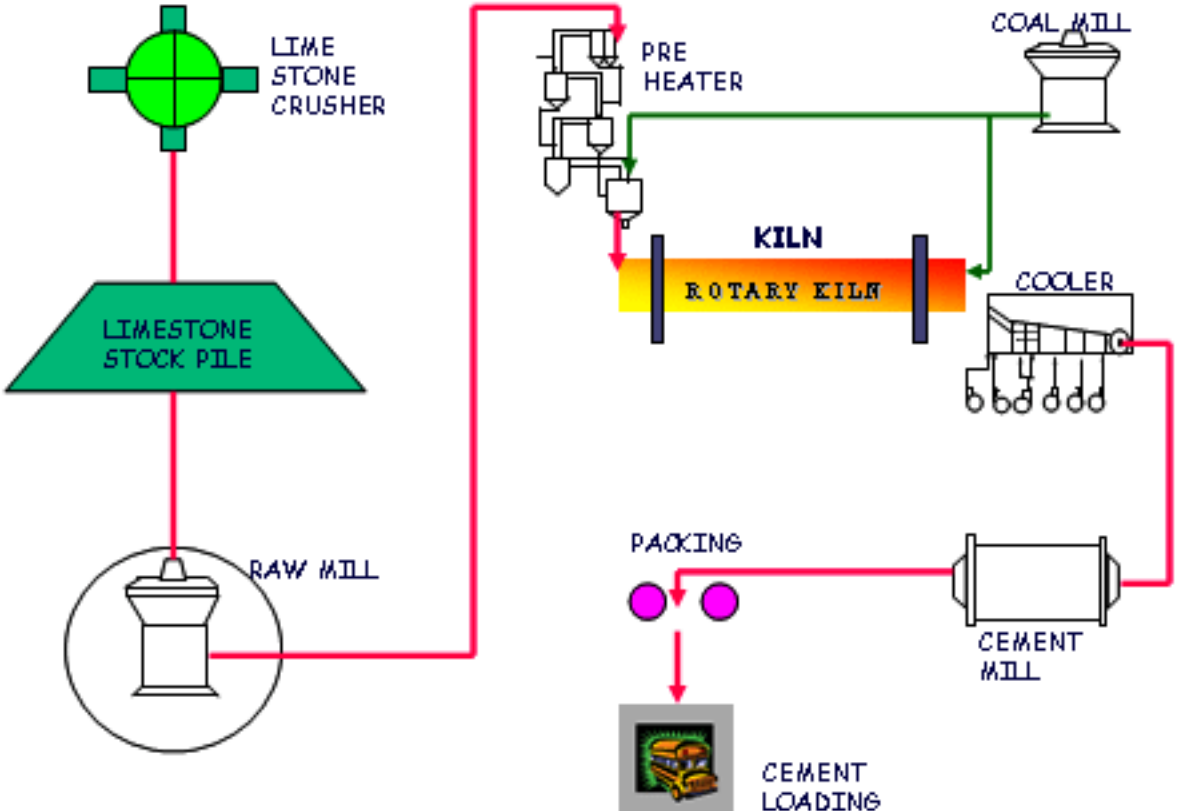
The cement Mill Bag Filter Fan was operating with 60% Damper Open ,we felt that if the fan motor was operated with Variable Frequency Drive panel keeping the respective damper 100 % opened, we can achieve power saving of 50 %. So we proposed for new Variable Frequency Drive

Savings:
166000 units/annum
Rs 3.3 lacs /annum

19.VFD installed for Bag Filter Fan 531FN3

The cement Mill Bag Filter Fan was operating with 60% Damper Open ,we felt that if the fan motor was operated with Variable Frequency Drive panel keeping the respective damper 100 % opened, we can achieve power saving of 50 %. So we proposed for new Variable Frequency Drive

Savings:
214000 units/annum
Rs 4.5 lacs /annum



PROCESS FLOW DIAGRAM