

INDIAN MINING & CONSTRUCTION EQUIPMENT INDUSTRY

BACKGROUND & HISTORICAL TRENDS

Construction and mining equipment cover a variety of machinery such as hydraulic excavators, wheel loaders, backhoe loaders, bull dozers, dump trucks, tippers, graders, pavers, asphalt drum / wet mix plants, breakers, vibratory compactors, cranes, fork lifts, dozers, off-highway dumpers (20T to 170T), drills, scrapers, motor graders, rope shovels etc. They perform a variety of functions like preparation of ground, excavation, haulage of material, dumping/laying in specified manner, material handling, road construction etc. These equipment are required for both construction and mining activity.

With a wide production capacity base, India is perhaps the only developing country, which is totally self-reliant in such highly sophisticated equipment.

India has only a few, mainly medium and large companies in the organized sector who manufacture these. The technology barriers are high, especially with respect to mining equipment and therefore the role of SME's is restricted to manufacture of components and some sub-assemblies.

Prior to the 1960s, domestic requirements of mining and construction equipment were entirely met by imports.

Domestic production began in 1964 with the setting up of Bharat Earthmovers Ltd. (BEML), a public sector unit of the Ministry of Defence, at Kolar in South India to manufacture dozers, dumpers, graders, scrapers, etc. for defence requirements under licence from LeTorneau Westinghouse, USA and Komatsu, Japan. In the private sector, the Hindustan Motors' Earthmoving Equipment Division, was established in 1969 at Tiruvallur, near Chennai with technical collaboration from Terex, UK for manufacture of wheel loaders, dozers & dumpers. This factory has since been taken over by Caterpillar for their Indian operations. The machines manufactured by Caterpillar in the Tiruvallur factory are marketed by TIL and GMMCO.

In 1974, L&T started manufacturing hydraulic excavators under license from Poclain, France. In 1980 and 1981, two more units, Telcon and Escorts JCB commenced manufacture of hydraulic excavators (under license from Hitachi, Japan) and backhoe loaders (under license from JCB, UK) respectively. Escorts JCB has been taken over by JC Bamford Excavators Ltd. U.K. in 2003 and is now called JCB India Ltd. In 1970s Escorts Limited started manufacturing Cranes in collaboration with Faun AG and Rapier & Ransome.

Volvo and Terex Vectra are the most recent entrants in the Indian market. Volvo has set up their manufacturing unit in Bangalore.

At present they are only manufacturing tippers and the other equipment are imported from their parent company and marketed in India.

Terex Corporation USA and Vectra Ltd. U.K. have formed a joint venture, which has started manufacturing construction equipment like backhoe loaders and skid steer loaders from May '04 at Greater Noida with an investment of USD 12 million. Other equipment in the Terex range are being sold through their agents in India.

Most of the technology leaders like Case, Caterpillar, Hitachi, Ingersoll-Rand, JCB, John Deere, Joy Mining Machinery, Komatsu, Liebherr, Poclain, Terex, Volvo are present in India as joint venture companies, or have set up their own manufacturing facilities, or marketing companies.

The industry has made substantial investments in the recent past for setting up manufacturing bases, despite small volumes and uneconomic scales of production compared to global standards.

Current Status in India

The growth of this sector is interlinked with the growth of the Indian economy and indirectly with the growth of infrastructure. This is evident from the graph shown below:-

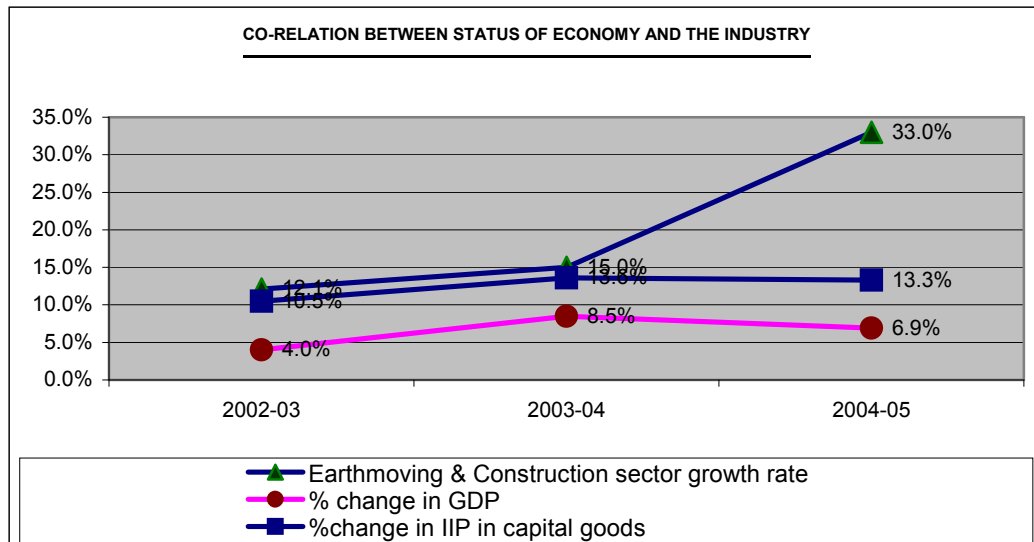


Chart 1

The last few years have witnessed a phase of restructuring in the industry through acquisitions and joint ventures. This also reflects the active interest of international majors in the domestic market. Many international players have also appointed selling agents for importing and selling complete equipment in India.

The construction and mining equipment industry is dominated by a few large manufacturers in each product segment. BEML supplies to nearly half the total market. BEML and Caterpillar lead in dumpers and dozers while L&T Komatsu and Telcon lead in excavators , JCB India in backhoe loaders and Escorts Construction Equipment Ltd. in Mobile Cranes.

The major players in this segment who are also members of the Indian Earthmoving and Construction Industry Association Ltd. (IECIAL) are as follows :

Ashok Leyland Ltd.
Bharat Earth Movers Ltd.
Caterpillar Commercial Pvt. Ltd.
Escorts Construction Equipment Ltd.
GMMCO Ltd.
Greaves Cotton Ltd.
Ingersoll Rand India Ltd.
JCB India Ltd.
L&T Komatsu Ltd.
Larsen & Toubro Ltd. (Construction Equipment Division)
Mahindra & Mahindra Ltd.
Schwing Stetter India Pvt. Ltd.
Tatra Trucks India Ltd.
Telco Construction Equipment Co. Ltd.
TIL Ltd
Voltas Ltd.
Volvo India Pvt. Ltd.
Wirtgen India Pvt. Ltd.

The other prominent players in the segment are :

Appollo Earthmovers
Apollo Industrial Products
Braithwaite & Co. Ltd.
Elecon Engineering Co. Ltd.
Godrej & Boyce Mfg. Co. Ltd.
Gujarat Appollo Equipment Ltd.
Heavy Engineering Corporation Ltd.
Hyderabad Industries Ltd.
International Combustion (India) Ltd.
Jessop & Co. Ltd.
Macneil Engineering
Mukand Ltd.
Shethia Erection & Material Handlers
TRF Ltd.
WMI Cranes

Structure of the Sector

71% of the sector comprises of public limited companies including PSU's and 29% private limited, or joint ventures including closely held private limited companies.

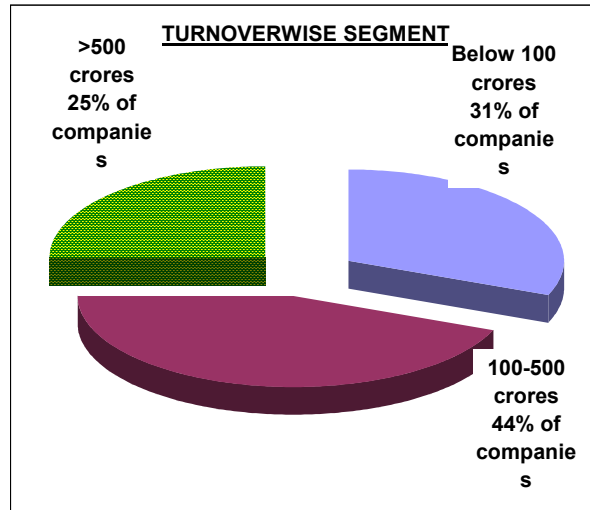


Chart 2

75% of the companies manufacturing in India were involved in the entire range of activities like design and engineering, manufacturing, erection, servicing and commissioning. There are only a few companies who act as selling agents for international players. There are others who manufacture and also import complete equipment or in SKD condition from their principals abroad and market them.

Since each piece of the equipment in this product category has substantial value, a number of companies have a turnover of over 100 crores and the larger ones have a turnover above Rs.1000 crores. The technology barriers have made the industry less fragmented in the mining machinery sector whereas it is fragmented in the road construction equipment and the material-handling segments. The international trend in the earthmoving and mining segment is one of consolidation. This trend is also beginning to be seen in India. Some international companies are looking at the prospects of enhancing their market presence based on higher investment in mining and infrastructure and also using their Indian operations to meet demand in South and South East Asia.

The industry's expectations of the likely future evolution in this sector is represented here in graphical form. Most of the current players expect that new players will enter the Indian market.

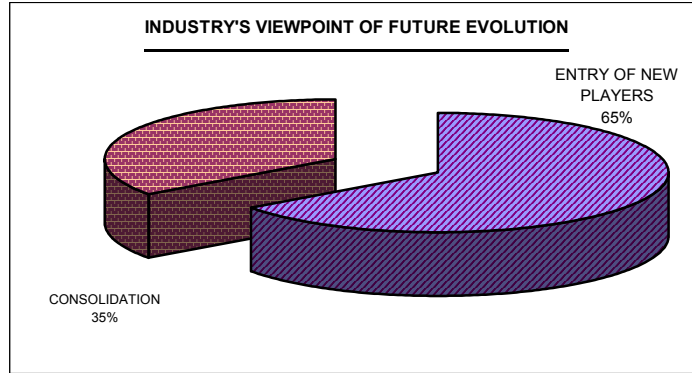


Chart 3

Technology

The construction and mining equipment sector has a wide range of products. For the purpose of this study, this is taken to mean the following :

Construction Equipment	Mining Equipment
Backhoe Loaders	Motor Graders (above 200 HP)
Crawler Dozers upto 320 HP	Dozers (above 320 HP)
Crawler Excavators above 3.5 Cu.M.	Hydraulic Excavators (65 T and above)
Loaders	Rope Shovels
Motor Graders (below 200 HP)	Drag Lines
Skid Steer Loaders	Drills
Wheel Loaders (below 3 Cu.M.)	Wheel Loaders above 3 Cu.M.
Vibratory Compactors	Surface Miners
Dump Trucks (below 35 T)	Off Highway Dumpers (above 35 T)
Tippers	Continuous Miners
Road Milling Machines	Long Wall Equipment
Asphalt Pavers	Batching Plants
Asphalt Drum / Wet Mix Plants	
Fork Lifts	
Tower Cranes	
Mobile Cranes – Pick & Carry	
Mobile Cranes 360° slew	
Transit Mixers	

The worldwide technology leaders in the construction equipment sector are: Komatsu, Caterpillar, Hitachi, Terex, Volvo, Scania, Case, Ingersoll-Rand, HAMM, Bomag, John Deere, JCB, Poclain, Bitelli, Hyundai, Kobelco and Daewoo. Almost all the companies have presence in India either as joint ventures, or have set up their own manufacturing facilities, or marketing companies.

In the mining sector, the leaders are: Hitachi, Komatsu, Wrigten, Atlas Copco, Liebherr, Joy Mining Machinery, Terex, Bucyrus Erie and DBT. Out of these companies, DBT and Joy Mining Machinery are present only through their marketing network and provide sales support.

In the construction equipment sector, the level of technology prevalent internationally can be made available in India through joint ventures. However, the equipment currently being manufactured in India is not of the same size. For example for a 15 Cu.M. hydraulic shovel, the manufacturers do not feel the need to bring in the technology due to low volumes and uncertain demand though the companies have the manufacturing facilities and design capabilities to manufacture the same in India.

Some of the other reasons for not manufacturing the latest equipment are :

- The Indian market cannot absorb the cost of the latest technology
- If manufactured in India for export markets, most of the components will have to be imported
- Equipment adhering to the latest emission norms cannot be used since the quality of fuel required for them is yet to be made available here. At the same time, off highway construction and mining equipment do not need stringent emission norms in India.

The construction equipment sector in India has evolved over the years and is at present in an intermediate stage of development. The industry is trying to bring in international levels of technology as demand and the scale of operation increases.

In India both premium, latest state-of-the-art technology equipment and value for money low cost products exist simultaneously. The high technology state-of-the-art products can be manufactured in economical quantity only if the users are compelled to use them due to environmental and ecological reasons. The reasons for latest technology equipment not finding favor with the users lie in the fact that these are very costly because maximum percentage of components are imported and with the rupee depreciation, the cost of these components have been going up and hence the equipment are not affordable as the cost of projects go up. Further reason for India taking a longer period for evolving towards state-of-the-art equipment is partially due to socio economic factors.

Though it has been observed that the user sector with the growing FDI are likely to be more geared towards the state-of-the-art technology machines which are more productive, low in maintenance cost and provide comfort for operators. These ranges would reign supreme among the private players. The users are now not looking at only the initial cost of the equipment, but focusing on total costing, or cost per ton of usage. It is anticipated that 5 years hence, the need for more and more mechanization and enhancement of scale may lead to change in the level of technology in use.

However, it is a fact that Indian companies would have to move towards the state of the art technology, but the manufacturers would also try to keep a balance between the state of the art and user friendly machines as well as try to provide the relevant technology levels which provides value for money to the customers.

Design & Engineering

Most manufacturing companies in this sector in India have design and engineering departments catering to their in-house requirements and all of them are fairly well equipped using CAD/CAE. This is required because while the products may be fairly standard, there are changes, which need to be incorporated as per customer specifications and for product development.

The percentage of engineering hours spent on doing engineering rework was found to be an average of 12% ranging from 0.5% to 20% in some companies.

90% of the companies with technology collaborations have completed technology absorption. However most of the critical components are being imported and most of the technology absorption is in terms of non-critical items, or medium / low technology items. 35% of the companies however, faced problems in retaining the personnel who have been trained abroad during the technology absorption phase.

Research & Development

65% of the companies surveyed have their own R&D set up and 90% of them have started allocating for R&D since the 1990s.

However, the percentage of sales budgeted for R&D was meagre ranging from 0.5 to 3% of sales. 35% of the companies surveyed worked in collaboration with some educational/domestic research institutes. The prominent amongst them being the IIT's and IISc Bangalore.

When benchmarked against global companies, it was noted that companies like Caterpillar, Komatsu and Volvo spent approximately 3% of sales on R&D, which is USD 880 Mn., 34000 Mn. Yen, 975 Mn. SEK respectively compared to the highest spender in India investing approx. Rs.16 crores.

Although many of the manufacturers have established full-fledged R&D units to update their products/technologies, the industry in India does not invest adequately in R&D activities compared to world leaders like Caterpillar or Komatsu, as the existing market cannot absorb the development costs. However, we may see more R&D work by world majors in India, taking advantage of low R&D manpower costs.

Management Efficiencies

The industry is quite mature in terms of marketing abilities as compared to the other sectors of the capital goods industry. Majority of the companies have strategic planning programmes in place and have well chalked out business strategies at all levels.

In order to enhance their market share, companies need to improve quality and service followed by reduction in costs, increase in product range and finally adopt more aggressive marketing strategies. The competitive edge lies in satisfying customers by delivering higher quality products at lower prices.

Strategic alliances are already in place among 60% of the companies surveyed. These are primarily focused on developing and combining competencies with the help of other organizations in terms of marketing, after sales service etc. Only 45% of the companies are interested in growth through mergers and acquisitions.

The level of quality consciousness is on an average higher than the other sectors probably because the companies are larger and many of them are associated with international companies either for manufacturing or marketing their products. Another reason for higher quality consciousness is that more companies in this sector are well versed with the soft technologies being used worldwide for enhancing competitiveness and quality. Approximately 90% of the companies covered under the study have either implemented, or are implementing soft technologies like six sigma, lean manufacturing etc. 100% of the companies manufacturing in India are ISO certified.

It was noticed that the percentage of scrap due to errors in manufacturing is between 2% & 5% and the percentage of labour hours spent on reworking was 4%. All the manufacturing companies train their workers on quality concepts. However the percentage of workers who received company sponsored training on quality concepts in the past two years varied from 20% to 100% in some companies.

The average number of hours per person of training provided was approximately 16 hours per person varying from 6 hours to 35 hours per person per annum.

Most of the companies were quite responsive to customer complaints and the average number of days taken to respond varied from ½ a day to 5 days in some companies.

More than 70% of the companies have undergone business process reengineering for higher customer satisfaction.

It has been observed that the majority of the companies in this sector are between medium and high users of computerization. The various activities computerized by the percentage of companies are shown in chart 5.

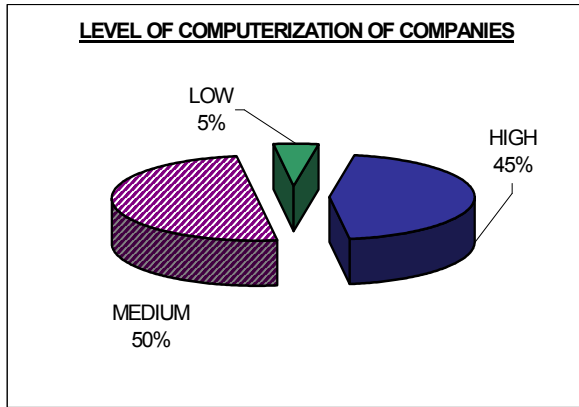


Chart 4

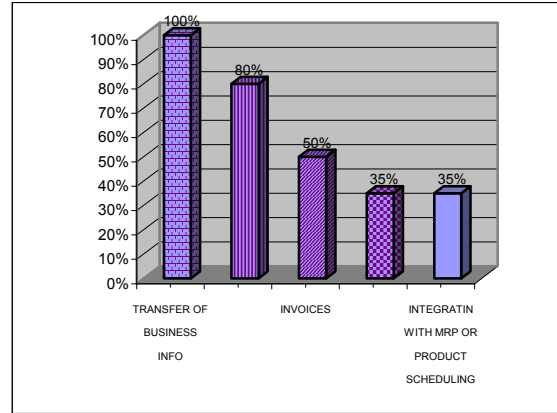


Chart 5

This level of computerization is also comparatively high compared to the other sectors of the capital goods industry. Yet the percentage of IT expenditure to sales in the last one year i.e. 2004-05 was a meagre 0.5% of the total sales i.e. Rs.32 crores was invested by the industry towards computerization either for ERP / SCM / CRM.

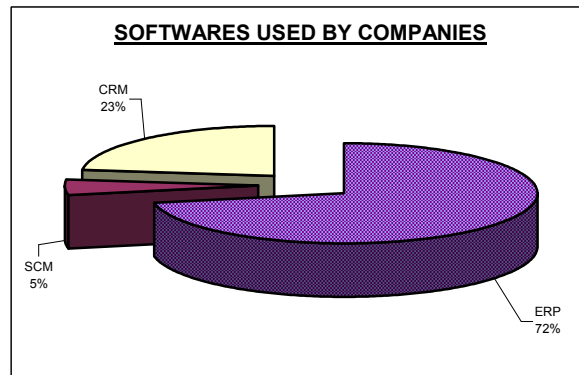


Chart 6

ERP or enterprise resource planning is an industry term for the broad set of activities supported by multi product application software that helps a manufacturer to manage the important functions of its business including product planning, parts purchasing, maintaining inventories, interaction with suppliers, providing customer service and tracking orders.

Supply Chain Management (SCM) is the management of the entire value added chain, from the supplier to manufacturer right through to the retailer and the final customer. SCM has the primary goal of reducing inventory, increasing the transaction speed by exchanging data in real time and increasing sales by implementing customer requirements more efficiently.

CRM (Customer Relationship Management) entails all aspects of interaction a company has with its customers, whether it be sales or service related. CRM is an information industry term for methodologies, software and usually internet capabilities that help an enterprise manage customer relationships in an organized way.

Companies need to be in constant touch with their customers over the electronic media. The percentage of companies using ERP solutions is high with quite a significant number also using CRM for better customer relationship management. However, all the players need to be better integrated with both their suppliers and customers to strive to be the market leader.

After-sales service is an important aspect of a company's successful business strategy because all customers would like higher productivity and utilization from their machines in order to be cost competitive. Hence this is an area no company can afford to ignore or accord a lower priority to.

All the companies surveyed whether manufacturing, or trading, offered after-sales service to their customer and it was also noted that 70% of them have entered into this field in the last ten years.

Equipment manufactured by the industry is mostly mobile and hence subjected to higher wear and tear and consequently maintenance requirements are higher. Users rate machines with lower downtime higher. Hence, training of maintenance personnel both of manufacturers as well as users' is a very important aspect of managing customer relationships. This is also evident from the fact that all the companies spent on training and the majority of them (60%) spent more than Rs.1 lakh per month. Only 40% of the companies spent less than Rs.10 lakh per annum on employee training.

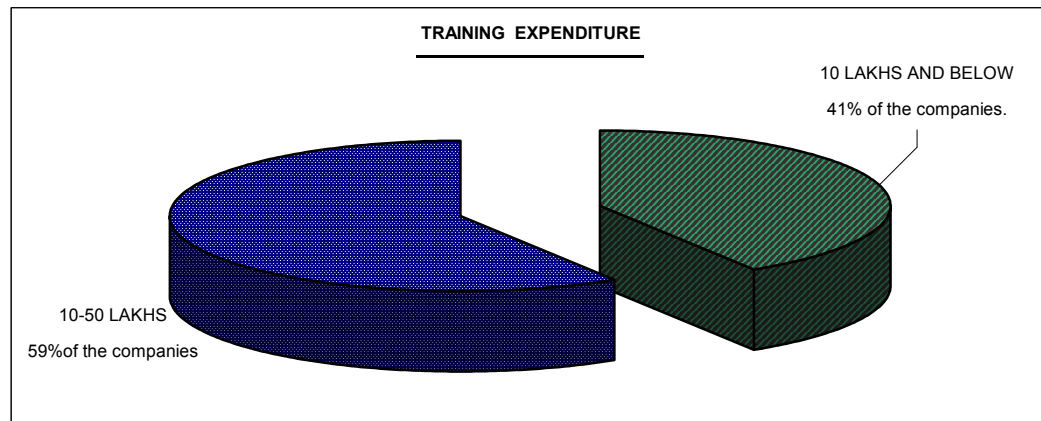


Chart 7

The average response time for responding to customer calls is 24 to 48 hours and in premium service contracts it varied between 12 to 36 hours. 91% of the maintenance calls were completed within the specified time frame.

From the user feedback, it emerged that the deliveries of most of the companies were delayed. Hence many customers preferred to import second hand machines. Scheduling is therefore required to be strictly followed by all the companies for manufacturing, and approximately 90% of them use one, or the other software to enhance efficiency in manufacturing. Yet the percentage of companies where the shipments are before/within the due date is very low at only 50%.

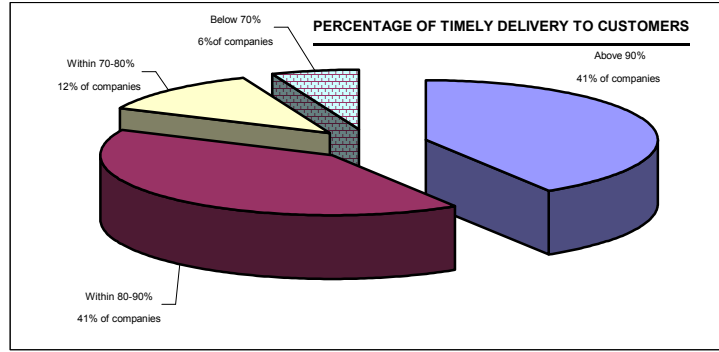


Chart 8

A clear distinction was noticed in terms of reasons for late delivery.

- ❑ Companies predominantly manufacturing construction equipment have attributed more than 70% of their late deliveries to delay in customer clearance.
- ❑ Whereas companies predominantly manufacturing mining equipment have attributed the majority of their delays to delay in material availability largely as a result of imports as well as delays in manufacturing.

The reason for late deliveries is attributed mainly to the growth in domestic demand, which was not foreseen earlier by the companies. Delays were therefore mainly attributed to capacity constraints. A fall out of delayed delivery has been higher imports both for new machines, as well as second hand machines.

This issue can be tackled by enhancing capacity of both the manufacturers and their sub-suppliers, tighter monitoring and scheduling and by greater usage of ERP / SCM.

Benchmarking with International Companies

Some broad indications in terms of benchmarking of the industry on the basis of financial parameters have been done against a few global players, this is provided in **Annexure IV**.

The companies against which Indian companies have been benchmarked are Caterpillar, Komatsu and Volvo. They are the leaders in their respective fields.

Operational Efficiencies

Financial Parameters

The CII survey results showed that there has been a good growth rate in terms of sales due to the higher investments by the user sectors. Though exports have also risen, the percentage of exports to sales is low due to lack of competitive advantage of machines built with indigenous technology. Wherever machines are built under technology transfer, companies face restrictions on the export market territory from the technology provider.

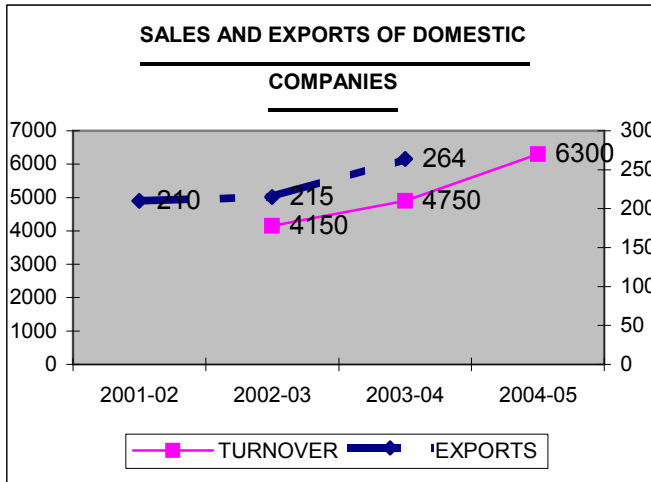


Chart 9

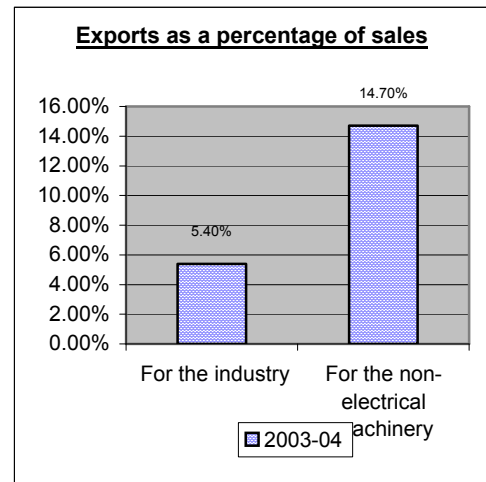


Chart 10

As is evident, the cost of raw materials as a percentage to sales witnessed a fall in 2003-04 probably due to better supply chain management on the part of the respondent companies. However the unprecedented rise in steel prices in 2004-05 has offset the reduction.

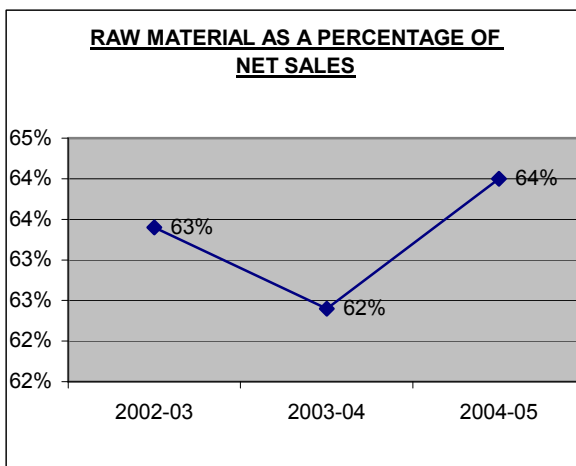


Chart 11

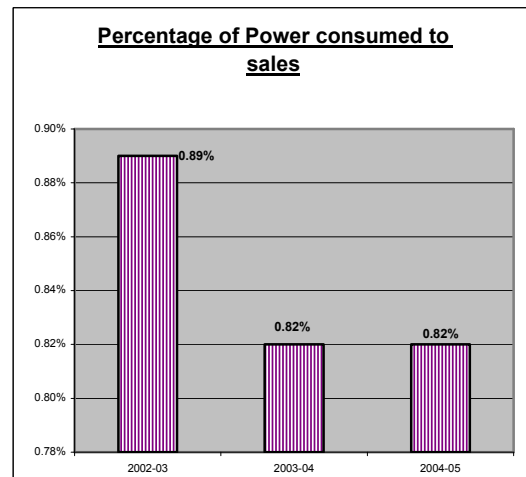


Chart 12

The power consumed to sales has shown a decline because all companies are now conscious about energy conservation and use various methods like automatic switching of systems and higher efficiency / low consumption electrical appliances etc.

Value added for an industry is the difference between the value of the output and the value of the input namely raw materials & bought outs. In other words we can attribute this difference to the value added to the product by the company.

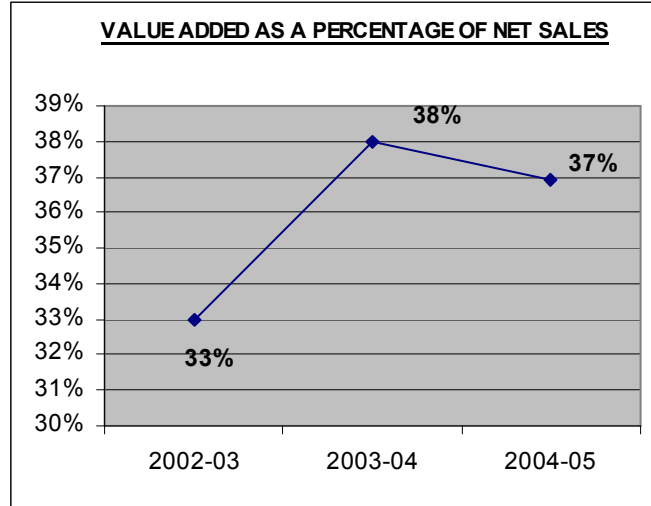


Chart 13

The value addition has risen over the years because more manufacturing has taken place in 2003-04 in place of trading as compared to the earlier years. It has again shown a fall due to the rising raw material prices in 2004-05.

Inventory on an average was found to be 26 percent of net sales.

Average Turnover of Inventory for 2004-05 was found to be 4.

The international benchmark is between 5 - 7.

The number of days sales outstanding is on an average within 90 days, which is at par with the engineering industry. This is also in keeping with international trends.

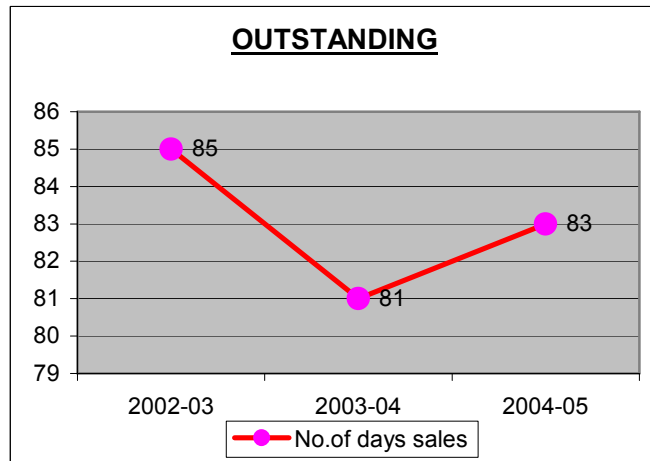


Chart 14

Cost of wages to sales was found to be 11.8 percent in 2004-05. The range varied from a low of 3 percent to a high of 28 percent.

For Caterpillar Inc. the ratio was 19.8 percent.

The employee productivity is fairly low as compared to international companies.

Sales per employee on an average for the industry was found to be Rs.35 lakhs but for the manufacturing companies it was found to be Rs.32.5 lakhs.

This is the reason why though the cost of wages per employee is very low at Rs.4 lakhs, the lower productivity of the employee offsets the advantage. The value added per employee was only Rs.11 lakhs.

The global standards for employee productivity i.e. sales per employee is in the range of Rs.160-175 lakhs.

Profitability

The industry in India witnessed a tremendous jump in profitability in 2004-05 over 2003-04. The return on capital employed is 24 percent and has increased by 85 percent over 2003-04. The PBIT has increased by 112 percent and PAT by 145 percent.

Operating profit to sales for Caterpillar Inc. was 9.7 percent

The PBIT to sales on an average was better in the case of Indian companies as compared to international companies operating worldwide like Caterpillar Inc., Komatsu or Volvo at 12 percent.

However the capital employed has gone up by 14 percent since many companies had undertaken debt restructuring. Most of the companies have a very low debt ratio. In fact some of the companies have zero debt.

Capital Investment

The capex plans however are not so encouraging as compared to the profitability seen by the industry. Only 50 percent of the companies have capex plans and the amount is only 300 crores over the next 3 years.

Productivity Parameters

Machine and labour utilization

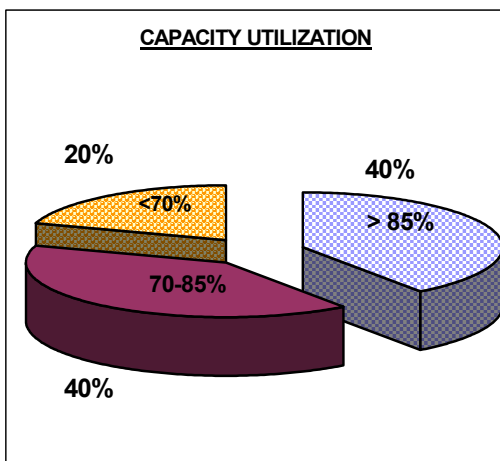


Chart 15

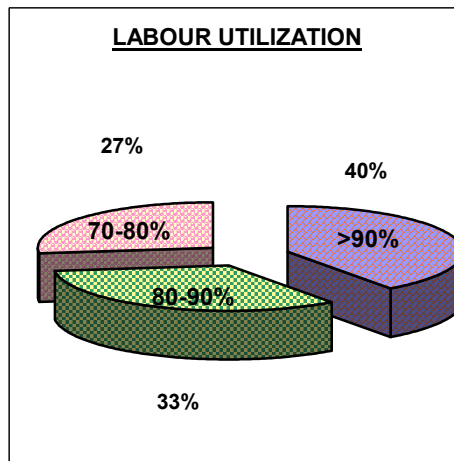


Chart 16

In 2003-04 the capacity utilization in this sector ranged between 50 percent to 85 percent depending on the market conditions. By and large the more efficient companies were operating at a level of 85 percent or more capacity utilization .

It is interesting to note that the industry is experiencing delays in delivery due to capacity constraints. Yet at the same time the capacity utilization and levels of utilization of labour are not significantly high. This can be attributed to breakdowns as a result of inadequate maintenance, absenteeism, sub-contracting due to the attraction of lower prices and delays in receiving materials and components due to delays in imports.

Machine breakdown ranged from 0.5 to 10 percent and most of the companies followed systems of periodic and preventive maintenance.

Supply Chain. Procurement lead-time was very high in this sector ranging from 2 weeks to 6 months. The reason being that this industry has a large number of proprietary items, which need to be imported, and 35 percent of the raw materials generally comprise of imported components. These components have to be imported because of their non-availability in India and hence most of the companies require an average of 1 month to 6 months as procurement lead-time. Most of the companies are procuring 50 to 80 percent of their raw materials and bought out components within a radius of 200 kms. from their manufacturing base .The lead time is high compared to global leaders.

Though 100 percent of the companies have their vendors rated and have fairly good supply chain management systems, yet the procurement lead-time is very high due to the following reasons:

- Lack of proper port/airport infrastructure
- Cumbersome procedural delays while importing
- Lack of high level of computerization and integration with the supplier network

User Sector Feedback

From the responses received from some of the major users of construction and mining equipment, it was noticed that large purchases were made in 2002-03 when the Government investment in infrastructure projects like the Golden Quadrilateral was in full swing. For the same companies demand has tapered since then. In the mining sector the purchases have gone up in 2004-05.

25 – 30 percent of imported purchases made were of second hand equipment by the large private players, however, none of the Government owned companies have imported second hand machines.

One of the main reasons cited by some of the importers of second hand equipment was the delayed delivery by domestic companies. Cost-wise there was no benefit since the machines required total overhauling and retrofitting.

When the indigenously available machines were benchmarked with the imported machines the users felt that cost-wise, indigenously manufactured machines were very competitive. The spare parts availability and servicing of the machines were much better than the imported machines, though it still fell short of customers' expectations.

Delivery of indigenously manufactured equipment was fairly poor though in a few segments like compactors, it was at par with International players. However when it came to technology, performance/productivity, reliability and downtime, the indigenously manufactured machines were rated lower than the imported machines. In the case of downtime, the domestic equipment had 10-15 percent higher downtime than the imported machines.

Many of the international players in India do not manufacture the total range and therefore imports were a necessity. In cases where a particular technology was specified by the user industry, and the same was not available in India, the machines were required to be imported.

According to the operations and maintenance personnel of the user industry the priority that they gave while rating a machine was in the following order:

- Less downtime
- Ease of maintenance
- Power/Fuel consumption
- Efficiency
- Availability of spares parts and servicing
- Eco-friendliness of the machine.

Indian manufacturers gave good service and spares backup at a reasonable cost as compared to International players. However, the user sector felt that there was scope for tremendous improvement, especially as international players were appointing agents in India who are gearing up to give service and training backup.

Market situation and Demand

The sector has seen a double-digit growth in its sales turnover for the past two years with a phenomenal 33 percent growth in the previous year. The growth was seen more in the mining equipment segment. There was comparatively lesser growth seen in the construction and road making machinery. This may be viewed in the context of the tapering off in demand under the national highway development programme from the end of 2003.

The order backlog for the industry is Rs.3,400 crores as on 31st March 2005 which is more than 50 percent of the projected sales of the industry for 2005-06.

The domestic demand in 2004-05 was Rs.6,300 crores and it is estimated that the demand in 2005-06 will be in excess of Rs.7,000 crores. Exports were to the tune of Rs.280 crores in 2003-04 and Rs.330 crores in 2004-05.

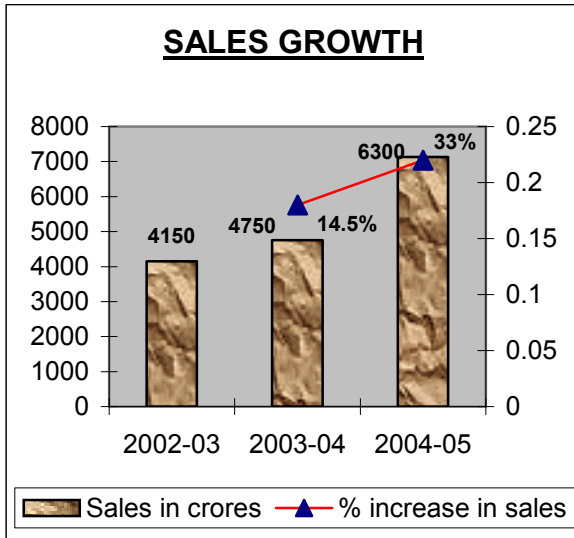


Chart 17

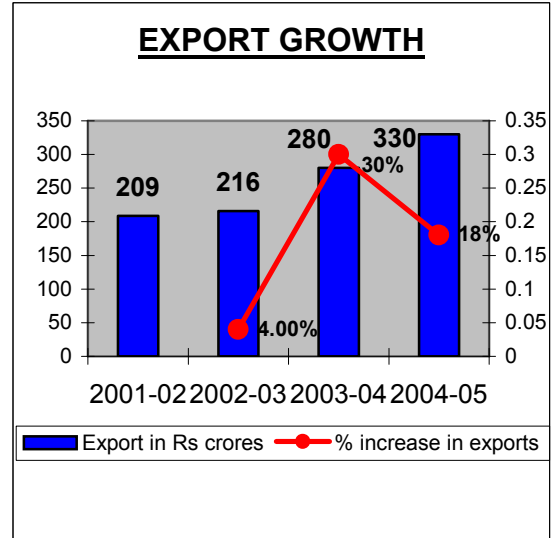


Chart 18

The industry is presently focused on meeting domestic requirements and is also striving to be competitive in the world market.

The following indicates the prominent market players for certain broad category of equipment in India:

Hydraulic Excavators	Dozers & Dumpers	Wheel Loaders	Backhoe Loaders	Road Compactors	Cranes	Fork Lifts
Telcon (Hitachi)	BEML	Caterpillar India Ltd.	JCB India	Ingersoll Rand	ECEL	Godrej
L&T-Komatsu	Caterpillar India Ltd	Telcon	Telcon (John Deere)	Escorts Constn. Equipment Ltd. (ECEL)	TIL (Grove)	Voltas
BEML	Tatra Udyog	JCB India	L&T Case	L&T Case	Telcon	TIL
JCB India	Voltas (Unit Rig)	BEML	BEML	Greaves Ltd (Bomag)	Voltas (P&H)	McNeill Engg.
Caterpillar India Ltd	Volvo		Caterpillar India Ltd			

The equipment rental market is not yet fully developed but there are a number of companies who are now entering into the business encouraged by the low interest regime. This will further give a boost to the demand for small and medium sized equipment. The lowering of customs duties and removal of age restrictions have encouraged imports of second hand machinery used by the rental companies. This has also found favour with contractors. It helps them to focus on their core competencies of construction and project management, while having access to equipment without significant investments.

Future prospects of this industry is directly linked to the Indian economy and it is expected that the Indian economy will do well in the future.

In recent years, the core sector of the Indian economy, particularly the mineral and mining industry, has made significant progress. The abundant mineral resources available in the country have led to the growth of the mining industry. This industry is basically labour intensive and can provide job opportunities for many. Mechanized mining operations have become popular in the recent years. Today, more and more companies engaged in open-cast mining resort to high mechanization in order to maximize the output of coal and other minerals. As a result, there is a marked trend in the introduction of large capacity and higher sized mining machines.

An overview of important user segments is given below:-

a. **Mining**

India is endowed with significant mineral resources and the mineral industry constitutes an important segment of the Indian economy. India produces 89 minerals which include 4 fuel, 11 metallic, 52 non-metallic and 22 minor minerals. A series of policy initiatives coupled with legislative changes have been carried out for speeding up investments and induction of "State-of-the-art" technology in the mining sector.

The Indian mineral sector represents a unique blend of small scale and large scale mining operations. In spite of large-scale mining operations, India is essentially a country of small-scale mining, since as much as 87% of the operations can be considered as small scale. Out of about 3000 reporting mines in the non-coal sector in India, only about 113 are operated by underground methods. The underground mines are presently confined to base metals, manganese ore, gold, chromate and some non-metallic minerals like soapstone, mica etc. The other major minerals are lignite, iron ore and limestone (production of 30m, 70m and 120m tons respectively). Considerable developments have taken place during the last few decades for enhancing the levels of production.

There are about 355 opencast mechanized mines in the country in the non-coal sector. Some of the unique examples are the Kudremukh Iron Ore Mines, Malanjkhand Copper Mines where mechanized mining is being carried out with advanced technology. Technology changes in the design of mine equipment and development of new stopping methods have made mining operations less

arduous, more productive and safer. With the recent liberalization in the minerals sector, it is envisaged that further technological upgradation / introduction of state-of-the-art technology will take place to achieve the projected growth of mineral production in the country.

During the period November, 1995 to January 1998, the Foreign Investment Promotion Board approved 39 cases of Foreign Direct Investment in the mineral sector with an investment of over \$700 million. These proposals are mainly in the fields of mining, exploration, mineral processing and technical consultancy.

73 applications for FDI involving investment of US\$ 830 million have been approved by the Government till 2004. 165 reconnaissance permits have been granted for an area of 2,19,000 Sq. Km. till February 2004.

b. Coal:

India produces over 340 million tons of coal annually. Government owned Coal India Limited (CIL) accounts for 90% of the total coal production. The other major producers are Singareni Collieries and TISCO (West Bokaro). Coal India has undertaken systematic planning and mechanization of coal mining in the nationalised coalmines in Eastern and Central India. It has adopted open-cast mining as the main mining method in preference to underground mining.

CIL is the biggest buyer of mining equipment in the country and has had a dominant influence on the development of the mining equipment industry. It has spearheaded adoption of innovative procurement and maintenance practices in the country.

In recent years, mining companies have been off-loading excavation work to private contractors leading to the development of a new segment in mining. The Government of India is actively considering privatisation of coal mining to give a boost to power generation. This development is expected to stimulate demand for mining machinery.

During the year 2004-05 (01-04-2004 to 31-3-2005) 4 (four) project in coal sector and 4 (four) in lignite sector were sanctioned by the Government. Besides, 5 (five) advance action proposals (AAPs) were also sanctioned by the Government. The list of such projects sanctioned by the Government are given below:

Coal Projects

Sl. No.	Name of the projects	Company	Latest Capacity (Mty)	Capital (Rs. Crs.)
1	J.K. NAGAR UG (RPR)	ECL	0.435	54.15
2.	Kaniah OCP (PR)	MCL	3.50	96.18
3.	Kulda OCP (PR)	MCL	10.00	302.96
4.	Bhubaneshwari (PR)	MCL	10.00	336.68

Source : Ministry of Coal Annual Report 2004-05

Lignite Projects

Sl. No.	Name of the projects	Company	Latest Capacity (Mty)	Capital (Rs. Crs.)
1	Mine II Expansion	NLC	4.5 MTPA	2161.28
2	TPS-II Expansion	NLC	500 MW	2036.78
3	Barsingsar Lignite Mining Project	NLC	2.10 MTPA	254.07
4	Barsingsar Thermal Power Project	NLC	2X125 MW	1114.18

Source : Ministry of Coal Annual Report 2004-05

Advance Action Proposals

Sl. No.	Name of the projects	Company	Capacity (MTY)	Sanctioned (Rs.Crs.)
1	Mine-III	NLC	8 MTPA	2.60
2	TPS-III	NLC	2X500 MW	1.35
3	Coal based Thermal Power Plant at Tuticorin	NLC	2X500 MW	2.50
4	Coal based Thermal Power Plant at Orissa	NLC	4X500 MW	18.65
5	Refinery Residue Power Plant at Chennai	NLC	492 MW	2.35

Source : Ministry of Coal Annual Report 2004-05

c. Infrastructure Construction**➤ Ports**

Maritime transport is a critical infrastructure for the social and economic development of a country. It influences the pace, structure and pattern of development.

Historically, investment in the transport sector, particularly in the ports, have been made by the States. A large volume of resources have been required, with long gestation periods, uncertain returns and various externalities, both positive and negative. Major expansion is now required in the port infrastructure sector in the country in order to handle the sea borne traffic on account of increasing foreign and coastal trade. The planned investment in port infrastructure will boost the demand not only of construction equipment but also of port handling equipment.

The major ports were opened for private sector participation in 1997 and till date nearly Rs.10,000 crores of projects have either been implemented, or are under progress. In addition, there have been huge investments in minor ports under the State Maritime Boards. Container traffic in India has seen a phenomenal 20% compound growth rate in the last decade. The traffic volume has gone up from 0.68 MTEUs (Million Twenty Feet Equivalent Units) in 1990-91 to 3.9 MTEUs in 2003-04. Recent policy initiatives taken by the Govt. will give a further fillip to this growth. As per present trends in the EXIM trade, container traffic is expected to increase to a level of 7.0 MTEUs by 2006-07.

To meet the demand, the ports have been expanding their infrastructure in a big way. In addition, private ports have come up, particularly in Gujarat adding to handling capacity in the region.

In the meantime, JN Port is planning a fourth container terminal with private sector participation at an approximate cost of Rs.2000 crores. An investment of nearly Rs.700 Crores is also on the anvil for deepening the channel so that bigger ships can call at the port. The total investments planned or under execution in the JN Port today are of the order of Rs.3500 Crores.

Urban infrastructure

Till recently, the main market for construction machinery, especially excavators was the infrastructure sector. The demand now mainly comes from urban construction comprising of housing/mall projects, petro-pipelines, minor irrigation, and maintenance work. Versatile construction equipment such as backhoe loaders are being offered on hire all over the country by small & medium sized contractors and the equipment hiring sector is expanding rapidly, leading to additional demand for equipment.

Mandatory requirements of equipment ownership by contractors and easy availability of finance for equipment purchase have given a boost to the development of a stable market for smaller construction equipment.

The centrally sponsored scheme for infrastructural development in mega cities was initiated during 1993-94.

The primary objective of the scheme was to undertake infrastructure development projects of city/regional significance covering a wide range of components like water supply and sewerage, roads and bridges, city transport, solid waste management etc.

The State Level Sanctioning Committees in the mega cities approved 675 projects at an estimated cost of Rs.8693.98 crore. An expenditure of Rs.3834.34 crores has already been incurred on the approved projects. The Mega City Nodal Agencies were making efforts to mobilise institutional finance and an amount of Rs.1690.36 crore was mobilised from HUDCO and other sources.

With a view to catalyzing investment in townships, housing, built-up infrastructure and construction-development projects as an instrument to generate economic activity, create new employment opportunities and add to the available housing stock and built-up infrastructure, the Government has decided to allow FDI upto 100% under the automatic route in townships, housing, built-up infrastructure and construction-development project (which would include, but not be restricted to, housing, commercial premises, hotels, resorts, hospitals, educational institutions, recreational facilities, city and regional level infrastructure), subject to fulfillment of conditions prescribed in the Department of Industrial Policy & Promotion Press Note No.2 (2005 Series) dated 03.03.2005.

Centrally Sponsored Scheme for Infrastructure Development in Mega Cities										
Physical progress (As on 30.09.05)										
(Rupees in crore)										
Name of Mega City	No. of Projects approved	Total Project Cost	Number of projects			Funds released		Institutional Finance mobilised	Expenditure incurred	Revolving Fund
			In progress	Completed	Yet to commence	Central Share	State Share			
Mumbai	63	1785.58	23	39	1	330.02	273.04	297.88	772.35	314.08
Kolkata	130	1275.61	30	87	13	307.43	328.72	186.49	705.34	41.62
Chennai	200	2153.42	32	157	11	257.51	242.96	815.23	1595.57	319.26
Hyderabad	224	2067.05	62	109	53	257.73	257.21	183.93	475.94	21.00
Bangalore	58	1412.32	21	33	4	241.85	228.74	206.83	285.14	144.28
TOTAL	675	8693.98	168	425	82	1394.54	1330.67	1690.36	3834.34	840.24

The Union Government has permitted setting up integrated townships at the following places:-

- Gurgaon (Haryana)
- Hyderabad (Andhra Pradesh) (two projects)
- Mohali (Punjab)
- Chennai (Tamil Nadu)
- Bangalore (Karnataka)
- Kolkata (West Bengal)

The annual estimated investment required for urban water supply, sanitation and roads is around Rs.28,035 crores for the next ten years. The Central Public Health Engineering (CPHEEO) has estimated the requirement of funds for 100 percent coverage of the urban population under safe water supply and sanitation services by the year 2021 at Rs.172,905 crores. Estimates by Rail

India Technical and Economic Services (RITES) indicate that the amount required for urban transport infrastructure investment in cities with population of 100,000 or more during the next 20 years would be of the order of Rs.207,000 crores.

Road & Bridges Construction

The Government of India has identified improved infrastructure as the key to achieving higher economic growth of the country. Modernisation of the road sector has been taken up on a priority basis and the National Highway Authority of India (NHAI) has been set up to implement & manage the time-bound National Highway Development Programme (NHDP) consisting of four and sixlaning of existing national highways linking all major cities. It comprises of the 5,950 km. Golden Quadrilateral and the 7,300 km. North-South & East-West Corridor Projects, to be completed by 2003 and 2007 respectively. NHAI specifies qualifying criteria for bidders in terms of capital equipment to be owned, construction methods to adopt and third party quality control by consultants.

The funding for the highway programmes is generated by a levy of Re.1 per litre cess on petrol & diesel. 50% of the estimated Rs.60 billion annual collections are earmarked for development of rural roads.

The Ministry of Shipping, Road Transport & Highways has so far accorded in principle approval to 81 proposals amounting to Rs.402.62 crores and 116 proposals amounting to Rs.521.24 crores under the Inter-State Connectivity Scheme. An amount of Rs.170.59 crores (Rs.162.05 crores for the States and Rs.8.54 crores for UTs) is earmarked for this purpose during the year 2005-06.

The construction equipment sector has witnessed a phase of high growth during the NHDP (Phase I & Phase II) projects and continuing investment in these projects will boost further demand for the sector.

Others:

Government of India's policy to promote substantial investments in the infrastructure sector comprising of power, communications (roads, railway, air transport & shipping including Airports & Ports), telecom, urban infrastructure coupled with ambitious plans drawn up by the core sectors of the economy namely power, coal, steel, cement and mining is expected to generate substantial demand for mining and construction equipment in the coming years.

Power, ports, airports, urban infrastructure sectors are expected to be taken up in a big way.

As per the industry estimates, projections for future turnover in this sector is expected to reach Rs.7300 crores in 2005-06, Rs.8400 in 2006-07 and Rs.9950 in 2007-08.

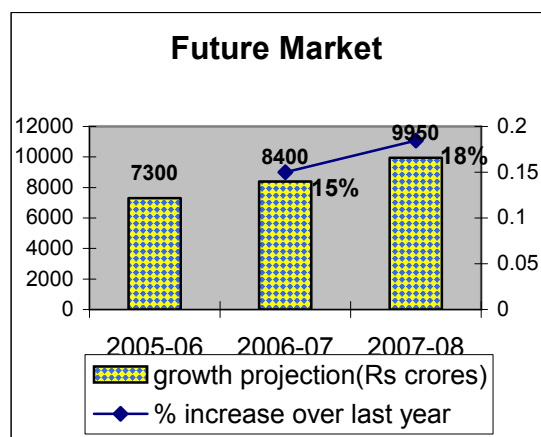


Chart 19

In terms of the international scenario, the growth in the mining industry was strong during the year especially in Chile and China. Australia and South Africa reached historic growth levels. Prices continued to be favorable for the mining industry both for base and precious metals. The growing demand in China for metals by the construction and general engineering industry was a decisive factor for the increase in prices for base metal. The construction industry continued to grow during 2004 although with regional variations. Development in North America and Asia were positive, while it was weaker in Europe. In China the construction industry's output value rose by more than 20%.

The foreign investment gross inflows in the mining sector in Chile have increased from \$ 350 million in 2004 to \$ 748 million in 2005. Since the beginning of 2005, BHP Billiton has invested \$ 19 billion in Australia, \$ 10 billion on takeovers and about \$ 9 billion on new and established projects. In 2004-05 the value of Australia's overall mine production has jumped 29% to \$ 66 billion in 2005-06. The continuing surge in prices and demand is expected to lift the total value of production to \$ 84 billion in 2005-06.

The capital expenditure on mining in Australia has grown by \$ 31 billion in the last three years.

Mine Investments in 2004	
Country	Billion USD
Africa	15
Australia	14
Asia	13
North America	12
Chile	12
Peru	8
South Africa	7
Canada	7
Brazil	7
USA	4

Source: Raw Materials Data, Stockholm, Sweden January 2005

Investments by the mining and mineral industry saw an increase as a result of the strong international demand for metals.

This high investment in mining has encouraged world leaders like Komatsu to invest in two new plants to expand its production capacity of large equipment. (Komatsu press release dated 14-10-'05).

The U.S. economy is growing at more than 3%, employment is increasing only slightly faster than the growth of the labor force, and core inflation is 2%. Interest rates should continue to support growth, particularly in business investment, and the economy should grow at more than 3.5% in 2005. The Canadian economy, benefiting from low interest rates and high commodity prices, should grow at about 3% in 2005. Demand is expected to be higher with rapid growth in both mining and non-residential construction sectors.

The Euro-zone economies appeared to improve from the end of 2004, and the European Central Bank is expected to hold interest rates steady through the middle of the year. Overall European growth is expected to exceed 2% in 2005, somewhat better than in 2004, and construction spending should continue to recover. It is anticipated that economies in Africa and the Middle East will grow at about 4.5%, with the Commonwealth of Independent States by more than 6%. Both regions will benefit from favorable commodity prices and increased production of materials and energy hence pushing up the demand for mining equipment.

Economies in Latin America should grow at more than 3.5% in 2005, as a result of favorable metals and energy prices. Increased capital inflows and a more favorable foreign debt profile. Both mining output and construction spending will increase. Exporters can expect good demand from Latin America.

Asia/Pacific: The regional growth is expected to average about 6% this year, with most countries slowing from last year's pace. Low interest rates should prolong recoveries in consumer spending and business investment, while competitive exchange rates are likely to boost exports. Fast growth in the region, which has taxed infrastructure capacity and should prompt Governments to increase infrastructure spending. Reconstruction in areas hit by the tsunami will require additional machines. In China, Government administrative measures are expected to continue, causing sales into that country to decline.

The sharp increases in commodity prices over the past few years in the context of the growing demand and the weaker US dollar, has led to a revival of the global mining industry, which has outperformed the rest of the market since 2003. This is also reflected in investor confidence in mining companies as illustrated by the Dow Jones Industrial Indices over the past three years.

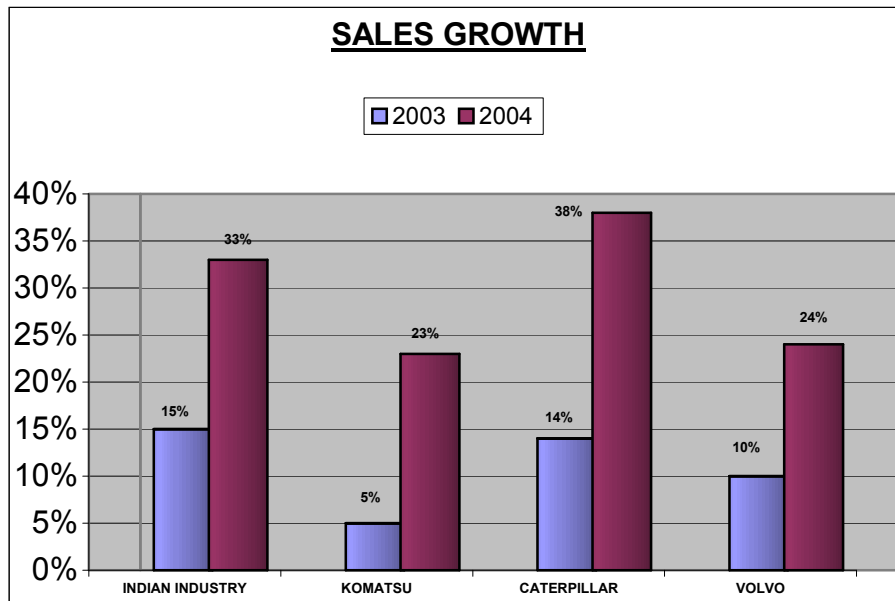
This is a complete reversal of the "sunset" industry status which had been the trend over the last two decades.

The demand growth for the equipment industry in India has been at a level of 33% in 2004-05 compared to 24% in 2003-04.

The equipment market in India as well as globally has grown annually at approx 15 - 25% in the last two years. The growth rate has been higher in 2004-05.

The main reason for the strong rise in sales were continued high activity in the mining industry and the favorable development in the construction industry market worldwide.

No major structural changes in the industry were reported during 2004. The consolidation among the small and medium sized competitors continued. The overall business environment remained positive in most markets with the exception of a significant slow down in China during the second half of the year due to the Governmental measures taken to slow the economy. These actions had an impact on the total market for excavators. Other areas impacting general business conditions for the industry in 2004 were currency developments with a weakening of the US\$ and cost increases and supply shortages of raw material such as steel and rubber.



(All figures pertain to the parent companies)

Chart 20

While the global economic growth is expected to slow slightly compared to last year, indicators suggest that the global markets for equipment will continue to experience solid growth. The year will benefit from improved price realization, increased volume, manufacturing efficiencies and an intensified focus on cost structure by all companies. Material cost pressures will continue for the first half of 2005, with some relief expected in the last six months with the stabilization of steel prices. As a result, the latter half of 2005-06 will be stronger. It is also evident from **Annexure-V** that the percentage growth in exports from India to various world markets has shown an increasing trend.

However, most of the companies who have technological tie-ups with world leaders are constrained in their agreements to export beyond the SAARC countries. Only companies who have developed innovative products over the years and are manufacturing equipment based on their own innovation and R&D are exporting worldwide.

Out of the companies surveyed, only 75% of them exported their products to either other customers, or to their own parent company.

The following is a graphical representation of the percentage of companies exporting to the various countries. Some of the companies are exporting equipment back to the parent company.

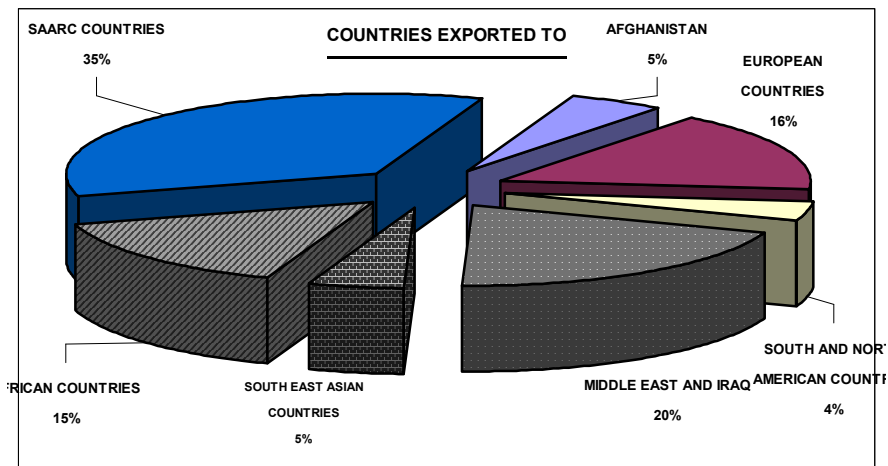


Chart 21 Source : Compiled by CII from CMIE data

The export opportunities have increased in countries like Iraq and Afghanistan which are trying to rebuild themselves. A number of other countries in the Gulf are also investing in infrastructure while countries like South Africa are investing in mining. Indian companies have made forays into these regions with success. However export to sales is very low at 5% of its sales.

ROADMAP

The Indian mining and construction equipment industry has evolved primarily on the basis of domestic demand generated over the various plan periods, essentially on the basis of investments which have gone into mining, infrastructure development and the building and construction sector. Today it is still focused largely on the domestic market and exports are marginal at a level of around Rs.300 crores for an industry approaching a market size of Rs.7,000 crores.

The opening up of import competition has led to tightening up in operational efficiencies across the entire sector. The larger companies who are market leaders and who have overseas tie-ups have been the first in their respective product groups to start benchmarking with global efficiency levels. The survey results have revealed that in many respects they are still far behind global

benchmarking norms. However, the customers in the mining and construction sectors are increasingly becoming conscious of quality, productivity and down time and demanding better performance from Indian suppliers who have been complying with the expectations of the market due to the threat of import competition. This process is expected to accelerate. The survey results have identified some of the areas where operational efficiencies are required to improve. Indian companies need to become more mindful of this.

The industry is expecting a process of consolidation to take place. This is expected to pick up with the entry of the remaining global majors who are yet to set up bases in India. Expectedly, the route for consolidation will be through mergers and acquisitions where the smaller units who are unable to stand the process of competition will ultimately sell up to the larger players in the market.

While the Indian companies will certainly base their business decisions on the basis of expectation of demand in the Indian market, the industry's perspective on the export market is required to undergo a transformation in order to provide long-term buoyancy in terms of demand for their Indian operations which may not necessarily be entirely dependent on the investment cycle in infrastructure and mining in the Indian economy. The report has also tried to outline the fact that very significant investments are being made in capital expenditure by the global mining majors and countries like Australia, China and Chile are embarking on huge capital investments to develop mines and enhance expectations seen in conjunction with the expected investment in construction, this augurs well for the equipment producing industry the world over. In such a scenario, India can emerge as a lower cost sourcing hub for equipment. To some extent this trend is already in evidence, for example Caterpillar Inc. is producing some equipment for the South East Asian market in India. It is expected that this trend will only enhance and gain further momentum. In the circumstances, it is all the more important for Indian companies to pay attention to achieving global levels of efficiency and productivity in order to meet the challenges of the external market. There are certain advantages which Indian companies have in terms of lower cost for labour and design engineering. This can be leveraged to provide cost efficiencies and support strategies aimed at selling comparable equipment at lower prices. Hence productivity will have to improve significantly.

A manufacturer's competitiveness in today's terms is not limited to products but extends to customer support. Capital goods are expected to meet the needs of customers more so construction and mining equipment whose productivity and performance is directly linked to the customers' profitability.

The availability of sophisticated equipment results in higher quality work, shorter turnaround time, less delays due to lower downtime and maintenance and hence less cost overruns.

Here it is very important for manufacturers to produce machines which meet the expectations of customers, be it improving operating efficiencies, or reducing costs of deployed machines. In this respect Indian companies need to further improve their

after-sales service through better customer relationship management, training and product support. However, it is important to note that the demand for greater mechanization and productivity will largely come from the large-scale mining operations. There are a large number of small mines in India which will continue with lower levels of mechanization.

Companies need to increase their spending on training and focus on human resources development to attain a highly motivated, knowledgeable and trained sales and service force to offer better customized solutions.

Companies need to enhance their spending on R&D to develop new innovative product and ways and means to improve their products in terms of power to load ratio, SHE policies, reducing operating costs and usage of better materials. The domestic industry suffers due to poor aesthetics of finished products since research on material engineering is not upto international standards due to high investments required. World leaders are constantly researching and coming out with new models with the latest features at regular intervals and this can be achieved by Indian companies by allocating higher amounts for R&D since the testing equipment required for R&D labs are very expensive.

Companies also need to invest more into their R&D to produce equipment without the help of foreign technology otherwise they will be restricted in their global market access.

Quality is another aspect, which affects the productivity and life of a machine. Though the quality consciousness of the industry is fairly high as compared to other sectors, the industry needs to educate and encourage its sub-suppliers to attain higher quality standards. The industry should procure components from ISO certified companies thereby forcing more and more sub-suppliers to be ISO compliant.

To increase the inventory turnover, companies need to focus on their supply chain management.

The industry needs to invest a substantial amount into IT for ERP or SCM to further reduce their working capital requirement by better inventory management and debtor management to achieve better return on the capital employed. This will also ensure better customer servicing by catering to demand faster.

Companies need to relook at their business processes to reduce cost to offset the increasing raw material prices. Since a substantial amount of bought-outs are imported, the industry needs Government support for better infrastructural facilities for importing and easier procedures, which will reduce the turnaround time and allow the companies to carry low inventory levels.

- There are a few components like
 - Hydraulic control valves (main)
 - Slewing rings
 - Anti friction bearings (taper roller, spherical roller and cylindrical roller bearings) 75 mm and above shaft dia.

Hub reduction axles and transmissions for wheel loaders, backhoe loaders, dumpers, grader and compactors.

High pressure hoses (base hose)

Abrasive resistant steel plates

Micro processors

Large size springs (50 dia. Wire)

and some specialized bearings which are not manufactured in India.

- GOI may consider bringing down the customs duties on these components to a minimum of 5% to make the cost of equipment competitive. There are a number of proprietary critical items which have to be imported by a majority of the manufacturers. These items may be given a reduction in duty to make the cost of equipment cheaper and competitive in the export market.

In spite of the sharp hike in steel prices, profitability has been better in the last two years due to increased sales, better sales price, strengthening of the Rupee and continued efforts to reduce production costs. The cost of production needs to be further reduced and hence companies need to work upon human resources management to improve employee productivity.

This can be tackled by proper training of manpower, proper utilization of the right talent in the right place which is presently lacking in the manufacturing industry.

Average employee wages needs to be increased to attract and retain talent considering the skewed aptitude of the budding engineers and technicians towards IT industry.

Value addition of the industry is comparatively low at 37%.

Import of new as well as second hand machines is leading to an unhealthy price competition and creating pressure on margins considering the increasing steel prices.

The following recommendations therefore require consideration: -

1. Import of second-hand machinery more than 7 years' old should be allowed only at a duty which is equivalent to its bound rate.
2. The port of entry for imports of second hand machinery should be restricted to one or two for effective monitoring to avoid dumping of obsolete technology.
3. Manufacturers of Capital Goods should be allowed to import second-hand machinery upto 10 years' old without export obligation.
4. The importer should be required to furnish a clearance certificate from a Government recognized certification agency of the country of origin. Customs clearance should be dependant on obtaining such clearance certificate from the nominated agencies.

5. In the case of construction machinery, the equipment imported should be compliant with the standards set by the Society of Automotive Engineers (SAE), American Society of Mechanical Engineers (ASME), American Society of Automotive Engineers (ASAE) and Organisation of Safety and Hazard (OSHA).
6. Such equipment, after customs clearance, should meet the CMVR stipulations on homologation, including emission norms for which clearance should be obtained from ARAI, or its equivalent, as may be specified. The importer should thereafter furnish the equipment for testing and clearance.
7. Customs duty for imports from all countries should be uniform.

As far as the domestic market is concerned, there are some inherent disadvantages faced by Indian companies in regard to a level playing field.

To ensure a level playing field for the indigenous manufacturers, the following Customs notification should be reviewed.

Customs Notification No. 85/99 dated 06-07-'99 issued by MOF, allows import of goods at "Nil" rate of duty for execution of projects, financed by United Nations, World Bank, Asian Development Bank and other international organizations, approved by the Government of India. With regard to road projects, funded by the above agencies, imports of construction equipment are being allowed to contractors for execution of projects at "zero" duty (Basic + CVD) whereas indigenous manufacturers of such equipment like excavators, compactors, wheel loaders, etc have to pay a basic customs duty of 12.5% on their imported inputs.

Some of these measures need to be considered by Government in order to compensate for the disadvantages faced by domestic manufacturers.

- Excise Duty on Earthmoving and Construction Equipment has progressively gone up from 8 to 16% in the last decade. Excise Duty on these equipment is not eligible for CENVAT set-off. In order to reduce the cost of infrastructure projects, Excise Duty should be reduced from 16% to 8%.
- To ensure a level playing field, GOI should eliminate 0% customs duty or should impose 4% countervailing duty under Section 3(3) of the Customs Act on all capital goods and project imports attracting Nil customs duty to counter balance internal taxes such as CST on indigenous capital goods.

Free Trade Agreements (FTAs) and Preferential Trade Agreements are being signed by India with different countries and regions. However, the industry feels that there is a need to be cautious and these agreements need to be carefully addressed so as not to affect the domestic manufacturers who have developed the products by investing in manufacturing and R&D. Such equipment need to be on the negative list.

<u>BENCHMARKING - 2004</u>				
	Indian Companies	Caterpillar	Komatsu	Volvo
	(Rs. in crores)	(\$ Mn.)	(Yen Mn.)	(SEK M)
Group sales		30251	1434788	202171
Segment sales	6300	28336	1061161	28685
Cost of sales		--	1066887	--
Operating income		--		1572
Inventory		4675	307002	28598
Receivables		7459	139559	39065
Employees		76920	--	9930*
PBIT		2937	109912	
PAT		1976	41951	
% increase in segment sales	33	38%	23%	28%
% increase in operating profit over the previous year	More than 95%	46%	45.5%	75%
Inventory turnover	4	6.5	4.7	7
R&D as a % of sales	0.6	3.1	3.2	3.4
No. of days sales outstanding	83	90	36	70
Sales per employee (Rs. Lacs)	35	173+		162+
PBIT / Sales	12	6.7%	7.7%	9%

* for the segment

+(1 US\$=Rs.44, 1 SEK=Rs.5.80)

EXPORTS FOR CONSTRUCTION AND MINING EQUIPMENT

Commodity: 8427 FORK-LIFT TRUCKS;OTHER WORKS TRUCKS FITTED WITH LIFTING OR HANDLING EQUIPMENT **Unit:**

S.No.	Country	Value in Rs. Lacs			Quantity in thousands		
		2003-04	2004-05	%Growth	2003-04	2004-05	%Growth
1.	AFGHANISTAN TIS	41.85					
2.	ALGERIA	153.95					
3.	AUSTRALIA	0.96					
4.	BAHARAIN IS	56.11	35.85	-36.12			
5.	BANGLADESH PR	0.39	6.98	1,666.49			
6.	CHAD		21.63				
7.	TAIWAN		0.59				
8.	EGYPT A RP	223.34					
9.	ETHIOPIA		8.63				
10.	GERMANY	17.63					
11.	GHANA		8.31				
12.	IRAN	11.36	7.07	-37.76			
13.	IRAQ	8.13	204.15	2,410.14			
14.	KENYA	16.07	16.08	0.02			
15.	KUWAIT	72.02	29.95	-58.42			
16.	LIBYA	34.94	50.03	43.17			
17.	MADAGASCAR		10.70				
18.	MOROCCO		10.96				
19.	NEPAL		0.13				
20.	NIGERIA	46.95	91.52	94.95			
21.	OMAN	5.82	61.20	950.77			
22.	QATAR	11.89	27.80	133.83			
23.	SAUDI ARAB	40.07	135.03	237.00			
24.	SINGAPORE		2.56				
25.	SRI LANKA DSR	38.13	29.83	-21.76			
26.	SUDAN	14.42					

27.	TANZANIA REP	39.83	30.86	-22.51			
28.	TOGO	4.08					
29.	TUNISIA		5.22				
30.	TURKEY		16.81				
31.	UGANDA		17.67				
32.	U ARAB EMTS	313.12	174.85	-44.16			
33.	U K	4.64	66.38	1,330.48			
34.	U S A	5.43					
35.	UZBEKISTAN		10.99				
36.	YEMEN REPubLC		1.93				
	Total	1,161.16	1,083.71	-6.67			

Commodity: 8429 SLF-PRPLD BULLDOZERS, ANGLE DOZERS, GRADERS
 LEVLRS,SCRPRS,MCHNCL SHOVLs,EXCVTRS,SHOVL LOADERS,TAMPING
 MACHINES & ROAD ROLLERS **Unit:**

S.No.	Country	Value in Rs. Lacs			Quantity in thousands		
		2003-04	2004-05	%Growth	2003-04	2004-05	%Growth
1.	AFGHANISTAN TIS	423.16	285.73	-32.48			
2.	AUSTRALIA		3.01				
3.	BANGLADESH PR	333.11	54.72	-83.57			
4.	BELGIUM		23.41				
5.	BHUTAN	85.52	52.22	-38.94			
6.	BOTSWANA		10.23				
7.	CHILE	285.41					
8.	CHINA P RP		143.78				
9.	DJIBOUTI		354.77				
10.	ETHIOPIA	36.98					
11.	FRANCE		3.29				
12.	GAMBIA		25.40				
13.	GEORGIA	658.25	521.39	-20.79			
14.	GERMANY		262.56				
15.	GREECE		25.27				
16.	GUINEA		2.99				
17.	HUNGARY		11.93				

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18.	IRAN	57.16	587.58	927.96			
19.	JAPAN	0.30					
20.	KAZAKHSTAN	350.16					
21.	LIBYA	228.53	81.97	-64.13			
22.	MALAYSIA	202.16					
23.	MALDIVES		581.74				
24.	MONGOLIA	67.61	179.67	165.74			
25.	NEPAL	46.18	40.24	-12.85			
26.	NETHERLAND	0.89					
27.	OMAN		96.26				
28.	PAKISTAN IR		4.83				
29.	SAUDI ARAB	376.66					
30.	SINGAPORE		75.46				
31.	SOUTH AFRICA	370.68	196.89	-46.88			
32.	SRI LANKA DSR	111.41	346.25	210.79			
33.	SUDAN	1.47	76.22	5,084.21			
34.	SURINAME		816.17				
35.	SWEDEN		1.16				
36.	SYRIA	966.05	970.96	0.51			
37.	TANZANIA REP	16.47	73.81	348.24			
38.	THAILAND		0.67				
39.	TOGO	5.82					
40.	TUNISIA	191.73					
41.	UGANDA	9.54					
42.	U ARAB EMTS	32.91	895.76	2,621.66			
43.	U K	9.44					
44.	U S A	66.59	758.09	1,038.44			
45.	VIETNAM SOC REP	58.30					
46.	YEMEN REPubLC		66.57				
47.	ZAMBIA	37.85					
48.	UNSPECIFIED	218.63					
	Total	5,248.95	7,630.99	45.38			

Commodity: 84303110 COAL MINING MACHINERY (COAL CUTTERS)

Unit: NOS

S.No.	Country	Value in Rs. Lacs			Quantity in thousands		
		2003-04	2004-05	%Growth	2003-04	2004-05	%Growth
1.	FRANCE	2.37	19.19	708.55	0.00	0.00	200.00
2.	IRAN	8.10			0.00		
	Total	10.48	19.19	83.15			

CRANES**Commodity:** 842611 OVERHEAD TRAVELLING CRANES ON FXD SUPPORT**Unit:**

S.No.	Country	Value in Rs. Lacs			Quantity in thousands		
		2003-04	2004-05	%Growth	2003-04	2004-05	%Growth
1.	BAHARAIN IS		8.52			0.00	
2.	BANGLADESH PR	53.79	47.98	-10.80	0.01	0.00	-33.33
3.	BHUTAN		92.10			0.01	
4.	EGYPT A RP	129.99			0.00		
5.	ETHIOPIA	4.12			0.00		
6.	IRAN		122.93			0.01	
7.	KUWAIT	152.62			0.01		
8.	MALAYSIA		1.48			0.00	
9.	MAURITIUS		12.60			0.03	
10.	MYANMAR		146.23			0.01	
11.	NEPAL	1.73	7.68	345.40	0.00	0.00	100.00
12.	NIGERIA	16.41			0.00		
13.	OMAN	21.56	19.02	-11.79	0.01	0.00	-33.33
14.	QATAR	6.71			0.00		
15.	SAUDI ARAB	0.49	53.35	10,755.42	0.00	0.00	0.00
16.	SRI LANKA DSR	186.53	23.57	-87.36	0.01	0.00	-72.73
17.	SURINAME		116.06			0.01	
18.	SYRIA	50.58			0.00		
19.	TANZANIA REP	6.52			0.00		
20.	TRINIDAD		4.66			0.00	

21.	U ARAB EMTS		35.18			0.01	
22.	U S A		82.20			0.03	
23.	ZIMBABWE	15.79			0.00		
	Total	646.85	773.58	19.59			

Commodity: 842620 TOWER CRANES Unit:

S.No.	Country	Value in Rs. Lacs			Quantity in thousands		
		2003-04	2004-05	%Growth	2003-04	2004-05	%Growth
1.	BAHARAIN IS	0.59			0.00		
2.	BANGLADESH PR	115.79			0.02		
3.	BHUTAN	20.22			0.00		
4.	IRAN		149.46			0.01	
5.	KENYA	3.43			0.00		
6.	KUWAIT	38.62			0.00		
7.	NIGERIA	10.50			0.00		
8.	OMAN	8.47			0.00		
9.	PHILIPPINES	5.06			0.00		
10.	POLAND	127.84			0.00		
11.	SAUDI ARAB		30.64			0.00	
12.	SRI LANKA DSR	67.94			0.00		
13.	U ARAB EMTS		26.18			0.01	
14.	YEMEN REPUBLC		29.00			0.00	
	Total	398.45	235.28	-40.95			

ANNEXURE-VI

INDIAN MINING AND CONSTRUCTION PROJECTS

	Authorizer	Home Country	Description of Project	Host Country	Projected Amount (Rs.Crores)	Date of Expiry
1	Jindal Steel and Power Vedanta	India	Mining project	India	12500	No expiry
2	Resources	India	Iron ore mining	India	12500	

	Company name	Project Name	Location	Capacity	Target date of commissioning	Cost (Rs.crores)
3	Maharashtra State Road Development Corporation Ltd	Worli Nariman Point road project	Maharashtra	14.77 km	31.12.2006	2800
4	Sethusamudra n Corporation Ltd	Sethusamudra m Ship Canal project	Tuticorin district of Tamil Nadu			2427.4
5	Hyderabad Urban development Authority	Greater Hyderabad Growth corridor project	Andra Pradesh	158 km	31.12.2008	1410
6	Haldia Dev. Authority	Bridge construction	Haldia & Nandigram			75
7	Ministry of North East (DONER)	Infrastructure project	North East	345 km		282

8	Ministry of North East (DONER)	Infrastructure project	North East	940 km	1042
9		Construction of 595 stop dams	Chattisgarh		1657.26

	Company name	Project type	Capacity	Location
10	Sonepur Bazaar Mine	Mining project	8 mntpa	Sonepur
11	Chitra Mine project	Mining project	2 mtpa	
12	Highwall Mining project	Mining project	3.2 mntpa	Sripur

RAILWAY OVER-BRIDGES TO BE TENDERED BY RBDCK				
SI.No	Name of ROB	Location	L.C.No. Rly. Kms	Status
1	Kanhangad Town	Kanhangad Yard	274 816/13-14	GAD Approved by Railways
2	Cheruvathore (Padanna Road)	Cheruvathore Yard	268 801/9-10	GAD Approved by Railways
3	Payyannore	Payyannore - Cheruvathore	261 787/15	GAD Approved by Railways. Land acquisition in progress
4	Canannore Town	Canannore and Canannore South	241 752/1-2	GAD Approved by Railways
5	Tellichery	Mahe- Tellicherry	228 731/13-14	GAD Approved by Railways
6	Jaganatha Temple Gate	Mahe- Tellicherry	226 730/7-8	GAD Approved by Railways.
7	Kunhippally	Mukali - Mahe	217 721/6-7	GAD Approved by Railways. Land acquisition in progress
8	Kainatty Road	Badagara - Mukali	216 714/14	GAD Approved by Railways. Land acquisition in

				progress
9	Koilandy	Elathur and Quilandy.	201 688/2-3	GAD Approved by Railways. Land acquisition in progress
10	Amalapuri - 4 th Gate	Calicut and Vellayil	185 666/3-4	GAD Approved by Railways
11	Panniyankara (Deposit Work)	Feroke and Kallai	178 662/5-6	GAD to be Approved by Railways
12	Parappangady	Parappanangady and Vallikkunnu	174A 639/14-15	GAD Approved by Railways. Land acquisition in progress
13	Devdhar	Tirur and Tanur	172 629/11-12	GAD Approved by Railways. Land acquisition in progress
14	Thirunavaya	Thirunavaya Yard	170 615/3-4	GAD Approved by Railways. Land acquisition in progress
15	Palghat Town - Commonwealth	Palghat and Palghat Town	52 56/4-5	GAD to be approved by Railways
16	Mulamkunnathukavu Yard	Mulamkunnathukavu and Poomkunnam	14 23/5-6	GAD Approved by Railways. Land acquisition in progress
17	Trichur Town	Poomkunnam and Trichur	19 30/14-15	GAD Approved by Railways
18	Nandikkara	Pudukkadu - Irinjalakkuda	31 49/2-3	GAD Approved by Railways. Land acquisition in progress
19	Aloor-Mala Road	Irinjalakkuda - Chalakkudy	45 58/2-3	GAD Approved by Railways. Land acquisition in progress

20	Vellanchira	Irinjalakkuda - Chalakkudy	46	60/15	GAD Approved by Railways. Land acquisition in progress
21	Divine Nagar	Chalakkudy - Karukutty	52 12	65/11-	GAD Approved by Railways. Land acquisition in progress
22	Puliyanam Road	Karukutty and Angamali	59 13	74/12-	GAD Approved by Railways. Land acquisition in progress
23	Nedumbassery	Angamali and Chowvara	64 13	80/12-	GAD to be approved by Railways
24	Vaduthala	Kalamassery and Edappally	69 11	101/10-	GAD to be approved by Railways
25	Pachalam	Kalamassery and Edappally	71 102/13-14		GAD to be approved by Railways
26	Atlantis	Ernakulam and Thirunettoor	76T 10	1/9-	GAD to be approved by Railways
27	Kollam Town	Quilon and Mayyanad Stations	541 156/8-9		GAD Approved by Railways

Projects Under Construction for Neyveli Lignite Corporation

Mine-II Expansion (4.5 MTPA)

Govt. of India has sanctioned the expansion of Mine-II from 10.5 million tonnes per annum (MTPA) to 15.0 MTPA of lignite on 18 October 2004 at a capital cost of Rs.2161.28 crores, with a schedule of lignite production on 53 month and attaining full capacity on 57 month from the date of sanction of GOI. Orders for execution of contracts for all major mining equipment and conveyor systems have been issued.

TPS-II Expansion (2x250 MW)

Government of India sanctioned the installation of 2 units of 250 MW for expansion of Second Thermal Power Station on 18 October 2004 at a cost of Rs.2030.78 crores, with a scheduled commissioning of Unit-I on the 53 months and for Unit II on the 57 month from the date of sanction of GOI. Tendering activities are in progress.

Barsingsar Mine Project (2.10 MTPA)

GOI has sanctioned the Barsingsar Mine Project on 15 December 2004 at a capital cost of Rs.254.07 crores, with a schedule of lignite production on 45 months and attaining full capacity on the 54 months from the date of sanction of GOI. Tendering activities are in progress.

Barsingsar Power Project (2x125 MW.)

Government of India sanctioned the installation of 2 units of 125 MW in Barsingsar Power Project on 15 December 2004 at a cost of Rs.1114.18 crores, with a scheduled commissioning of Unit-I on the 48 months and for Unit II on the 54 months from the date of sanction of GOI. Tendering processes are in progress.

COAL INDIA LIMITED

1. ECL – Rajmahal : 6.5 million tonnes (MT)(Expansion from existing 10.5 MT to 17.0 MT)
2. CCL – Magadh & Amrapali Green-field Projects – 10 million tonnes, each

TATA STEEL LTD.

1. Kalinga Steel – 6 million tonnes Steel (Iron Ore Mining – 10.6 million tonnes)
2. Tata Steel , Jamshedpur expansion from existing 5 MT to 7.4 MT Steel by 2010 meaning Iron Ore Mining Expansion from existing 9 MT to 13 MT by 2010

Captive Coal Mining,

1. TISCO, West Bokaro Collieries SEB – 2.5 million tonnes by 2007
2. North Eastern Block - 2.5 million tonnes by 2010.
3. Kotra Basatpur – 2.5 million tonnes by 2008.

ALUMINIUM

1. NALCO - 2.56 MT Expansion of Bauxite Mining by 2007.
2. Vedanta Alumina, Langighar, Orissa – 2.1 MT Bauxite Mining by 2007.
3. Aditya Alumina , Koraput, Orissa – 1.16 MT Bauxite Mining by 2007

SAIL

1. SAIL would require 32.5 million tonnes of iron ore per annum for which RMD has been working on the expansion plan.
2. The major projects identified are capacity expansion of Bolani mines to 5 million tonnes per annum and development of central block at Meghahatuburu mine to 4.3 million tonnes per annum.
3. RMD would also develop the south block at Kiriburu and increase its production to 4.25 million tonnes per annum. The division has planned to develop the Taldih block and a new mine at Thakurani.
4. RMD had taken steps to improve the iron ore quality by optimising the washing plant at Meghahatuburu by introducing stub-cyclones and replacement of old liners among others.

LIST OF NEW PROJECTS FROM MINISTRY OF COAL**NEW PROJECT - SANCTIONED BY COAL INDIA LTD.**

Sl. No.	Name of the projects	Company	Capacity (Mty)	Capital cost (Rs. Crs)
1	VIJAY WEST UG	SECL	0.50	63.56

NEW PROJECTS (MINING) - SANCTIONED BY THE SUBSIDIARIES

Sl. No.	Name of the projects	Company	Date of Sanction	Capacity (Mty)	Capital cost (Rs. Crs)
1	GONDEGAON EXPN, OC	WCL	Sep-04	0.75	27.54
2	AMGAON OC	SECL	Jun-04	1.00	39.28
3	BELPAHAR EXPN. OC	MCL	Aug-04	1.50	35.47
4	SAMALESWARI EXPN. OC	MCL	Nov-04	1.00	28.69
5	CHINCHOLI UG / INDER UG TO OC	WCL	Dec-04	0.30	15.00
6	YEKONA-I OC	WCL	Dec-04	0.40	22.74
	TOTAL			4.95	168.72

NEW PROJECTS (MINING) - SANCTIONED BY THE SUBSIDIARY COMPANIES OF COAL INDIA LIMITED

Sl. No.	Name of the projects	Company	Capacity (Mty)	Capital cost (Rs. Crs)
1	GOLUCKDIH, OC	BCCL	1.20	12.27
2	DAMODA B-J, OC	BCCL	0.60	7.78
3	CHAPTORIA, OC	BCCL	0.50	7.12
4	YEKONA-II, OC	WCL	0.60	48.05
5	BHANEGAON, OC	WCL	0.60	30.44
6	PAUNI-II, OC	WCL	0.60	28.11
7	HALDIBARI, UG	SECL	0.42	47.59
8	BAROUD, OC	SECL	1.00	28.02
9	CHHAL, OC	SECL	1.00	19.99
10	KETKI UG	SECL	0.42	46.24
11	BINKARA UG	SECL	0.36	41.98
	TOTAL		7.30	317.59

RPR SANCTIONED BY THE SUBSIDIARY

	Name of the project	Company	Capacity (Mty)	Capital cost (Rs. crores)
1	KHANDRA NKJ UNIT UG	ECL	0.29	18.81

OVERSEAS PROJECTS

	Authorizer	Home Country	Description of the Project	Host Country	Projected Amount (Rs. Crores) [1 USD= Rs 45.27] and 1 RAND = RS.6.78 and 1 EURO = Rs 53.65	Date of Expiry	Funding Authority
1	Daewoo Engineering and Construction Ltd	Korea	Construction of motorway	Korea	1697.6	2009	ADB
2	Gansu Provincial Communications Department	China	Road Development	Gansu Province, China	1358.1	2009	ADB
3	Mine Restructuring Company	Poland	Poland-Hard Coal Mine Closure Project	Poland	837	31.03.08	
4	Thai Government	Thailand	Construction of motorway section and bridge	Thailand	2500	2007	Thai Govt
5	Sichuan Provincial Communications Department	China	Central Sichuan road development	Sichuan Province, China	2716.2		ADB
6	Ministry of Railways	China	Zhengzhou-Xi'an road development	China	1810.8		ADB
7	Barrick	Canada	Pascua-Lama copper and gold project	Argentina/ Chile	6564.15	scheduled to start production by 2009	

8	Xstrata	Switzerland	Exploration and possible exploitation of Las Bambas copper deposit	Peru	5264.9		
9	BHP Billiton	Australia	Development of Spencer copper mine	Chile	4527		
10	Rio Tinto	Australia	Expansion of existing iron ore operations and improvement of rail and water infrastructure	Brazil	4527		
11	African Rainbow Minerals & LionOre Mining International	South Africa	Nkomati nickel-mine expansion project, Mpumalanga	South Africa	1695	Jan-07	
12	Sasol Mining	South Africa, Secunda	Irenedale coal mine project	South Africa	183	Aug-07	
13	Metorex Limited	South Africa	Ruashi copper/cobalt mining project	South Africa	305	schedule d to start by 2006	
14	Cortez Joint Venture-Placer Dome and Kennecott Minerals Company	South Africa	Cortez Hills Gold Exploration Project	South Africa	166.11	2009	
15	Motapa & Caledonia	South Africa	Mulonga Plain Drill programme, Zambia	South Africa	23		
16	Mag Industries	South Africa	Kouilou magnesium project	South Africa	2263.5		

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17	Kenmare resources	South Africa	Moma Titanium minerals project	South Africa	2037.15	end 2006	
18	Mittal steel and Liberian Government	South Africa	Mining iron ore reserves in Western Liberia	Liberia	4074.3		
19	Mototolo JV - Xstrata and Angloplat	South Africa	Development of platinum group metals mine	South Africa	91530	2007	
20	QIT Madagascar Minerals	South Africa	Madagascar titanium dioxide project	South Africa	3508.42	2008	
21	Anglo Platinum	South Africa	Turffontein replacement ore reserve platinum project	South Africa	393.24	end 2006	
22	Anglo Platinum & Bafokeng Community	South Africa	Bafokeng Rasimone platinum extention project	South Africa	813.6	2009	
23	Spoornet	South Africa	Linking coalfields of Mpumalanga to Eskom	South Africa	1084.8	2010	
24	Implats	South Africa	Development of No.16 shaft	South Africa	3051		
25	Arm & Implats	South Africa	Development of a new platinum group metal mine	South Africa	813.6	end 2006	
26	African Platinum	South Africa	Establishment of a platinum mine	South Africa	1288.2		
27	Ministry of Public Works, Department of Infrastructure	Eritrea	Road Sector Project	Eritrea	108.6		World Bank
28	Road Development	Sri Lanka	National Highways	Sri Lanka	475.33		ADB

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	Authority		Sector Project				
29		Brazil	Minas Gerais Municipal Road Access	Brazil	226.35		Inter American Development Bank
30		Columbia	Road Management project	Columbia	226.35		Inter American Development Bank
31		Costa Rica	San Jose-San ramon Toll Road Development	Costa Rica	339.52		Inter American Development Bank
32		Guyana	Secondary Roads Program	Guyana	45.27		Inter American Development Bank
33		Albania	Tirana Municipal Roads Development Project	Albania	42.92		EBRD
34	National Rail company for Romania	Romania	Transport Restructuring Project	Romania	1018.5		World Bank
35		Brazil	Espirito Santo State Highways	Brazil	554.55		Inter American Development Bank
36	Bangladesh railway Authority	Bangladesh	Infrastructure project	Bangladesh	362.16		World Bank
37	Bosnia & Herzegovina Railways Public Corporation	Bosnia	Bosnia & Herzegovina Regional Railway Project	Bosnia	386.60		EBRD
38	Afghanistan Ministry of Public Works	Afghanistan	Quasar-Bala Murghab Road Project	Afghanistan	248.98		ADB
39	Ministry of Transport Uganda	Uganda	Road Sector Project	Uganda	189.5		AFDB