



CONSTRUCTION & EQUIPMENTS INDUSTRY IN INDIA

June 2010

Report by the Indo-Italian Chamber of Commerce & Industry

Introduction

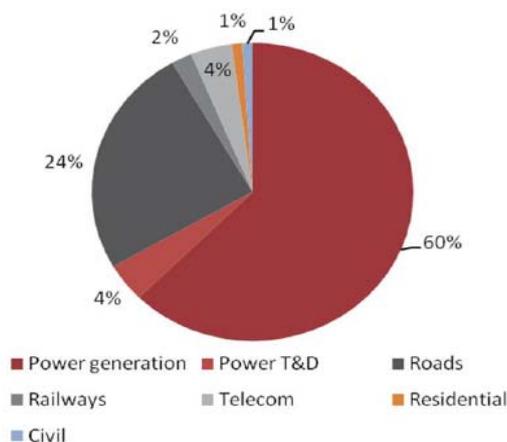
According to *Construction World* update, it has been projected that the present € 1.6 billion construction equipment industry in India is expected to touch about € 10.3 billion. While the current size is just a fraction of the world market, it has been growing between 10-15 % compared to the global growth of around 5%.

The industry has been growing due to the large investments made by the Government [in the form of external borrowings and internal accruals by Public-Private-Partnerships (PPP) model] and the private sector infrastructure developments. The prospects of the construction equipment industry look attractive with a projected investment of US\$ 320 billion in the infrastructure sector over 2007-2010. The Indian market is catered by about 200 domestic manufacturers (small, medium & large). India is one among the top 10 markets for construction equipment and is one of the key international markets. Indian firms are strengthening their existing operations for catering to the growing domestic demand and are also planning to expand to tap overseas markets. At the same time international majors have ambitious plans for India considering that India’s per capita number of machines is very low at 13 machines per million compared to 396 in America and 96 in China.

CONSTRUCTION INDUSTRY

As of 2009, the Indian construction industry, at current prices, contributed more than US\$ 91 billion [€ 62 billion] to the country’s gross domestic product (GDP). It employs more than 18 million people. Construction investments accounted for 11 % of GDP and 50 per cent of gross fixed capital formation. Construction activity has grown at 11 % over the period 2006 to 2009. Construction equipment accounts for 5 % - 24 % of construction project costs. Construction equipment accounts for 22 % of road construction costs.

Indian construction industry split (2009)



Investments & Capacity Expansion for Construction Industry in India

- Investment in safe water supply and sanitation services is expected to touch € 29 billion in 2009–10.
- Urban transport infrastructure investments in cities with populations of 100,000 or more during the next 20 years would be around € 34 billion.
- Investments in urban infrastructure have grown at a CAGR of 12.9 % over the period 2006 to 2009.
- Investments worth € 7 billion are expected in irrigation projects upto 2010.
- Under the plan, € 690 million was allocated for repair, renovation and restoration of 20,000 water bodies with a command area of 1.47 million hectares.
- There is an increased emphasis on state government irrigational activities. For e.g. The Andhra Pradesh government is expected to spend € 6 billion on irrigation projects from 2009 to 2014.
- 60 % of irrigation investment goes into construction, of which 21 % is on construction equipment.
- Investment in Ports, airports and railways to drive construction equipment demand.
- Cargo handled by ports in 2008 was expected to grow at 8 % in 2009.
- Domestic and international inbound and outbound traffic is expected to increase over the coming years.
- The investment in developing airports is likely to be € 6.2 billion upto 2011. The estimated cost in upgrading airports in metros is around € 1.51 billion.
- Gas discoveries are likely to lead to an increase in pipeline networks, spurring demand for construction equipment. An estimated 18,671 km. of a domestic oil and gas pipeline network was expected to be laid over the period upto 2009.
- India is to witness a huge boom in residential, commercial and retail construction. The construction of 16 billion sq ft is expected by 2010. Real estate is likely to account for 61% of total investment in the construction industry over the period 2008 to 2011.
- The organised retail sector in India is expected to grow at a CAGR of 32 % over the next 10 years. Growth in organised retailing would drive organised logistics and warehousing industries.
- Steel majors are undertaking large capacity expansions. The steel industry has an expected capex outlay of € 10 billion to meet the needs of infrastructure projects, consumer durables, automobile and construction industries over the Eleventh Plan period (2007–2012). Steel is expected to register 9 - 10 % growth over the period 2009 to 2014.
- The power sector is expected to see investments worth € 69 billion over the next 10 years for capacity generation addition. Installed capacity is likely to increase to 212,000 MW by 2012 against 115,000 MW at present.
- India has 355 opencast mechanised mines; 73 foreign direct investment (FDI) proposals worth € 570 million in the mining sector are still to be approved. Coal mining accounts for

80 % of mining activity in India. The expected growth in coal mining is 40 % in the next five years and almost double by 2020.

Challenges & Opportunities in the construction sector

The major challenge that the construction industry faces during the next five years, is to raise its delivery capabilities commensurate with the 11th Commission Plan [2007-2012] targets for sectors such as transportation, housing, and urban development. The planned development of infrastructure would face constraints, unless the construction industry improves the delivery potentials by addressing crucial issues and impediments by bringing in systemic changes.

Productivity

- R&D in the construction industry should be seen as a continuing activity, because the scientific and technological advancements are needed to strengthen and raise the technological base of the construction industry. Support to the national institutions engaged in scientific research and incentives for private sector players to undertake in-house R&D need to be provided.
- Introduction of efficient technologies and modern management techniques to raise the productivity of the industry are vital.
- Introduction of new technologies, **construction systems**, and energy-efficient materials (**preferably based on waste recycling**) needs to be adequately emphasized in the national strategy
- For R&D sector, there is a need for developing and introducing use of “marginal materials” to enhance the cost effectiveness of works. Adequate funds should be earmarked in the field of R&D for identification of appropriate and alternate materials to reduce the cost of construction.
- Management of information in contemporary construction projects is one of the biggest challenges that project teams face in the upgradation of productivity levels. Information technology can be leveraged to address issues related to tendering, bidding, bid evaluation, grading of construction entities, project execution logistics, project management, as well as financial accounting and reporting for the construction industry.

Human Resource and Entrepreneurial Development Framework

The major impediments faced by the construction industry in raising the levels of productivity are the acute shortage of skilled manpower, both at worker and supervisory levels, as well as the lack of experienced construction engineers. The construction industry, particularly the highway and road construction sectors, is facing acute shortages of contracting agencies. The present situation is marked by lack of a harmonized skill upgradation and certification programme for construction workers and lack of incentives and regulatory framework to prescribe a certain percentage of trained and certified manpower by the contractors.

There is also a need to encourage adequate intake of civil engineers in engineering institutions to mitigate the existing shortage. A National Plan for training and certification of construction personnel at all levels needs to be developed and implemented.

- **CIDCO (Construction Industry development Council)**, in association with several universities and industry constituents, has offered an **HRD (Human Resource Development) Programme** for the workers from construction industry for last three years. The programme, based on an open learning and distant mode of education, offers 38 trades through 19 centres situated in various parts of the country.

Need to reduce Construction Cost

- Efforts are required to streamline procedures and mechanisms within the industry as well as enhance the levels of quality for the sector as a whole.
- It is estimated that the total cost of procuring, monitoring, and supervising and other indirect costs of construction projects consists of about 22% of the cost of the asset that is created.

Quality and Standards

To make the Indian construction industry more competitive, aspects related to enhanced quality in construction products should be accorded attention at all levels. The inadequate quality in construction works emanates from lack of incentives for inducting new technology, lack of pre-qualification requirements for trained and certified workmen, lack of appreciation for lifecycle costing approach, and lack of adequate R&D. In order to enhance the technological capabilities of the industry, all stakeholders would be required to actively support training and certification levels for skilled workers, supervisors, and managers, and promote construction techniques (such as ready-mixed concrete, pre-fab techniques) that use information technology.

Safety and Related Issues of Construction Workers

Workers employed in construction activity are highly vulnerable segments of the labour force particularly because of its unorganized nature. The workers in construction industry are vulnerable to the inherent risk to their life and limbs. Construction activities are also characterized by poor training, temporary relationships between the employer and the employee, uncertain working hours, lack of basic amenities, inadequacy of welfare facilities, and casual approach of employers towards the problems of employees.

Others

- Enhance capacity building in the construction sector by improving productivity through introduction of **efficient technologies and modern management techniques**.
- Develop a National Plan for **human resource development** through training and certification of construction personnel.

- Accord greater importance to safety in construction activities by establishing trained and certified **Safety Management Teams**.
- Earmark funds in the field of R&D for identification of appropriate and alternate materials to reduce the cost of construction.
- Reduce transactional costs by reviewing contract procedures and dispute resolution mechanisms.
- Enhance quality standards and provision of adequate institutional finance to the construction sector.

EQUIPMENT SECTOR

Product consumption constitutes the bulk of the segment with around 56 per cent while the unorganized sector contributes to around 15 per cent. Unorganised players are more prevalent in the relatively less technology intensive material handling, material preparation and concrete equipment segments. The imports market is estimated around **€ 400 - 450 million**. Of these, the earthmoving, excavation and hauling equipment categories command around 25 per cent. Imported used equipments, which include high-end hydraulic mobile cranes, excavators, motor graders, vibratory compactors comprise a negligible 0.4 per cent of the total construction equipment market. The potential exports market for construction equipment from India is projected to be around **€75 million by 2010**. Spare parts revenues range anywhere from 20–29 per cent of the total sales for representative companies and are predominant in tunneling and drilling equipments. Services revenues have been higher for global players at around 11–20 per cent in comparison to 2–8 per cent of Indian players.

Construction & Material Handling Equipment Industry	
Products	56%
Spare Parts	21%
Unorganised Sector	15%
Services	6%
Exports	2%

Segmentation

The key segments that constitute the Construction Equipment industry in India are

1. Earth Moving Equipment
2. Concrete Equipment
3. Material Handling Equipment
4. Road Construction Equipment
5. Construction Vehicles
6. Tunnelling & Drilling

There are several ranges of products in each segment:

Earth Moving Equipment	Concrete Equipment	Material Handling Equipment	Material Preparation	Road Construction Equipment	Construction Vehicles	Tunnelling & Drilling
<ul style="list-style-type: none"> • Backhoe Loaders • Excavators • Loaders • Bulldozers • Skid-Steer Loaders • Wheeled Loading • Shovels • Wheel Loaders • Motor Graders • Motor Scrappers • Dump Trucks • Wheel Dozers • Draglines 	<ul style="list-style-type: none"> • Concrete Breaker • Paver Finisher • Concrete Batching Plants • Concrete Pumps • Concrete Mixers • Hot mix plants 	<ul style="list-style-type: none"> • Telescopic Handlers • Crawler Cranes • Mobile Cranes • Truck Cranes • Forklifts • Pick & Carry Cranes • Slew Cranes • Tower Cranes • Conveyors 	<ul style="list-style-type: none"> • Crushing Plants • Jaw Crushers 	<ul style="list-style-type: none"> • Compaction Equip • Vibratory Rollers • Pavers 	<ul style="list-style-type: none"> • Dumpers • Articulated Haulers 	<ul style="list-style-type: none"> • Rotary/ DTH Drilling • Hammer Track Drill • Boring Equipment • Demolition Equipment

Source: IBEF

However, only a few segments dominate this industry: Earthmoving Equipments constitute the biggest segment in this sector.

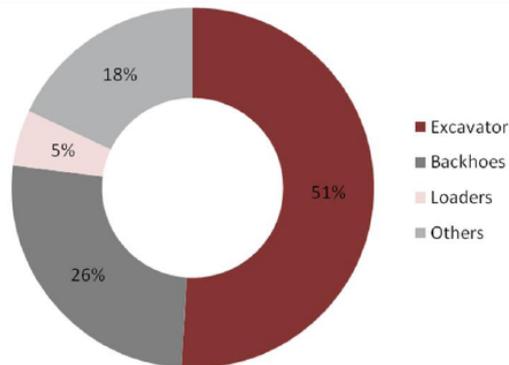
Construction Equipment Industry Structure	
Earth Moving Equipment	57%
Material Handling	13%
Tunnelling & Drilling for Mining	12%
Road Construction Equipment	7%
Concrete Equipment	6%
Concrete Preparations	5%

Source: KPMG Analysis, Primary Research; CII-KPMG Report on Indian Infrastructure

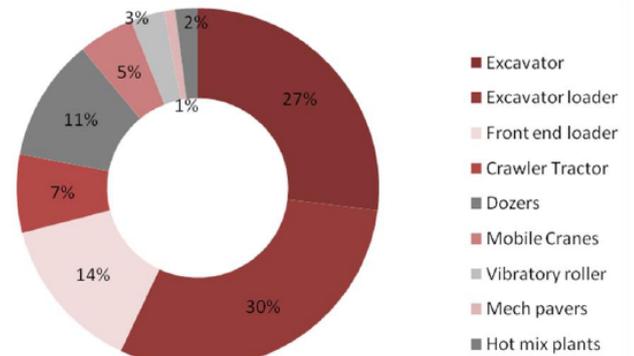
Earthmoving Equipments

Amongst the Earth moving equipment sector Excavators is the largest product line within the segment. The following is the forecast for the Earthmoving Equipment Segment:

Earthmoving equipment segment total market size ~US\$ 1.4 billion (2007)



Forecast industry structure for 2015-16



Excavators

The excavator market in India was around **€750-800 million** in FY'09. In excavators [8 tonnes to 80 tonnes size] the 2009 market was around 7500 units according to industry estimates. The market for 2010 is expected to increase by 20% to around 9000 units. [But, according to Off-Highway Research, there were 7944 excavators sold in India last year, making it the fourth largest market in the world for these machines after China, the US and Japan. However, the economic research company forecasts the Indian excavator market to almost triple over the next five years, with 22500 machines expected to be sold in 2014. This would see it overtake Japan and possibly the US as well]

The 20-tonne excavators have a 50% market share selling around 4000 units annually in this segment. Thus far, while Excavators have registered a CAGR of 36 %, before slowdown recession hit high-end excavators are in more demand than lower-end excavators. The lower-end demand is from irrigation projects. The higher-end demand is from the mining and cement industries. New technology, end-to-end solutions are also important.

Types of Excavators:

- 1- Compact excavator (Mini Excavator)
- 2- Dragline excavator
- 3- Bucket-wheel excavator
- 4- Long-reach excavator
- 5- Long front excavator
- 6- Hydraulic excavator (Hydro excavator)

The market leaders are L & T Komatsu, a joint-venture (JV) between Larsen & Toubro and Komatsu, and Telcon, a Hitachi-Tata Motors JV, which each claim about a 40% market share. Other major players are Volvo, Hyundai Constructions Equipment India, Kobelco Construction Machinery Co.; Doosan Infracore Co., CAT and JCB.

Volvo Construction Equipment is investing INR 900 million to produce medium sized excavators customized for the Indian market keeping in mind the diverse requirements of the burgeoning construction and infrastructure sectors. Japanese earthmoving equipment company Kobelco Construction Machinery invested around € 6.8 million to set up a hydraulic excavator factory in Andhra Pradesh. While they will manufacture 1200 units of 20-tonne excavators annually, they continue to import other capacities like 14-tonne, 35-tonne and 50-tonne excavators. JCB is also building a new € 35 million factory in Pune for the manufacture of excavators to initially manufacture 20 tonne-class JS 200 tracked excavators. JCB sold 600 units in this segment last year. This new facility will have the capacity to produce 5000-6000 units annually.

Backhoe

India is the second largest market for backhoe loaders in the world with a market size of approximately **€ 400 million**. Going ahead growth is likely to be at least 11 % CAGR over the next few years. The market for backhoes is spreading eastwards, largely due to the way in which India is industrializing. JCB India is the leader in this segment with a share of over 70 %. Other players include Telcon, L&T, Caterpillar and Terex.

While technology plays a key role especially for lowering operating costs by making the machine more fuel efficient, it is not perceived to be as important for backhoes as it is for excavators. With more players and increased competition, price competition may increase. The drivers for this market have been the housing and urban construction. Backhoes are used for all construction applications and hence have a very high utilisation for renters. Backhoes are perhaps the only market in India amongst construction equipment that have reached a stage of maturity and scale where exports could be considered.

JCB's € 40 million backhoe loader factory in India in Ballabgarh, Faridabad, – the largest plant of its kind anywhere in the world enables JCB to produce 100 backhoes a day in India. The JCB backhoe remains the first in its field – the number one backhoe loader in India, from India's number one manufacturer of construction equipment - the number one in the world, with every one in three sold anywhere in the world today coming from a JCB factory. Ashok Leyland John Deere Construction Equipment Private Ltd newly formed JV will commence production from October 2010 and serial production by January 2011 near Chennai. The JV will initially manufacture backhoes and wheel loaders and will market backhoes, wheel loaders and excavators in India and abroad. The range will subsequently be expanded to include a full line of construction equipment.

Loaders

Loaders are used mainly for uploading materials into trucks, laying pipes, clearing rubble, and digging. The flexibility of usage is low as compared to a backhoe and loaders are largely used as complimentary products for material re-handling in construction and mining applications. Iron ore mining activities create the major demand for loaders in the country. The total market for wheeled loaders was approximately **€80 million** in 2009 with around 4000 units being sold. The growth is expected to continue at **10 % CAGR** over the next few years. As in the case of backhoes, faster growth of about 20-30 per cent is expected in the near term. Unlike excavators, the growth in loaders is greater in the lower capacity categories (<10T): 1.5-8 Ton range have a sizeable presence and demand in India.

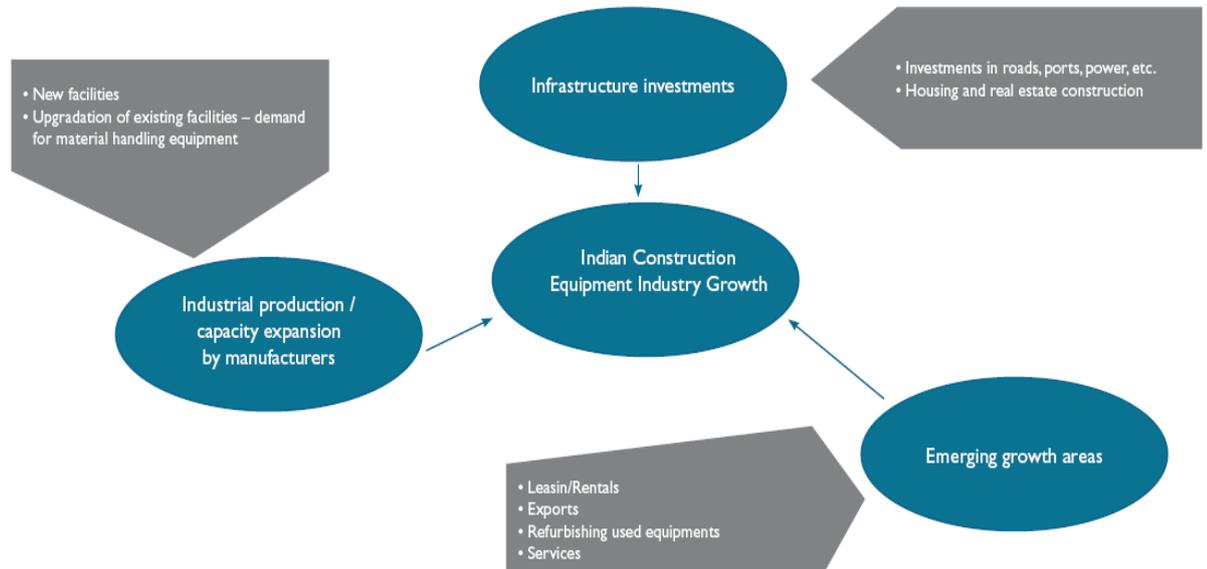
Wheeled loaders in the medium 100 to 150 horsepower class, fitted with a 1.7-2.5 m³ bucket are renowned for their high productivity, reliability and ease of servicing as they are ideally matched with locally-made tipper trucks used to carry loose materials both on and between job sites.

Key players in the Loaders market are Caterpillar (~50 per cent share), JCB and Telcon with L&T Komatsu, Ingersoll Rand and Volvo being players with a relatively smaller presence. In the high capacity loaders market (>15T), Volvo is a significant player. Most of the customers for loaders are first time buyers and this is the reason for huge sales of lower end loaders. Just as it is for excavators, a complete range of products and comprehensive maintenance and service support are becoming the critical success factors for players in the industry. The demand of loaders is from increased global demand for iron ore mining activities in the country.

LiuGong India Private Limited, a subsidiary of Guangxi Liu Gong Machinery Company (China), has inaugurated its new manufacturing facility for heavy earth moving machines & construction equipment at Pithampur, Madhya Pradesh at an investment of € 24 million. New factory will begin by manufacturing wheel loaders and gradually will assemble/manufacture the full range of LiuGong products in India, which include Crawled Excavator, Backhoe Loader, Road Equipment etc. Anupam Industries Limited (ANUPAM), India's largest overhead crane builder, has signed a licensing agreement with Mitsubishi Heavy Industries, Ltd. (MHI) of Japan. MHI will provide Anupam with technology licensing for quayside cranes such as container cranes and transfer cranes, material handling systems such as **loaders and unloaders**, and steel plant logistics systems. Under the agreement, initially the licensed products will be sold in India's domestic market only.

Growth Drivers

The prime driver for construction equipment is mining activities and construction industry. Within these industries, the key demand drivers going forward are likely to be road construction, urban infrastructure, irrigation, real estate, construction and mining.



Others

Contractors are also on the look-out for good quality and efficient working equipment as time is of essence in the present day construction situations. For e.g. For Road Construction, excavators, wheel loaders, motor graders, soil compactors, asphalt pavers, pneumatic rollers, bitumen distributors and road marking is in demand. This is so as the Ministry of Surface Transport, Government of India has set up a target of constructing 20 km of new roads per day. In addition, rural roads have also to be developed. Also, the National Highway Authority of India NHA officials are now very strict regarding the quality of new roads being awarded and have very clearly specified in the contracts the type of equipment that must be used by the civil contractors. The contractors have also realized that to complete the construction of the roads in time, they have to use above mentioned equipment for completion as well as maintaining the quality of the roads as per NHA standards.

Another driver apart from construction of new roads is the maintenance of existing roads and enhancing their construction life. State governments in India are incurring huge amounts on repair of roads after each monsoons and it is done in a haphazard manner using obsolete equipments. Civic bodies like Public Works Departments PWDs and municipal committees are now realizing that need to properly maintain the roads.

Service Gaps

According to Mr. KV Rangaswami, Whole Time Director & President [Construction], Larsen & Tubro [L&T], the industry is not at all sufficient in all categories of machineries essential for the industry, although for that matter, even the very big companies in the industry are yet to acquire many strategic machineries with latest technology. In order to meet international benchmark levels of quality, speed and safety, Indian construction companies need to upgrade themselves in many spheres of execution. This process must happen continuously as the gap is very large from the point of view of international standards and the vast scope of projects in infrastructure building and construction of residential, commercial and industrial complexes needed to be fulfilled in the next 5- 7 years.

At any given time the construction industry faces a short supply of a certain classes of specialized equipment, such as pneumatic tire rollers for road applications, pavers, soil stabilization and foundation equipment like vibratory hammers and diaphragm walling kits and attachments used to lay foundations.